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## A WEEKLY REVIEW OF MEDICINE

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### Original Communications.

#### NOTE ON ACTION OF TESTICULAR EXTRACT.

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From the McManes Pathological Laboratory of the University of Pennsylvania.

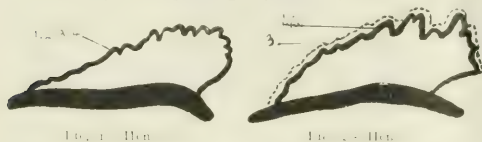
As a part of a series of investigations having as their ultimate purpose the production of tumors, the writers conducted a group of experiments in the summer and fall of 1910, with observation for a period of twelve months thereafter, upon the combs of old hens subjected to frequent injection of a salt solution extract of the testicles of cocks. The underlying hypothesis tentatively assumed that in the development of neoplasms three factors are combined: (a) That the cells from which tumors grow should be afforded a full pabulum for growth (other things being equal, should be in a part well supplied with blood circulation); (b) that such cells should be more or less independent in their structural relations (cut off from their proper relations as congenital "rests" or disturbed in their relation by injury and imperfect repair); and (c) should be subjected to a stimulus to growth (such stimulus perhaps of external origin, or perhaps of internal origin as quantitative faults of internal secretions or faulty metabolites retained in the system). The comb of the hen was chosen because of its exposure to ready observation and manipulation, and because it is a part usually well vascularized and therefore well nourished; and because of its commonly observed variations in different times in the life of the hen it was supposed to be a part easily influenced by stimuli or by depressants to growth. Moreover, several years previously Walker (*Proceedings, Royal Medical Society, Liverpool*, April, 1908, i, No. 6, pp. 153-156) in studying the development of secondary sexual characteristics in fowls had pointed out among other features the enlargement of the combs of hens injected frequently with a salt solution of cock's testicle. By a variety of means it was sought to establish the second hypothetical factor, that of disturbance of cellular structural relations, in the hens subjected to experimentation, these including such measures as producing inflammations of the comb by repeat-

ed puncture, scratching, introduction of various foreign particles, introversion of the superficial tissue, attempts to establish long continued but mild electric intrahistological currents, etc. Coincidentally a salt solution extract of cock's testis was injected subcutaneously at a distance from the comb, usually under one or other wing, at first daily, toward the latter part of the period of injection every third or every fourth day. The extract of testis was made of a ten per cent. strength of fresh sterile testis in normal salt solution. A fresh testis having been obtained and weighed, it was with due precautions cut into fine bits, and in a small amount of normal saline was well ground in a mortar with coarsely powdered sterile glass, sufficient normal salt solution being thereafter added to bring the total amount of the solution used to ten times the weight of the testis. This was then placed in a sterile protected flask in the refrigerator for twenty-four hours, and thereafter passed through a tested sterile Berkefeld filter; and the filtered extract distributed in sterile vials. These vials were placed for forty-eight hours in the incubator and those showing growth of bacteria were rejected. At the same time tubes of ordinary media were inoculated with the filtered extract from each vial, and in case of positive growth the vial in question was rejected.

It is almost needless to state that the attempts to produce tumors of any sort failed. The injections were continued from the early part of July until well into October (a period of three months), and the hens were kept under observation for a full year longer before they were discarded. If the original hypothesis be correct, the writers are disposed to attribute failure to a lack of success in providing sufficiently well the second factor named, that of inducing deviations of cellular relations in the comb (i. e., of producing artificial "rests" of cells capable of responding to the stimulus of the testicular extract); for unquestionably the first of the three factors, that of the existence of suitable blood supply, existed in the site of manipulation; and the third, that of induction of growth of the comb, was clearly successful, as evidenced by the following statements and illustrations. Until some more certain method of producing disturbance of cellular relations is at hand, the writers have postponed further prosecution of this line of study, but feel that in confirmation of Walker's studies it may be of interest to record by publication the effect of the testicular extract upon the growth of the comb in hens.

Twelve hens were obtained June 21, 1910, in the market, all mature, certainly none of less than a

full year of age, and from their appearance all probably three or four years old. Tracings of the outline of the combs were made the same day, or on the day of beginning injection (line 1 in each



of the diagrams); and general descriptions of each hen with particular description of the comb of each recorded. Thereafter until July 6, 1910, the hens were allowed to become accustomed to their house and yard and were well fed. During this period, after the first day or two, from three to five eggs were collected daily until some time after the injections were begun; and the hens thrived. On July 6th, injections of 2.5 c. c. of testicular extract were started, and continued daily until September 30th, after which the injections were made at intervals of several days; and were finally discontinued on October 25th. During the same period

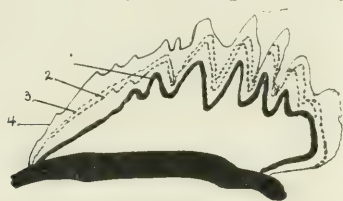


FIG. 3 - Hen 3

the local irritation of the combs was performed at intervals of about one week. The combs were traced in outline on July 19th (line 2 in diagrams), on August 3rd (line 3 in diagrams), and on November 23rd (line 4 in diagrams), the last about a month after the last injection. It should be stated that in October several severe frosts occurred, as well as in November. It was intended to measure the combs at about the same time that injections of extract were discontinued; but just before this time a cold period occurred in which a distinct shrinkage of the combs took place, and measurement was postponed with the hope that with

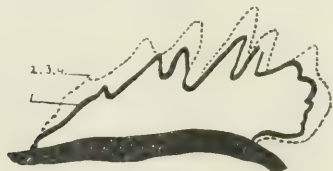


FIG. 4 - Hen 4

a succeeding warm period there would follow restoration. This did not occur, and the final measurement shows in almost all the hens a decrease, which in part is surely due to the cold weather to which the fowls were exposed in their yard and coop built of a well roofed piano box and kept out of doors; in part it is probably due to the sus-

pension of the testicular extract and to intercurrent diseases of the hens, but might well be disregarded so far as the influence of the testicular material is concerned because of the confusion unquestionably depending upon these other factors.

In a general way, with few exceptions, Walker's statements were well supported by our own results. The combs of most of the hens actually increased in size, both in the flat outline, as shown in the diagrams, and also in thickness, not shown in the tracings. The combs brightened; the wattles in correspondence enlarged and brightened; in some of the hens the neck feathers became somewhat

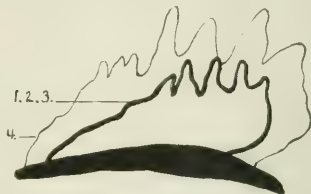


FIG. 5 - Hen 5

more brilliant; and slight growth and brilliancy of color appeared in the small feathers at base of tail; in one a slight but distinct growth in spurs was recognized; the production of eggs diminished, and ceased after August 24th; some of the hens became combative, and several times individuals were seen to attempt to cover other hens after the manner of the cock. It would perhaps have been well to perform control experiments by injecting ovarian extracts in the same way into hens and cocks; but this was not done, since the direct purpose of the work was not concerned with the broader biological fact. However, as far as the observations go, they

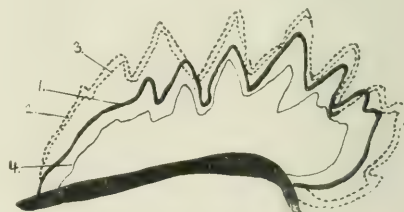


FIG. 6 - Hen 6

are suggestive of the credibility of the idea that upon some internal secretion from the testis, a hormone, the prominent secondary sex characteristics of the male bird are dependent; and are here presented merely for their "face value" and no more.

The variations in the size of the combs are sufficiently indicated by the outline tracings of each, and are submitted without further general comment:

*Hen 1:* Comb on June 21, 1910, pale and dingy red in color; measurement, line 1. Comb on July 19, 1910, unchanged. Comb on August 2, 1910, unchanged. Comb on November 23, 1910, unchanged. (Fig. 1.)

*Hen 2:* Comb on June 21, 1910, bright red; measurement, line 1. Comb on July 19, 1910, unchanged. Hen combative, feathers of neck and base of tail becoming metallic green. Comb on August 2, 1910, measurement, line 3. Hen died in early part of November, with marked

fluid exudate in pericardium. Bird had a local infection under wing in region of injections; and this and exposure believed to have caused death. The hen had in the course of the injections manifested marked male characters in combativeness and attempting to cover other hens. (Fig. 2.)

*Hen 3:* Comb on July 6, 1910, bright red, large, meas-

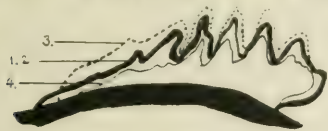


FIG. 2.—Hen 3.

urement, line 1. Comb on July 19, 1910, measurement, line 2; small papillary growths near base of comb; hen struts, combative. Comb on August 2, 1910, measurement, line 3; hen continues to show male tendencies. Comb on November 23, 1910, measurement, line 4. (Fig. 3.)

*Hen 4:* Comb on July 6, 1910, large, bright red; measurement, line 1. Comb on July 19, 1910, measurement, line 2; wing, neck, and tail feathers coarse and glossy. Comb on August 2, 1910, no change. Comb on November 23, 1910, unchanged, line 4. (Fig. 4.)

*Hen 5:* Comb on June 21, 1910, small, pale; measurement, line 1. Comb on July 19, 1910, no change. Hen sick and droops. Comb on August 2, 1910, no change. Has been sick until last day or two. Comb on November 23, 1910, measurement, line 4. Increased. Wartlike growth appeared on comb but disappeared (August 12th to September 2d). Fig. 5.

*Hen 6:* Comb on July 6, 1910, large, dirty red; meas-



FIG. 3.—Hen 3.

urement, line 1. Comb on July 19, 1910, increased, measurement, line 2; tail feathers coarse, showing growth. Comb on August 3, 1910, shrunken, line 3; a fungous disease spreading from base of comb appeared first on July 28th, with loss of color and constant shrinkage. Comb on November 23, 1910, shrunken, line 4. A new spur, one half inch long, had grown, tail large. On September 5th a white false membrane appeared in mouth and throat, treated with mercuric chloride swabs for a week, when the parts appeared and remained normal. (Fig. 6.)

*Hen 7:* Comb on June 21, 1910, small, bright red; measurement, line 1. Comb on July 19, 1910, no change in size



FIG. 4.—Hen 4.

but with many fine papillary outgrowths upon it. Neck and tail plumage brighter. Comb on August 3, 1910, slight increase; line 3. Comb on November 23, 1910, shrunken, line 4. (Fig. 7.)

*Hen 8:* Comb on July 6, 1910, small, good red color; measurement, line 1. Comb on July 19, 1910, increased, line 2; neck and tail feathers coarser and brighter. Comb on August 2, 1910, increased, line 3. Comb on November 23, 1910, shrunken, line 4. (Fig. 8.)

*Hen 9:* Comb on July 6, 1910, large, good red color; measurement, line 1. Comb on July 19, 1910, increased, line 2; neck and tail feathers larger; feathers on legs and feet bright red. Comb on August 2, 1910, increased, line 3.

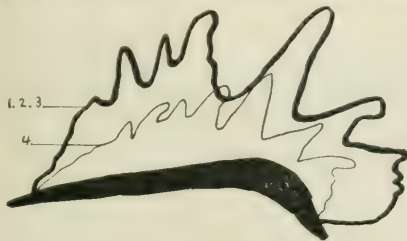


FIG. 5.—Hen 5.

Hen died August 10, 1910, from a coccus infection at site of injection under wing. (Fig. 9.)

*Hen 10:* Comb on June 21, 1910, large, good red color; measurement, line 1. Comb on July 19, 1910, no increase. Hen combative. Infection at site of injection. Right eye



FIG. 6.—Hen 6.

swollen. Comb on August 2, 1910, no increase; infection in breast gone; eye still swollen. Comb on November 23, 1910, shrunken; line 4. (Fig. 10.)

*Hen 11:* Comb on June 21, 1910, small, not well colored; measurement, line 1. Hen sick from time of injection, and died July 15, 1910, from a pleuropneumonitis; no change in size of comb. (Fig. 11.)

*Hen 12:* Comb on July 6, 1910, large, good red color;

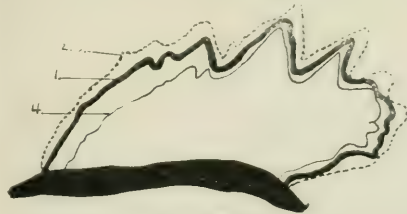


FIG. 7.—Hen 7.

measurement, line 1. Comb on July 19, 1910, increased, line 2. Comb on August 3, 1910, no increase; hen sick and droopy from July 24th until August 4th. From August 20th to August 24th fungous growths appeared on comb; dropped off between September 16th and September 25th. Comb on November 23, 1910, shrunken, line 4. (Fig. 12.)

## PLANS FOR THE REDUCTION OF INFANT MORTALITY.\*

By ERNST J. LEDERLE, PH. D.,

President, Child Welfare League, New York City.

The work of the Department of Health for the reduction of infant mortality will be conducted during the coming summer along lines which have been gradually developed and placed in full operation during the last few years. Before outlining these



plans in detail, it may therefore be helpful to recall briefly the history of the development of this function of the department.

In 1876 the Department of Health, having recorded an unusually high mortality among infants, applied for and obtained a special appropriation for the employment of a staff of physicians during the months of July and August. These physicians were known as the "summer corps," and they were assigned to duty in the congested tenement house regions of the city, where they treated all sick babies whose parents were unable to obtain medical care. This plan was followed each summer for many years, and without doubt has been a contributing factor in the steady decreases in the number of infant deaths during the last thirty years. The effectiveness of the work was limited, however, because its purpose was restricted to the treatment of sick babies, rather than the prevention of illness.

In 1902 seventeen trained nurses were employed by the department, primarily for the work of school medical inspection. These nurses, however, assisted the physicians of the summer corps during the vacation months of July and August, and in house to house visits instructed mothers in the proper methods of preparing food for babies and demonstrated the correct principles of bathing, clothing, and airing. Thus the real preventive work of the department was begun in a small way.

With the establishment of a special Division of Child Hygiene in 1908, the summer work for babies became an important function of the new division. In May of that year the commissioner of health had organized a Conference on the Care of Babies in an effort to coordinate and make more effective the work of public and private agencies. This was the first definite effort to prevent duplication of such work, and the same idea is now carried out by the Babies' Welfare Association, organized in 1912.

The Division of Child Hygiene was formed in the autumn of 1908, and the appointment of a staff of 141 nurses made possible an important extension of the preventive activities of the department. Since that time the department has endeavored to visit mothers as soon as possible after the birth of the baby, and to provide continuous instruction in the effort to keep babies well, rather than rely on curing them after they have become ill.

It was now possible to undertake lectures on the care of babies each week at the various recreation piers, public playgrounds, and other social centres throughout the city. In cooperation with private agencies, the department assigned medical inspectors and nurses to the infants' milk stations conducted by the Brooklyn Children's Aid Society and the New York Diet Kitchen Association in 1909, 1910, 1911. Another idea which has been successfully developed and widely commented upon was the organizing of Little Mothers' Leagues among the girls attending the public schools.

In 1911 another important step was taken, in the establishment of municipal infants' milk stations. Successful as the work has been since 1908, it was still limited to a special campaign each summer, whereas the idea of the department was to treat infant mortality as an all the year round problem. An experimental appropriation for the establishment of

fifteen infants' milk stations under the administration of the department, to be operated throughout the year, was an important step in this direction. The New York Milk Committee and other private agencies operated a much larger number of stations, and the result of the combined efforts was so encouraging in 1911 that the city authorities granted an additional appropriation for 1912 sufficient to increase the number of milk stations to fifty-five. The appropriations are so arranged as to permit of doubling the staff of attendants during the six months from May to November, but the stations are operated throughout the year, and the work of the department, along the lines which have been described, is now ceaseless. Moreover, the efforts of all private associations and individuals interested in saving the lives of babies are now coordinated in a more effective way than ever before, by the Babies' Welfare Association.

#### PLANS FOR THE COMING SUMMER.

The methods which have been referred to will be carried out during the coming summer under all the advantages of accumulated experience and improved organization. At each of the fifty-five milk stations a nurse is on duty all the time and a doctor is on duty two days each week. On May 1st an additional nurse was assigned to each station for the extra work of the summer months. The milk stations are being developed constantly toward the ideal of educational centres, and breast feeding particularly is encouraged as far as possible. The number of mothers who now come to the stations in order to obtain milk for themselves, so that they may nurse their babies, is encouragingly large.

On July 1st, all of the nurses now doing school work will be assigned to duty in the instruction of mothers. Each nurse will have 150 babies to care for, and will work in a district which is not already covered by the activities radiating from an infants' milk station. This custom has been followed for the past two years with great success; the nurse visiting the baby as soon as possible after it is born and keeping it under continued observation during the hot weather. Every morning each group of two or three nurses meets with the department physician and consults with him regarding delicate or sick babies. If a child is not normal, the medical inspector visits it himself and refers the family to the proper dispensary or hospital to have the baby treated, if necessary. In 1912, 38,000 babies were treated and 1,600,000 quarts of milk were dispensed at these stations.

Beginning this week, lectures on the care of babies are being given in all the public schools to all girls over twelve years of age, in order to enlist their interest in the formation of the Little Mothers' Leagues. These educational groups will be kept together during the summer, as usual, by weekly lectures and demonstrations by the nurses and doctors of the department.

The same splendid cooperation of private agencies which has been given hitherto is expected this year. About eighty different agencies are now federated in the Babies' Welfare Association, with its central clearing house for information and publicity at the headquarters of the Department of Health.

## PURE MILK.

In addition to the specific preventive work, the efforts of the department to steadily raise the sanitary quality of New York's milk supply constitute an important factor in lowering the infantile death rate. The strenuous campaign for the extension of pasteurization, which has been made the first object of the Department of Health during the present administration, has had a marked effect, and the proportion of pasteurized milk to the total supply has risen from fifteen per cent. to fifty per cent. in two years. In round numbers this is equivalent to an increase in pasteurized milk from 300,000 to 900,000 quarts out of the daily supply. The latest step in the direction of pasteurization has been the adoption of the requirement that after July 1, 1913, cream shall be pasteurized, unless it is obtained from Grade A or Grade B milk. Increasingly stringent regulations of the sale of "loose" or "dipped" milk is also an important factor in the programme of the department.

## COMPARATIVE STATISTICS OF INFANT MORTALITY

Deaths under one year of age and death rate in 1,000 under one year of age, based upon estimated population at that age.

Year.	All causes:		Diarrheal diseases:	
	Deaths.	Rate	Deaths	Rate
1902	15,526	168	4,090	44.28
1903	14,413	151	3,769	39.50
1904	16,125	164	4,726	48.08
1905	16,522	193	4,945	48.75
1906	17,188	164	4,943	47.08
1907	17,437	160	5,314	48.90
1908	16,231	144	5,118	45.45
1909	15,076	137	4,254	36.45
1910	16,212	134	5,807	47.97
1911	15,053	120	3,853	30.68
1912	14,289	110	3,392	26.39

INFANT MORTALITY IN NEW YORK STATE, 1912, IN 1,000

## BIRTHS.

Deaths under one year of age from all causes.		Rate
in 1,000 births.		
City.	Rate.	Deaths.
Rochester	107.7	1,530
New York city	105.2	14,266
Yonkers	114.2	275
Binghamton	114.9	125
Buffalo	124.9	1,448
Schenectady	132.9	241
Syracuse	134.5	411
Albany	136.6	262
Utica	142.9	300
Troy	157.4	207
New York State, not including New York city	114.5	10,303

\*Death from prematurity not included.

## THE RELATIONS OF ADHESIONS AND INTESTINAL ANGULATIONS RESULTING FROM ENTEROPTOSIS, TO CHRONIC CONSTIPATION.

*Personal Observations.\**

BY ROBERT COLEMAN KEMP, M. D.,  
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The subject for my paper this evening was selected with the belief that it would prove of interest

to the general practitioner as well as to the specialist, and with this object in view, I shall briefly recount a few personal experiences. It may be premised that in what I have to say radiography will play a prominent part. One should take into consideration not only the radiograph, but also the

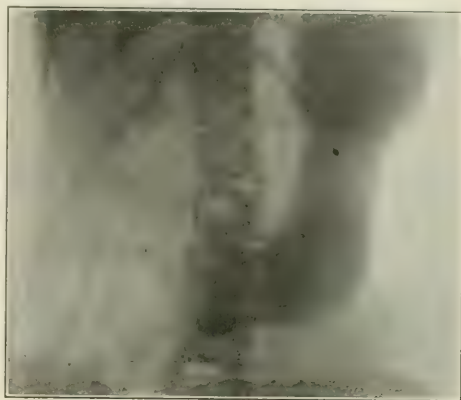


FIG. 1.—Case of Mrs. C., showing water trap stomach.

physical signs and symptoms, in making the diagnosis. For example, in a particularly interesting case, showing the transverse colon lying well down in the pelvis, or, rather, a portion of it extending down into that region, there are no evidences of interference by adhesions to the passage of bismuth. The angulations and displacement alone can be determined by the x ray. The physical signs on examination and the history are, however, conclusive. The patient, subsequently to the removal of a diseased appendix, suffered from a local peritonitis, evidently having its origin at the stump of that organ, and she had been persistently tender



FIG. 2.—Case of Mrs. C., showing enteroptosis, dilated caecum and ascending colon; angulation at —

\*Read before the Medical Association of the Greater City of New York, April 21, 1913.



FIG. 3.—Case of Mrs. N., showing enteroptosis; sigmoid flexure lying in pelvis.

over this region for several years. Unquestionably, there are adhesions binding the descending arm of the transverse colon to the caput coli and the ascending colon; so that the usual medical treatment of the enteroptosis, by application of adhesive strapping or special belt or corset, together with diet to increase the intraabdominal tension by accumulation of fat, etc., will prove of no avail. This serves as an illustration. Advanced cases of chronic stenosis of the intestine can usually be diagnosed without the x rays, but, even so, these should be employed as confirmatory. For the early and positive diagnosis of adhesions producing chronic constipation they are of great value. Prolapse of the abdominal organs can unquestionably be determined by other well known methods, but the actual angulations and distortions can be satisfactorily demonstrated only by the Röntgen rays. One cannot always persuade private patients to submit to such an examination, either on account of the expense or through timidity; or they will insist that the physician should be capable of making a diagnosis without their use. The moral effect on the patient, however, when he can see the actual conditions in the radiograph, is excellent, and he thus becomes more amenable to treatment. The x ray is also of value as an aid to prognosis, and, further, enables the physician to determine whether or not it may be necessary to resort to surgery.

The causes of constipation are too numerous to mention in this paper, and its etiology may, literally, be said to be due to medical and surgical diseases occurring from the brain to the anus. Excluding all other causes, we have as a final classification "constipation due to disturbances of the motor functions of the intestines." This is subdivided into constipation due to retarded intestinal peristalsis—tonic constipation, and constipation due to enterospasm—spastic constipation. Among the predisposing causes of atonic constipation are

the type of nourishment taken (food with little residue or constipating food), neglect of the call of nature, interruption of regularity, abuse of cathartics, large enemata, mental conditions, sedentary life, too prolonged exercises, etc. The prevalence of constipation among women is well known. Meynert found in fifty girls, aged twelve, that fifty per cent. suffered from enteroptosis, and that about eighty per cent. of all women in his gynecological clinic had the same complaint; while it occurred in only five per cent. of males. Nephroptosis as a result of traumatism, or in the form of congenital floating kidney, the writer believes occurs in only from five per cent. to ten per cent. of all cases; while in the remaining ninety per cent. or ninety-five per cent. it is one of the stigmata of enteroptosis. The late Doctor Edebohlis found nephroptosis in twenty per cent. of his cases, disregarding associated ptoses, while some even place it as high as thirty-three per cent. In the community at large, the writer believes, at least from fifteen per cent. to twenty per cent. of all women have enteroptosis, and he has found that fully thirty per cent. or thirty-five per cent. of women coming to him for treatment of the gastrointestinal tract are sufferers from this condition. In these cases the musculature of the stomach and intestines, and also the muscles of the abdominal walls, are relaxed, and these factors have also a bearing in the production of atonic constipation. The stigmata of typical cases of enteroptosis are readily recognized at sight, but many of the milder cases are apt to be overlooked by the general practitioner; or a diagnosis of nephroptosis alone is made, and, in many cases, simply "atonic constipation." The more moderate types of angulation from enteroptosis, the writer believes, have a bearing on the disturbances of motility of the intestines resulting in the symptoms of so called atonic constipation. The x rays readily de-



FIG. 4.—Case of Miss D., showing marked enteroptosis.



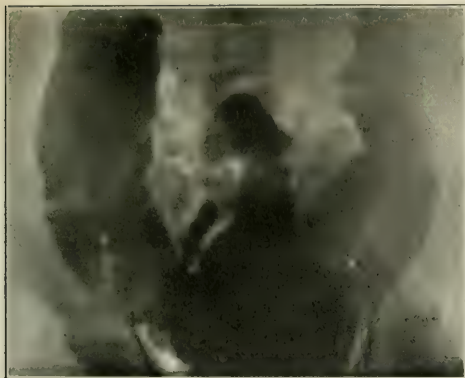


FIG. 5.—Case of Miss D., showing marked enteroptosis; sigmoid rising to umbilicus, bismuth by anacua.

monstrate the condition to the satisfaction of the patient, as well as the physician, and correction of the enteroptosis relieves or cures the constipation. It is a well known fact that perigastric adhesions involving not merely the pylorus but other regions of the stomach interfere with the motility of that organ and disturb its secretion. It is my belief that frequently adhesions affecting the intestines, of slight or moderate degree, not sufficient to cause stenosis of the intestines, are often a cause of disturbance of their motor and secretory functions. In effect, therefore, *careful investigation will demonstrate, in quite a large proportion of cases of so called atonic constipation, that enteroptosis with moderate angulations or that slight adhesions are factors.*

As to spastic constipation, it may be stated that diffuse enterospasm involving the small intestine occurs with spinal meningitis, diseases of the pons and medulla, and chronic lead poisoning; the abdomen being retracted like a trough. Localized, or circumscribed, enterospasm is more frequent, and generally affects a portion of the large intestine. Spastic constipation occurs most frequently in nervous patients, in true neurasthenics, and in the aged and debilitated. It is found as a sequel to chronic dysentery and ulcerative colitis and in cases of hysteria and neurasthenia in women, associated with uterine disease. In view of the fact that, as already noted, Meynert reports that about eighty per cent. of all his gynecological patients suffer from enteroptosis, the statement made above is, to say the least, suggestive. Stenosis, also, results from ulcerative conditions, and intermitting attacks of colic, with increased peristalsis above the stenosed region, may occur, with fecal accumulation above the point of narrowing in the gut. The writer believes that adhesions with narrowing of the intestinal canal, as well as enteroptosis with marked angulations, are frequent factors in the production of so called spastic constipation. He has seen the typical symptoms, with the evacuation of small balls (goat feces), or pencil shaped material, occur in the conditions stated above.

Therefore, a careful study of so called atonic and spastic constipation will demonstrate that

many of these cases are due to adhesions or to angulations from enteroptosis; the atonic type of constipation resulting from the lesser degree of these conditions, interfering with intestinal motility; and the spastic type, due to more marked adhesions, or angulations. *All cases of chronic constipation should be carefully studied with the x rays, and it is this statement which the writer is desirous to impress particularly upon his audience.*

I shall not describe Lane's kinks or Jackson's membrane, which are doubtless familiar to you all, but merely give a brief résumé of our cases. They are of interest, since any physician present may meet similar types in his practice, and they emphasize the necessity of careful investigation of all causes of chronic constipation. I shall not burden you with long histories, the bacteriology of the stool, etc., but simply refer to the salient symptoms. I have observed that long drawn out histories are likely to produce a "soporific effect" on the audience:

CASE I. Mrs. C., aged forty-eight years, referred by Doctor Tousey. Ill for fifteen years; belched gas; very nervous; marked constipation, usually atonic in type; occasional attacks of intestinal catarrh with colic; had had two pelvic operations and asserted that adhesions were found on both occasions. Urine, indicanuria persistent; stool, putrefaction. Hyperchlorhydria—total acidity 90+; free hydrochloric acid 50+, combined hydrochloric acid 40+; total hydrochloric acid 90+. Physical examination showed gastropitosis and enteroptosis, but no angulation could be determined.

Radiograph by Doctor Tousey: Water trap stomach, enteroptosis (Figs. 1 and 2).—Stomach has a long vertical limb; horizontal limb short, at level of umbilicus; a



FIG. 6.—Case of Mrs. E., showing normal position of transverse colon; caput coli narrow and low; hepatic flexure low; adhesions to transverse colon at +, near level of umbilicus, splenic flexure in normal high position.



FIG. 7.—Case of Mrs. McM., showing adhesions to transverse colon at +; hepatic flexure in normal position; caput coli and ascending colon dilated.

water trap stomach. Transverse colon dips below umbilicus. Caput coli and ascending colon are much dilated. Marked angulation at the junction of descending limb of the transverse colon and its transverse limb, accounting for the dilatation.

Indicanuria, nervous symptoms, and constipation persist, in spite of mechanical support, electricity, and usual medical treatment. Operation advised—short circuiting the intestine by joining ileum to descending colon. Up to the present time operation refused. Operative procedure on the stomach might also be indicated.

CASE II. Mrs. N., aged thirty-one years, referred through Dr. Virgil Gibney. Intermittent gastric disturbances for six years; constipated habit; prolapse of rectum had occurred, according to patient's statement, when she was particularly costive; movements, cramplike and painful. Patient quite nervous, and marked erythematous eruption appeared on face during worst attacks. Physical examination showed moderate gastropnoia (semibiotic stomach, lower border at umbilicus; nephropnoia, right kidney, third degree; systolic pressure, 90). Appendix slightly sensitive; rectal examination showed tendency to rectal prolapse and sigmoid flexure prolapsed. Urine: slight indicanuria. Stool: No digestive failure, fermentation, excessive intestinal putrefaction; Gram positive, many. Gastric analysis—total acidity 70+; free hydrochloric acid 44+; combined hydrochloric acid 24+.

Radiograph by Doctor Tousey: Enteropnoia (Fig. 3).—Radiograph confirms diagnosis. The caput coli is narrow and situated low down; transverse colon dips below umbilicus; splenic flexure high; prolapse of sigmoid flexure into the pelvis is marked.

The patient has greatly improved under repeated application of Rose's belt and medical treatment. From November 1st to early part of March has gained eleven pounds; attending to her social duties as usual; nervous symptoms have disappeared. There is no longer tenderness at the appendix, while bowels are much less costive and movements no longer painful. Incidentally, it may be stated that it has always been difficult to increase her weight. In this case medical treatment has proved of value.

CASE III. Miss D., aged forty-nine years. In the summer of 1910 the writer first saw this patient at Williams-town, Mass., in consultation with Dr. Vanderpoel Adri-

ance. The ovaries had been removed in 1889 and the appendix in 1901. Subsequent to the last operation, after a short period, the patient began to have considerable pain in the region of the appendix stump and there was some tenderness in that locality. She also began to be troubled with marked constipation. When the latter increased in severity the pain and tenderness in the right iliac region were more marked. There was, however, more or less tenderness here most of the time. The physical examination showed moderate tenderness at the site of the old appendix operation and enteropnoia. Adhesions were also diagnosed. There were no facilities for x ray examination. Diet, olive oil by mouth and rectum, laxatives, mechanical support to the abdomen, and local iodine applications were prescribed, with some resulting benefit, though the general symptoms continued. The patient would not consider operation. Subsequently, in February, 1913, I examined this patient in New York. There was still tenderness in the right iliac region and unless extreme care was exercised, severe constipation would ensue. The same diagnosis was made—enteropnoia with adhesions at the site of the appendix operation.

Radiograph by Doctor Tousey.—Radiograph (Fig. 4) shows a low ascending colon, while the descending arm of the transverse colon is contiguous to the ascending colon; the transverse colon then dips down into the pelvis; the ascending arm of the transverse colon passes obliquely to the lower part of the descending colon and then lies contiguous to it, up to the splenic flexure. There is a fixed splenic flexure high up (Fig. 5), forming a sharp angle. There is an angulation at the hepatic flexure, a second angulation where the descending arm of the transverse colon passes from near the caput coli downward into the pelvis, and still another where the ascending arm of the transverse colon first comes in contact with the descending colon. (Fig. 5.)

The adhesions in the right iliac region do not show in the radiograph, and evidently did not cause sufficient interference with the passage of bismuth to give evidence of their presence. The history and physical examination, however, rendered the diagnosis positive. Evidently there is a thin web of adhesions uniting the caput coli and ascending colon to the descending arm of the transverse colon. The writer advised operation—a double enterostomy, short circuiting the upper loops, so that the feces would pass directly from the caput coli into the transverse loop and thence into the lower part of the descending colon. Were the adhesions released and the transverse colon suspended a considerable portion of the latter would have to be resected on account of its great redundancy. The patient refused operation and continued her medical treatment. About half a grain of a solution of thiosinamine and sodium salicylate was given three times a day by mouth in addition, with the possibility that

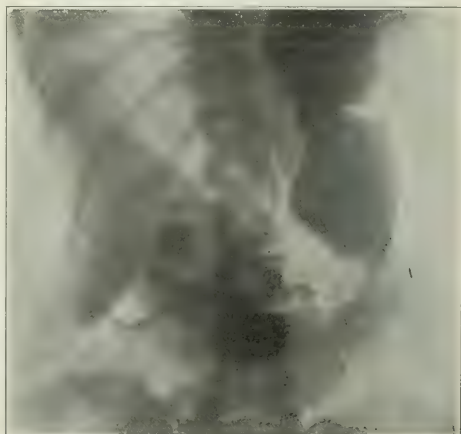


FIG. 8.—Case of Miss A. K., showing vertical stomach with hour-glass contraction; adhesions.

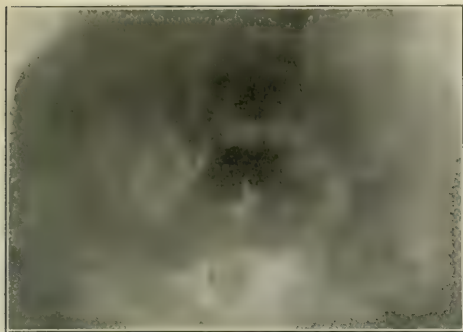


FIG. 9.—Case of Miss A. K., showing enteroptosis; sigmoid flexure lying in pelvis; small bismuth enema.

it might help absorption of the adhesions. Of its value I was skeptical. She was warned to always have the radiograph at hand and in the event of progressive constipation to at once consult a surgeon and show him this.

CASE IV. Mrs. E., aged thirty-six years, referred by Doctor Peck, of New Rochelle. This patient had an attack of acute appendicitis ten years ago. Off and on for three years she had had vomiting spells, occurring most frequently near or at her periods, and usually one to two hours after meals. No real nausea; vomiting acid; no blood visible. Pain occurred at the time of the attacks and food relieved this; there was also epigastric pain after the vomiting. Patient fairly comfortable between attacks, and bowels fairly regular; during the attacks she was costive. Physical examination showed the right Fallopian tube to be tender; appendix also sensitive; uterus retroverted and enlarged, presenting a fibroid condition. Gastric analyses average total acidity 90+ to 100+; free hydrochloric acid 50+; combined hydrochloric acid 40 to 45+; no occult blood; tests for augmented secretion negative. Urine, indicanuria; stool, intestinal putrefaction; no occult blood. Hemoglobin eighty per cent. The patient unfortunately had no attack while in the hospital.

*Radiograph by Doctor Tousey.*—Radiograph showed the caput coli to be narrow and low; hepatic flexure low; transverse colon passing across umbilicus; splenic flexure in normal position. Adhesions to transverse colon shown by interference with the passage of bismuth. (Fig. 6.)

The writer believes that the web of adhesions probably originated from the region of the appendix and that the gastric symptoms were reflex from the chronic appendicitis, adhesions, and uterine condition. Disturbance of the motility of the intestines, with constipation, occurred when the gastric symptoms were pronounced. Operation on the adhesions, appendix, and uterus was advised.

CASE V. Mrs. McM., aged forty-six years, referred by Doctor Gonzales. The patient suffered from obstinate constipation apparently of the atonic type. There was a history of previous attacks of peritonitis. Physical examination showed narrowing at the sigmoidorectal junction, probably due to adhesions. Nothing further could be determined by the ordinary methods of examination.

*Radiograph by Doctor Tousey.*—Radiograph (Fig. 7) showed marked adhesions at the transverse colon (considerable interference with passage of the bismuth at this point); also the caput coli and ascending colon to be considerably dilated. Hepatic flexure normal in position; slight adhesions at sigmoidorectal junction.

Operation by Dr. Parker Symms confirmed the diagnosis. The patient did well for some months, the bowels markedly improving. There was then a recurrence of the constipation. The radiograph taken by Doctor Tousey at this time showed a recurrence of adhesions at the transverse colon. A second operation by Doctor Symms confirmed their presence and they were again separated. Marked adhesions, however, were also discovered between several coils of the small intestines and the abdominal wall on the left side, as well as adhesions to the ascending colon, but my recollection is that there was

one mass of adhesions which it was considered inadvisable to operate upon. Doctor Symms can give you full particulars. The constipation then again improved, after this second operation. Doctor Gonzales now reports the patient in excellent condition.

CASE VI. Miss A. K., aged fifty-one years, referred by Doctor Mucklow, of Brooklyn. In October, 1911, the patient began to have nausea and later vomiting, both during the night and in the day time, of food eaten some hours before. At times she vomited clear, watery material, though it was often yellow and sour to the taste. It is stated that she visited a specialist in diseases of the stomach in Brooklyn, who made the diagnosis of chronic appendicitis with pylorospasm. An operation showed that she had chronic appendicitis and pericolicitis affecting the ascending colon. Many adhesion bands were separated, and the appendix was removed. The patient improved for a brief period, but nausea and distress later recurred, coming on one hour after meals. The family physician took charge of the case and, determining that there was enteroptosis and believing that this was a factor in producing the symptoms, applied Rose's belt and the usual treatment for this condition. The symptoms, however, continued, and in January, 1913, he brought the patient to my office. At this time the nausea and distress after meals were still in evidence, there was pain over the right kidney, and the patient suffered from severe constipation. Physical examination showed a movable right kidney, enteroptosis, and apparently a semioblique stomach (mild gastropnoia). On account of the history the writer believed adhesions had reformed in the appendicular region and gave this as his diagnosis, in addition to enteroptosis. Total acidity 70+; free hydrochloric acid 30+; combined hydrochloric acid 35+. The gastric symptoms were believed to be reflex from adhesions.

*Radiograph by Doctor Tousey.*—Radiograph (Fig. 8) showed a vertical hour glass stomach. The latter condition had been unsuspected, and was evidently due to adhesions. The lower gastric border did not reach the level of the umbilicus. There was an enteroptosis with angulations and adhesions (Fig. 10); the ascending colon was short and the hepatic flexure lower than normal. The descending arm



FIG. 10.—Case of Miss A. K., showing enteroptosis; ascending colon; low hepatic flexure; descending arm of the colon sharply angulated at +; adhesions at A, angulation of the transverse colon where it turns + parallel with descending colon; third angulation at splenic flexure; +, large bismuth enema.



of the transverse colon was vertical and parallel with the ascending colon; it was sharply angulated where it turned to cross the abdomen, and just above this point there were adhesions interfering with the passage of bismuth and evidently binding the descending arm to the ascending colon. On the left side there was a sharp angulation where the transverse colon turned upward. In its course to the splenic flexure, it lay parallel with and contiguous to the descending colon. The transverse arm crossed the abdomen about two and one half fingers' breadth below the umbilicus. The splenic flexure lay high up, and there was a sharp angulation at this point. The descending colon lay side by side with the ascending arm of the transverse colon, as previously noted, while the sigmoid flexure lay in the pelvis. (Fig. 9.)

Operation was advised by the writer. Apparently the operation of selection, would be an enteroenterostomy at each end of the transverse arm—short circuiting the portions of the colon above and avoiding the adhesions which lay just above the appendicular region. Operative procedure was also indicated on the stomach.

*Radiograph by Doctor Tousey.*—(Fig. 11) is of interest



FIG. 11.—Diagnosis by X ray; gastric ulcer (at —) secondary to gallbladder infection (gallbladder has been removed). Excessive secretion (gastroscorches).

as demonstrating the presence of a small gastric ulcer secondary to gallbladder infection. Other methods of diagnosis had proved failures.

There are many interesting features in these cases. Abnormalities in gastric secretion, when there is gastropnoia, the writer believes, from careful investigations carried on at the Manhattan State Hospital, are due to the misplaced stomach. He has reported in his work on gastrointestinal diseases the disappearance of hyperchlorhydria, after repeated applications of Rose's belt alone. In patients with intestinal adhesions, functional disturbances of the stomach he believes to be, in most cases, a reflex from these adhesions; just as such reflexes occur from disease of the appendix or gallbladder. Many instances of so called atonic constipation he attributes to slight or moderate angulations from ente-

roptosis, or to slight adhesions—that is, adhesions not producing stenosis, but merely interference with the motility of the intestines. On the other hand, more marked angulations or adhesions may, in some cases, produce the symptoms of spastic constipation—suggestive of commencing or mild stenosis. Unquestionably, correction of an enteropnoia, uncomplicated by adhesions by medical means, such as belts, corsets, adhesive strapping, and the increase of intraabdominal fat, will do much for the constipation in some cases; while cases of enteropnoia which cannot be relieved by these means belong to the domain of surgery. All cases due to adhesions should be referred to the surgeon.

*Surgery.* Regarding the question of surgery, the writer desires to present some problems for discussion this evening; the first in regard to adhesions. In the two operations for adhesions, both being performed by skillful surgeons, the adhesions formed again, thus necessitating a second operation on both patients. Would it be preferable in such cases to short circuit the intestines by enteroenterostomy, and leave the adhesions undisturbed? In such event, what probability would there be of torsion of the gut, or of some other portion of the intestine than the affected part slipping beneath the adhesions or becoming adherent to them?

Second: In the case of enteropnoia with marked angulations, there is always great redundancy of the transverse colon, and suspension of the intestine would seem in some instances to be impracticable, while revision of the recti muscles would seem equally so. Would a double enteroenterostomy, thus short circuiting the angulations, be preferable? In one of my cases, even if this procedure had been carried out, there would still have remained the sigmoid flexure completely prolapsed and angulated and lying in the pelvis. The additional problem would then remain, whether to resect, to short circuit, or to suspend the sigmoid. Unless some such procedure were carried out, there would probably be still sufficient mechanical obstruction to produce constipation.

It has been my endeavor this evening to demonstrate not only the great value, but also the necessity, of careful examination by means of the Roentgen rays of all patients in cases of chronic constipation, and if I have succeeded in impressing this fact upon my hearers I shall feel that I have fulfilled my task.

103 EAST FIFTY-SEVENTH STREET.

## SOME RADIOGRAPHS OF OBSCURE STOMACH AND INTESTINAL CASES.

*Caution Regarding Dangerous Tendencies in Recent Radiography of the Gastrointestinal Tract.\**

BY SINCLAIR TOUSEY, A. M., M. D.,  
New York.

The primary facts regarding x ray diagnosis of these cases are familiar to all of us. The patient

\*Read before the Medical Association of the Graduate Classes of New York, April 27, 1913.

comes with the stomach and intestine empty. No solid food and no milk are taken for thirty-six hours prior to the examination, and the bowels are moved by a laxative the night before the examination, and in many cases the night before that. A meal consisting of mashed potato, a glass of water, and an ounce or an ounce and a half of bismuth oxychloride forms an accurate mold of the stomach and casts such a dense shadow in the radiograph as to show the size, shape, and position of the stomach. Dislocation, ptosis, or displacement downward, and hourglass contraction are evident at a glance, as seen in some of the radiographs shown to-night. Other lesions, like cancer, are indicated by changes in the outline of the stomach, changes in the time required to empty itself; and in the case of ulcer of the stomach, or ulcerative cancer, by bismuth remaining adherent to a portion of the stomach wall after the contents in general have passed on into the intestine. (Fig. 11, Doctor Kemp's paper.) Obstruction and ulcer in the duodenum and other parts of the small intestine are shown by radiographs made at various times after a bismuth meal. The best demonstration of lesions of the rectum, the sigmoid flexure, the descending, transverse, and ascending colon, and the cecum is by a radiograph made after a bismuth or barium enema. A radiograph of mine which shows the rectum and sigmoid flexure was made after an injection of barium sulphate, purified for radiological use and suspended in a thick decoction of potato flour. This formed a pasty mass which ran very slowly from a fountain syringe and filled only the required part of the intestine. The radiographs are specifically referred to in Doctor Kemp's portion of this paper.

Dangerous tendencies in recent x ray work upon the gastrointestinal tract lie chiefly in the use of the fluoroscope and in the making of multiple radiographs of the same patient. The voice of the tempter tells us that we can watch the progress of a bismuth meal with the fluoroscope, while the patient is exposed to a radiance which would not hurt him if applied all day, and that when different important stages are observed the photographic plate may be substituted for the fluorescent screen and a radiograph be made with a stronger ray applied for a fraction of a second. It is very far from being true, however, that any ray which gives a perceptible fluoroscopic image through the abdomen can be safely applied indefinitely. I do not permit this at all in my x ray laboratory; but if I did, it would be on condition that the dose of the radiance used for fluoroscopy should be measured, and the safe time of exposure determined beforehand and strict account made of every second's exposure. Of course the fluoroscopic screen should be observed in a mirror while the operator is protected from the x ray by a lead shield.

Another dangerous use of the fluoroscope is in a preliminary observation to facilitate the location of the patient, the x ray tube, and the plate, in the effort to secure the picture of the desired portion, say the stomach, upon a plate of rather small size, say eight by ten inches. The varying size and position of the stomach make it difficult to be sure of

a good picture upon a plate of this size, but the author is so certain of the danger of fluoroscopy that he avoids it by using a larger plate. This would not be so practicable for an attempt at cinematography, but, as will be seen later, the author thinks this undesirable. The matter of clear definition over a larger plate is secured by means of a flat diaphragm of say two and three quarters by three and one quarter inch orifice directly in contact with the wall of the x ray tube. The diaphragm is of material opaque to the x ray, but not a conductor of electricity. The objection to multiple radiographs, and especially cinematographs, is the danger of overexposure. It is less than ten years since the radiologist of one of our largest institutions told the author that he never attempted a radiograph of the hip joint because his apparatus required an exposure of forty-five minutes, and patients knew that it was done elsewhere in about seven minutes, and were afraid of being burnt. As a matter of fact, the patient was subjected to the same amount of x ray by the exposure of seven minutes with the stronger apparatus as by the forty-five minutes' exposure with the weaker apparatus. And to-day, with vastly more powerful apparatus, the patient is exposed to the same amount of x ray in a second or two.

Just as there was a very distinct limitation to the number of pictures that could be safely made through the abdomen with the long, weak exposures, there is also about the same limit with the short, strong exposures of to-day; and because it is easy to give the exposures in rapid succession, there is danger that the safe dose may be exceeded. The individual exposure may be reduced to a small fraction of a second by the use of an intensifying screen. These screens differ so much in efficiency that the exposure may be one half or perhaps only one tenth that required without the screen. This means that from two to ten times as many pictures may be safely made as without an intensifying screen. But when it comes to twenty, thirty, or forty radiographs, as in radiocinematography, one is dealing with a dose which should be exactly measured, and its effect upon the individual patient most carefully considered before applying it. The author has made measurements of the x radiance from all the modern transformers and from the unfluctuating converter which is partly his own invention. At a distance of ten inches from the anticathode to the skin, and with the current usually employed in rapid radiography, most of these reach the danger limit as to burns in ten or twenty seconds; so that a great many exposures, even though each lasts only a fraction of a second, present a danger from dermatitis and may have an undesirable effect upon the general system.

The modern apparatus makes it possible to make individual pictures of moving organs like the stomach, and this may be repeated at different stages of digestion, but I think it dangerous to make a very large number of exposures to show the actual motions of the organs.

## TORPOR RECTI; DYSCHEDIA.

*A Contribution to the Pathogenesis of Habitual Constipation.*

BY GUSTAV SINGER, M. D.,

Vienna, Austria,

Professor, University of Vienna, Prætorius, First Medical Division,  
Rudolf Hospital.

The treatment of constipation has always been a favorite field of research with qualified and unqualified practitioners. In the insistence on evacuation by way of the bowels is shown the great importance attached by the physicians of old to the regular evacuation of these by invalids, as well as by healthy persons. While the therapeutics of habitual chronic constipation has long been a subject of research in the laboratories of experimental pharmacologists, it is astonishing that it is only in the last few years that scientific medicine has endeavored to remove the prevailing vagueness in the knowledge of the subject by experience obtained from exact examinations. In this article, intended only for the practitioner, I wish to avoid discussions of controversial views and only to speak on one particular point, which must be regarded as an assured result, both for our comprehension of this form of ailment and for its therapeutics. One who is accustomed to examine the rectums of many patients, whether they complain of constipation or not, will find, partly by digital palpation and partly by endoscopic methods, marked differences in the conditions present.

In many persons, even those who are suffering from obstinate constipation, we find the rectum, including the ampullar portion, empty or occupied only by insignificant fragments of feces. The extreme on the other hand is characterized by the presence of large masses of compact or loose feces, distending the ampulla and often reaching to the external sphincter. This condition of affairs is found remarkably often in women, with or without genital affections, and the question has been asked what connection can exist between the presence of feces in the rectum and the physiological or abnormal evacuation of the bowels. Samuel G. Gant tells us in his *Fecal Impaction* that in about sixty per cent. of the cases of constipation impaction of feces is to be found in the rectum, and Ebstein, holding the same opinion, has described a peculiar method of palpation by means of which we can feel this accumulation of feces between the gluteal fold and the point of the coccyx without penetrating into the anus.

Henle, Hyrtl, and O'Beirne have discussed the question of the normal state of the rectum, empty or filled, but without going into any recital of this discussion, I will express my conviction that the famous anatomist Hyrtl was undoubtedly correct in his conclusions. I myself have never found, under normal conditions, any noteworthy impaction of feces in the rectum, and therefore believe I am justified in saying that the normal state of the rectum is emptiness. The examination of the physiology of the act of defecation made in experiments on animals by Langley, Anderson, and others, in conformity with the conditions specified by O'Beirne, has proved that in physiological de-

fecation the bowel contents are broken off at the flexura lienalis and evacuated below it.

In a prompt act of evacuation by a person possessing perfectly healthy bowels, the feces are really evacuated in one pillar, a fact which was confirmed by my x ray examinations of the laxative effects of bile acid. Even in healthy subjects, however, there are many deviations from this physiological standard, though I have convinced myself by various observations, both rectoscopic and radiological, that this manner of evacuation is the physiologically correct one. The anatomical configuration of the parts at the junction of the lower end of the flexure with the rectum, showing the presence of an exceptionally strong muscle at the boundaries of the sphincter rectoromanus (Schreiber) and sphincter tertius (Hyrtl), is such as to present a barrier between the reservoir for feces afforded by the lower flexure and the position of the rectum in evacuation. When the great colon begins to act (Holzknecht) it pushes forward the contents of the bowels toward the lower flexure, and it is the opening of the sphincter rectoromanus which, under the pressure of the oncoming pillar of feces, causes reflex evacuation. This process, the result of combined muscular action, begins at the moment when a sufficiently large amount of stool advances into the ampulla. At this point the opening of the sphincter begins, and I consider this as a specific action of the ampullar portion of the rectum. It is from the complicated action of the abdominal muscles, the diaphragm muscles, the pelvic floor (levator ani), and last, but not least, the muscular apparatus of the rectum, coordinating synergy of various impulses—that the regular act of evacuation results.

In many individuals the introduction of an instrument or even of a finger into the rectum is sufficient to call forth this reflex influence, resulting in the desire for defecation. This is made use of not only by mothers and nurses, but also methodically in the treatment of certain forms of constipation (as in my treatment with bougies).

When we consider the mechanism referred to it must strike us that so many people are going about with their rectums full to overflowing, yet without feeling the necessity of defecation. This characterizes a special form of constipation which has been long observed and is regarded by me as anomalous: produced by different causes connected with defective innervation and undersensibility of the mucous membranes of the rectum. I have called this frequent form of constipation torpor recti and drew attention to it as late as 1909. Years before that I had used methods of treatment for the relief of this condition. This torpidity of the mucous membrane of the rectum is most frequently acquired by voluntary resistance to the normal act of defecation, from false shame, etc. These organs concerned consequently become insensitive to any lesser stimulus, and so that eventually feces may accumulate to such an extent in the ampulla that they have to be removed manually.

Nervous stoppages, however, are not the only cause which renders the act of evacuation difficult, or even impossible, for I believe that the quality of the stool entering the ampulla contributes to a



certain degree to the prompt course of the act (eccoprose). On referring to Adolphe Schmidt's researches we find that the want of water and the too complete absorption of the contents of the bowels are responsible for defective stimulus of peristalsis. To this class belong those varieties of constipation due to the different qualities of the food; a meat diet, with its small residue on the one hand, and a diet of food rich in cellulose on the other. One must not ignore the fact that cause and effect can be confounded. Even bowel contents in themselves well adapted for evacuation may by various causes be retained for a longer period than normal in the lower intestine, and there become thickened by absorption of water, so that in this way evacuation is rendered still more difficult.

We know from numerous instances that anomalies are met with in the intestines. Some patients, although treated with the most varied diets and those proving very effective in other cases, continue to have a marblelike stool. Hertz designates this condition very expressively as "greedy colon." Such an anomalous resorption may, I believe, be inherited through several generations, and this must be taken into consideration when we sometimes find young infants afflicted with the most obstinate type of rectal constipation.

In connection with the acquired forms of constipation, it must be mentioned that such ampullar constipation may arise also from weakness of the muscles of the pelvic floor, so that the evacuation of feces is rendered difficult or even impossible. This state is often found in women with severe ptosis and vaginal prolapse, with perineal laceration. Like myself, Hertz has differentiated this particular form of rectal constipation from the complex of habitual constipation and has given to it a special name, which has been generally adopted, dyschezia. Hertz defined with this term the state in which it is impossible to empty the rectum completely. Some part of the stool always remains, and thus the feces accumulate gradually until large masses fill the ampulla. This has been compared to the somewhat similar condition met with in the bladder, and the larger or smaller quantity of feces found in the rectum after defecation has been called by Federn residual feces.

The stimulus excited by such a filled ampulla on the muscular apparatus entrusted with the act of defecation is such that it acts frequently and incompletely, instead of once and thoroughly, a type answering to the fragmentary stool evacuation of Boas. But I must here remark that these and many other symptoms are to be regarded as secondary, and as stimulus called forth only by the stagnant contents of the bowels.

Dyschezia is divided by Hertz into two classes: 1. Insufficient evacuation; 2, the obstacles to a sufficient evacuation. I think that this second class does not strictly belong to the group of ampullar constipation called by me *torpor recti*. In the first group of causes are: Habitual disregard of the call to defecation, weakness of the voluntary muscles of evacuation, weakness of the reflex defecation; in short, complications completely agreeing to the anomalies caused by the recurring *torpor recti* above mentioned. Characteristic is the fact

that the x rays show the shadow band reaching to the anal exit and a marked distention of the ampulla. I repeat that I do not go as far as Hertz, who includes in dyschezia forms of constipation properly belonging to other conditions.

The name of *torpor recti* ought really to be reserved for rectal irregularities only, which, as mentioned, result from a defective course of evacuation caused by want of stimulus. The diagnosis of this special form of rectal or proctogal constipation, as it is called by Strauss, is fairly simple. A description or observation of the stool and digital or endoscopic examination usually suffice. Important is the fact that diet or purgatives are as a rule of no value.

For many years I have used very small enemas, but not with glycerin, on account of the intense irritation caused by it. Water, chamomile tea, warm olive oil, oleum hyoscyami and liquid paraffin, applied morning and evening, are to be highly recommended. The paraffin, spreading over the surface of the bowel membranes, softens the dry feces attached to it and prevents excessive dryness of the contents. For children a cacao butter suppository is often sufficient.

In addition to dilating tubes and bougies used by me in some forms of spasmodic constipation, I would chiefly recommend a form of treatment which was, I think, first recommended by Ewald and introduced into therapeutics under the name *lavement électrique*. A tubular electrode, furnished at its centre with a metal mandrel, is introduced into the rectum. Two hundred grammes of water are poured into it, and this probe can be charged from either electrical pole, according to the effect desired. A broad, flat electrode is applied alternately to the flexure of the colon and to the cecum. The application lasts ten minutes. After my experience with this method I can say that I have obtained good and lasting results in the most obstinate cases.

## A NEW BIOROENTGENOGRAPHIC APPARATUS.\*

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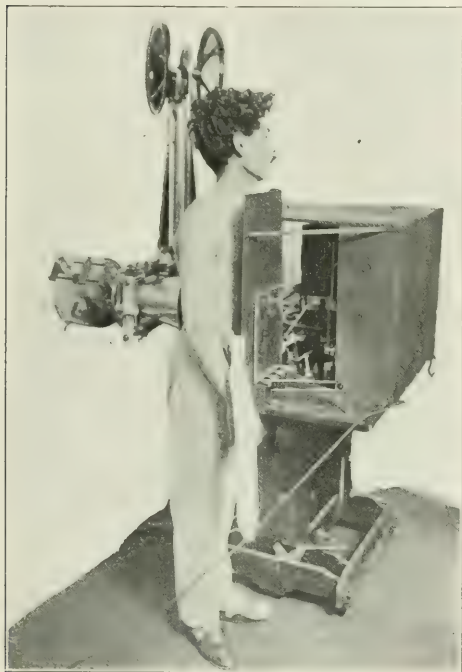
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The attempts made to obtain kinematoradiographs have been by two general methods. In one, the indirect method, it is sought to photograph the image on the fluorescent screen; by the other, the direct or serial method, a series of radiographs are made, which are then transferred to small films for projection. The difficulties in the first method are great, on account of the inability to obtain lenses of sufficient rapidity to photograph the faint image on the fluorescent screen. The difficulties in the second method are, to obtain a mechanism which will rapidly bring a full size plate opposite the part radiographed, properly expose it, and then remove it safely from the action of the rays, while another plate goes into the proper position for exposure;

\* Presented at the meeting of the Bellevue Alumni Association, held March 26, 1913.

the main problem being a mechanical one. There is still a third method, by which it may be possible in the future to achieve the results we are striving for. It is that direct method—which will become possible when some genius shall have succeeded in the focusing of the x rays. This is not as remote as is imagined. That problem, and many others in röntgenology, will then have been completely and finally solved.

As early as 1900 attempts were made to obtain kinematoradiographic pictures of the fluorescent image, and, by means of the ordinary cinematograph, to thus make visible the movements of such organs as the diaphragm, heart, stomach, and intes-



Fluorogram, patient in position; plateholder (27 in. plate) exposure

tine. At this time Cavallo, of Paris, was able to obtain radiographic films which, in the cinematograph projection apparatus, showed the movements of the stomach and the intestines in the frog and other animals. In 1901 Eyckman made the first cinematographic radiographs of the act of deglutition. About ten years later Lomond and Comandan, by means of a special quartz objective and a camera, were able to obtain a series of images from the screen picture on a sensitive film which could be used in the cinematograph. They obtained sixteen photographs a second. They studied not only intestinal, but joint, movements of small animals. Various apparatus for the direct method have been devised by Levy-Dorne and Macintyre, Kohler, Haenisch, and of late by Grodel and Rosenthal.

The most feasible method at the present time is the direct serial method. It has a decided advantage over the indirect method, in that more detail is obtained on the plate than can be gotten from the photographing of the fluoroscopic image. The Grodel apparatus was described in 1909, but has not come into use. The Rosenthal apparatus, manufactured in Munich, is the only one of any practical value, and it is being used in several laboratories in Germany. This apparatus makes thirteen plates, size 18 x 24 cm. It was stated that the apparatus was capable of making four exposures a second, but this has never been demonstrated. Twelve or thirteen plates are exposed during the course of a single peristaltic wave, the duration of which varies from twenty to twenty-five seconds.

What is desired in an apparatus of this kind is not only a larger number of plates, but such a rapidity of change as will permit the making of at least three radiographs a second. The apparatus which I have devised will carry from sixteen to thirty-two plates, size 8 x 10 or 10 x 12, and is capable of exposing the active member in from thirty-two to eight seconds. The apparatus consists of a mechanism which carries the plates in an upright position, underneath a lead covered hood. At the side of this hood is a slit, through which the plates fall in front of a lead screen provided with an aluminum window for exposure. Against the other side of this lead screen, opposite the aluminum window, rests the patient, and behind the patient stand the tubestand and tube. The plates, carried in aluminum holders, are moved into position by a motor, pushed out by a mechanical device, remain stationary for a fraction of a second, and are then returned into place behind the hood, while another plate is ejected. A primary switch circuit breaker, with a mechanism for varying the time of exposure from 1/120 to 1/2 second, works in unison with the falling of the plate, and at the end of the thirty-second exposure the circuit is automatically permanently opened. Intensifying screens are not essential: with the aid of a 6 kilo-watt transformer we have been able to make satisfactory stomach exposures without a screen and do instantaneous chest work with ease. The apparatus may be used for the purpose of making stereoscopic radiographs, from one to sixteen sets being possible. These are automatically exposed, by means of a double target tube, the primary circuit breaker being so arranged as to cause a reversal of current at every other exposure.

50 EAST NINETY-THIRD STREET.

## NONTUBERCULOUS APICAL LESIONS.

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Because practically all tuberculous lesions of the lung in adults first manifest themselves in the apices, any deviations from the normal resonance and breath sounds in these regions are apt to suggest phthisis. Most of the patients admitted to sanatoriums and soon discharged as nontuberculous show some defective resonance, altered breath

sounds, and at times râles at the apex; many persons are rejected by examiners for life insurance companies for the same reasons, though the subsequent history of these alleged "tuberculous" persons shows clearly that they would have made good risks had they been accepted. The tuberculosis clinics and the day and night camps in this city have some patients under treatment who, though showing some signs of apical changes, yet cannot be considered tuberculous if a careful analysis of the history, symptoms, signs, and course of their trouble is made. It seems that at present, when we are carefully looking for localized and circumscribed lesions at the apex in every one presenting himself for examination or who coughs or is losing flesh from any cause, individuals who are unfortunate in showing differences in resonance and breath sounds when the two pulmonary apices are compared—and there are many such persons to be found among nontuberculous people taken at random—are in danger of being pronounced tuberculous, irrespective of the cause of their apical lesion. I have of late paid special attention to nontuberculous apical lesions, having met with many cases which have given me considerable concern before I could make up my mind as to whether I was dealing with real incipient phthisis or with some innocent process not due to acid fast bacilli and not at all serious. In this paper I shall attempt to discuss these cases and hope to show that there are apical affections which are not tuberculous.

I find that the bulk of apical lesions met with in daily practice are undoubtedly tuberculous in character, yet there are many cases which, though simulating tuberculous disease in a striking manner, have apical lesions which are by no means caused by the tubercle bacillus, and which *per se* are not at all detrimental to the health and wellbeing of the affected person. The nontuberculous lesions of the apex seen by me can be classified into three groups:

1. Collapse induration, usually found in mouth breathers.

2. Apical catarrhs, often manifesting themselves after an attack of influenza or found in persons suffering from pulmonary emphysema or who are of defective muscular development, especially in women and workers in indoor and dusty occupations.

3. Apical indurations found in persons with heart lesions.

Of these three groups, the first is the most important and the most frequently met with. Krönig, who first described these cases in detail, showed that the lesion was due to collapse of the apical parenchyma, with subsequent induration.<sup>1</sup> We deal here with a purely local, noninfectious lesion which is not due to the tubercle bacillus. Physical exploration of the lung shows dullness and retraction of one apex, usually the right, rough inspiratory murmur, harsh and prolonged expiration, and even true bronchial breathing, with some dry crackling.

The history shows that since childhood the patient has suffered from nasal obstruction or has been a mouth breather. Many give a history of frequent attacks of colds, catarrhs of the nose, throat and bronchi. But in spite of all this the physical development of the patient has been fairly normal, excepting perhaps some retraction and lagging at the upper part of the right chest. These people may live in comparative happiness till they submit to an examination by some one adept in physical diagnosis. They are then apt to be pronounced tuberculous, and even banished to a sanatorium for a cure. This form of apical lesion is most frequently met with among adults between fifteen and forty years of age, though it is not unknown among children under fifteen. They usually give a history of having been sickly children, subject to colds, coughing quite often and expectorating more or less profusely, especially during the morning hours. Many say that they have noted blood streaked sputum, and with some this was the cause for submitting to an examination. Several of my patients have also complained of pains in the chest, palpitation, slight dyspnea, disturbed sleep, and night sweats. One important point is that nearly all of these patients have kept at work, never having been sick to such an extent as to be disabled, as is usually the case with true phthisis. It is only after being frightened by some blood streaked sputum, or by a rejection after a medical examination for life insurance, etc., that these patients become disheartened and may stop working. My experience in New York city leads me to believe that collapse induration is not rare here. Examining over one hundred healthy adults weekly for the last eight years, I have found that there can be elicited differences in the resonance and breath sounds, when the two apices are compared, in about three per cent. of people engaged in indoor occupations. Blumel states that of 1,700 patients who passed through the sanatorium under his care, eighty-five, or five per cent., were not tuberculous. Of these, twenty-eight were cases of collapse induration; the rest were cases of emphysema, bronchiectasis, etc. Thus, one third of the nontuberculous patients admitted to that sanatorium had lesions of the type of collapse induration.<sup>2</sup> I am under the impression that conditions are not different in American institutions, as I have seen many patients of this type that have spent some time in sanatoriums.

The causes of collapse induration have been a fruitful source of speculation for many writers. Krönig shows that it is usually due to the inhalations of dust. Why the apices (especially the right apex) are first affected, is explained by the fact that these parts of the lung, by reason of their anatomical relations, are at a disadvantage which predisposes them to pathological changes to a greater extent than the rest of the lungs. Their location outside the bony thorax, and the peculiar manner in which the bronchi entering the apex branch off from the main bronchus, favor a greater force and pressure of the inspired air in these areas; while the expiratory pressure of the air, lacking the assistance of the ribs and intercostal

<sup>1</sup>G. Krönig: Ueber einfache nichttuberkulöse Kollapsinduration der rechten Lungenspitze bei chronisch behinderter Nasenatmung, *Deutsche Klinik*, xi, p. 634.

<sup>2</sup>K. Blumel: Ueber Kollapsinduration der rechten Lungenspitze bei chronisch behinderter Nasenatmung, *Münchener medizinische Wochenschrift*, iv, 1910, p. 1573.



muscles, is much less in the apices than in the lower lobes of the lungs. The sucking power during inspiration is thus greater to a certain extent in the apices, and because of the larger calibre of the right apical bronchus and its larger number of branches, greater in the right than in the left. The result is that the dust elements of the inspired air are easily deposited in the apices, especially the right. This has been proved experimentally, and also at autopsies in cases of pneumoconiosis—the apices are usually first affected. Nasal obstruction involves mouth breathing, with the following consequences: The inspired air, loaded with vegetable, animal and mineral dust of all kinds, reaches the bronchi directly. Moreover, the inspired air, which normally meets with many obstructions while passing through the upper respiratory passages before reaching the bronchi and is thus warmed and filtered, enters the bronchi and lungs with much greater force in mouth breathers, carrying along dusty elements. The right lung, receiving more air than the left, also gets a larger deposit of dust. In these cases there usually occur, from early childhood, repeated attacks of catarrhal inflammation of the apical mucous membrane which interfere with the entrance of air into the affected areas through the extension of the catarrh from the larger bronchi to the smaller, and finally to the alveoli. This is followed by hyperplasia of the interstitial tissue of the lungs, which is slowly converted into scar tissue, contracting through shrinkage and collapse of the apex of the lung, just as in pneumoconiosis. Collapse induration is consequently a special form of chronic fibrous interstitial bronchitis of the kind seen in fibroid phthisis, chronic pneumonia, etc.

While in many cases this is undoubtedly true, I am inclined to agree with Wolff-Eisner, who maintains that in many patients the pathological changes are not of an inflammatory character.<sup>3</sup> Indeed, in many cases of nontuberculous apical lesions there is not only dullness, but also distinct signs of catarrh and refraction of the apical isthmus, with pronounced bronchovesicular breathing. Moreover, through respiratory exercises in the open air, as well as by clearing the nasal passages, I have often seen the apex expand again, which could not occur in cases of real inflammatory induration. We may therefore conclude that these apical lesions are often due to *collapse atelectasis* and not to *collapse induration*. I am of the opinion that the first stage of this process is catarrhal, due to the irritation of inhaled dust, and in these cases we have atelectasis of the apical alveoli; but when the irritation is continued for years inflammatory changes make their appearance and induration may ensue. This view is confirmed by the fact that young persons under twenty years of age are often cured by the clearing of the nasal passages combined with respiratory exercises, as has been mentioned, while in older persons the pulmonary retraction at the right apex is usually permanent.

More recently Hofbauer has shown experimentally with Marey's pneumograph that collapse in-

duration is due altogether to insufficient respiratory activity of the upper parts of the thorax. Habitual mouth breathers do not at all expand the upper parts of the thorax, and this leads ultimately to collapse of the lung apex, absorption of the air in that area, etc.<sup>4</sup>

The differential diagnosis between tuberculous and nontuberculous apical lesions of the character just described only rarely presents great difficulties if the following points are borne in mind: In tuberculosis we have usually a history of exposure to infection, mostly in the family, while in the nontuberculous cases this is usually lacking. In most of the cases of collapse induration the patients have suffered from nasal obstruction since childhood, and generally have enlarged turbinated bones, nasal polypi, adenoids, or enlarged tonsils. They complain that they have not been able to breathe through the nose for years, have expectorated considerably, suffered from dryness and itching of the throat, and had a strong tendency to colds, tonsillitis, and frequent bronchial catarrh. The classical facies of the mouth breather is often seen in these patients—open mouth, enlarged and drooping lip, absence of the nasolabial fold, etc. In tuberculosis all this is usually absent. In addition to the absence of tubercle bacilli and the negative albumin reaction in the nontuberculous cases of apical lesion, the sputum also shows distinct evidences that it is derived from the upper respiratory tract. It is watery, mixed with saliva, and colorless; sometimes containing grey or bluish globules, not unlike the kind seen in pneumoconiosis. Microscopically there are often found epithelial cells from the mouth, nose and throat, but no tubercle bacilli. The cough in tuberculous patients is apt to provoke vomiting, which is never the case with collapse induration. In patients who complained of hemoptysis, I have observed that only blood streaked sputum was expectorated, and not pure blood. What helped me most in distinguishing these cases from those of true pulmonary hemorrhages was that in all these cases the blood made its appearance in the sputum only during an acute attack of rhinitis, pharyngitis, or tonsillitis, while in true phthisis the nose and throat are usually normal during hemoptysis.

The physical signs of collapse induration can not always be distinguished from those of incipient tuberculosis. We may have, as has been stated, some lagging and depression in the supraclavicular space of the right side; dullness with narrowing of the field of resonance, rough inspiratory and prolonged or harsh expiratory murmur, bronchovesicular breathing, and sometimes even true bronchial breathing. In many cases I have heard whispered bronchophony anteriorly, beneath the inner third of the clavicle, and posteriorly in the supraspinous fossa, especially near the spine. Râles are not frequent. Occasionally we hear some dry crackings, or sibilation, localized and circumscribed at the seat of the lesion, and persistent, just as in some cases of incipient tuberculosis. Moist, subcrepitant râles are very rare, and whenever I have heard them in these cases I almost always could convince myself

<sup>3</sup>A. Wolff-Eisner: Ueber nicht-tuberkulösen Spitzenkatarrh, *Medizinische Klinik*, v, p. 423.

<sup>4</sup>L. Hofbauer: Natur und Entstehung der Kromischen Lungen-Spitzenatektase, *Zeitschrift für experimentelle Pathologie und Therapie*, xii, 1912, p. 59.

that they were transmitted from the nose and throat. In the patient breathing with an open mouth, cough, with clearing of the throat and nose, often brings about the disappearance of the râles, thus indicating that they do not have their origin in the secretion of the small bronchi, or in atelectasis of the apical alveoli, but in the nose and throat. In tuberculous lesions cough increases the râles, and often provokes râles when they are absent during ordinary or forced breathing. Krönig insists that the best and most reliable sign which distinguishes collapse induration from incipient tuberculosis is that in the former the motion of the base is normal, while in the latter it is restricted. But I have seen many cases of tuberculosis, even in the moderately advanced stage, in which the motion of the base was quite normal. Several important points are of great assistance in our attempts to differentiate these cases from tuberculosis. To begin with, the general appearance of the patient is rather good, in spite of the fact that he gives a history of cough, pain in the chest, etc., for months or years; he is well nourished and does not lose weight, as is usually the case with progressive phthisis. He is able to keep at his work, and the sense of fatigue and languor characteristic of tuberculosis is usually lacking. Moreover there is no fever, which, when carefully looked for, is discovered in practically every case of incipient tuberculosis. Nor is there any tachycardia and instability of the pulse which are only rarely absent in tuberculosis. The patient is not sick and in the vast majority of cases can be speedily relieved of his cough, expectoration, etc., by a slight operation—clearing the nasal passages, tonsillectomy, removal of adenoids, or polypi.

The question whether there are circumscribed apical catarrhs of a nontuberculous nature has been discussed quite extensively. Some writers would like to banish this term from medical nomenclature. On the other hand, there are many who can speak with authority and who recognize that there are often met with local catarrhs of the apex which are not caused by the tubercle bacillus and are altogether innocuous. My experience among workers indoors and dusty occupations, like tailors, furriers, carpenters, iron workers, etc., has taught me that there are nontuberculous apical catarrhs, especially in persons who suffer from mild forms of pulmonary emphysema, and they are often mistaken for subjects of tuberculosis and treated as such. In recent years several writers have described these apical catarrhs in detail. F. Müller speaks of a chronic pneumonic local process in the apex which can be mistaken for tuberculosis because of constant crepitation, but which at autopsy shows that it is not due to tubercle bacilli, but to streptococci.<sup>5</sup> F. Kohler mentions similar cases.<sup>6</sup> Among many who speak of catarrhal signs of the apex after influenza and whooping cough Krönig may be mentioned.<sup>7</sup> He shows that these catarrhal signs disappear within a few weeks. He also mentions small bronchiectatic cavities at the apex which may cause crepi-

tation for years, especially during coughing spells. Laser, in a recent paper, points out that among women and also in some debilitated men there is often heard harsh breath sounds, especially a loud and prolonged expiratory murmur over the right supraspinous fossa, and occasionally a short note on percussion. He insists that these signs must not be taken for evidences of a tuberculous lesion of that apex, because they are mostly due to other causes.<sup>8</sup> More recently Külb has described in detail a series of cases of apical catarrh occurring in emphysematous young men. He also finds that the crepitation is heard mostly in the right apex posteriorly and is due to local bronchitis and tracheitis. The crepitation may be localized and constant, and thus suggest tuberculosis.<sup>9</sup>

These cases are not at all rare in this city. I see them often in my daily practice. Usually the patients have been examined by some careful physician acting for a life insurance company, or for admission to some fraternal society, and have been rejected because of "lung trouble." Some call for examination complaining of some mild cough and expectoration. Examination shows no retraction on inspection, and normal resonance on percussion; rarely a short note over the right apex, but never a narrowing of the resonant field. But on auscultation we find rough, interrupted, or cogwheel breathing during inspiration, prolonged expiration, and crepitant râles during or at the end of inspiration which may be provoked or increased by coughing. It is remarkable that these signs may persist for months in an individual without inconveniencing him in the least. I have a patient in whom these apical changes have existed for four years, yet she feels quite well and has not lost a day from her work, that of a stenographer. In another woman, whose husband died from tuberculosis, she nursing him through a long illness, such apical signs have given me considerable concern, and only after observing that for a year the patient remained well, could I decide in favor of apical, nontuberculous catarrh. It is important to remember that in these cases there is no retraction, no lagging, and no atrophy of the muscles, which is so frequent in tuberculosis of a few months standing, while the temperature and pulse remain normal. An inquiry into the history of these patients shows that they have been subject to frequent colds, coughs, more annoying during the night, expectoration, and some dyspnea during the spring and autumn months. During such colds, which may last for a few weeks or a month, the patient may suffer from anorexia, weakness, etc., with some loss of weight; the condition thus simulating tuberculosis in a striking manner. Yet, he recuperates and regains his normal weight within a few weeks. In fact, those in whom a diagnosis of tuberculosis is erroneously made, and who are thus induced to take greater care of their health, often put on weight far above their normal standards.

The temperature is always normal in these cases, which is an important point in distinguishing them from pulmonary tuberculosis. The same is true of

<sup>5</sup>F. Müller: Die Diagnose der Lungentuberkulose. I. *Vorlesung der Tuberkulose Ärzte*, Munich, 1908.

<sup>6</sup>F. Kohler: Kritische Beiträge zur Diagnose der Lungentuberkulose, *Münchener medizinische Wochenschrift*, 1910, Nos. 35 and 36.

<sup>7</sup>G. Krönig: Die Frühdiagnose der Lungentuberkulose, *Deutsche Klinik*, xi, p. 588.

<sup>8</sup>Laser: Zur diagnostischen Bewertung der Befunde über die Lungenspitzen, *Beilage Klinische Wochenschrift*, 1910, No. 4.  
<sup>9</sup>Külb: Rasselgeräusche über den Lungenspitzen, *Zeitschrift für klinische Medizin*, lxxiii, p. 169.

the pulse rate, which remains normal, while in tuberculosis an unstable pulse is the rule. An examination of the nose and throat may show some mild local inflammatory changes, like redness and swelling of the mucous membrane, indicating pharyngitis or tracheitis and sometimes enlarged tonsils, but only rarely do we meet with pronounced nasal obstruction and mouth breathing, as in cases of collapse induration, which were discussed above. From the latter these cases of simple apical catarrh are also distinguished by the fact that there is no dullness, nor any signs of narrowing of the field of resonance, or distinct retraction; while a short note over the apex is extremely rare; in fact, I have quite often found a note of increased resonance over an apex which was the seat of an apical catarrh. It is also to be borne in mind that the vast majority of apical catarrhs disappear within a few weeks, or a month, while collapse induration persists—the dullness and retraction remain indefinitely unless replaced by emphysema. In short, simple catarrh is differentiated from incipient phthisis by the absence of tubercle bacilli in the sputum, the negative albumin reaction, the normal temperature and pulse, and the rarity of persistent loss of weight, which even if it does occur, is regained within a few weeks of rest and outdoor life. Külbs, who has described similar cases, finds that the tuberculin reaction is invariably negative, while the radiogram shows nothing abnormal at the apex. However, these cases are now and then dignosticated as tuberculous and the patients kept under treatment in clinics for weeks; some are even admitted to sanatoria and either soon discharged as nontuberculous, or kept for several months and discharged as “cured,” or more modestly, as “apparently cured.” Külbs found among twenty-two of his patients with simple apical catarrh that eight had undergone a cure at sanatoriums. I have seen many more. Some have gone to the mountains or as far as the Rocky Mountains or Southern California, and returned within a few months believing that the climate of these regions had cured them.

The causes of the alteration of the breath and adventitious sounds in these cases are not definitely known. The striking harshness and loudness of the breath sounds, the rough interrupted inspiration, and the prolonged expiration, which is sometimes bronchial in character, are ascribed by Külbs to the poor muscular development of his patients, which he says contributes greatly to the striking conduction of the breath sounds and adventitious sounds. But I have seen these phenomena in persons with good muscles and considerable adiposity, and am inclined to attribute the physical signs in these patients to the catarrh of the finer bronchial tubes of the affected apex—their mucous membranes are swollen, thus producing stenosis which increases the breath sounds. The râles are produced in a similar manner by the secretion, or by the opening of the collapsed alveoli by the inspired air. In some cases I was convinced that the adventitious sounds were transmitted from the mouth, throat or trachea; but ordinary care easily obviates such a mistake.

There remains yet to be discussed the apical changes often found in cases of heart disease and of nephritis which are at times mistaken for tuber-

culosis. It is agreed that patients suffering from congenital heart disease (pulmonary stenosis) and who survive the age of infancy and childhood, often succumb during adolescence to tuberculosis because of the deficient circulation of blood and lymph in the lungs which this cardiac defect brings about. On the other hand, disease of the left heart, especially mitral stenosis, is only rarely complicated by tuberculosis, and this is more striking when we bear in mind that lesions of the left heart are most frequent in early life, the period when tuberculosis is also most common. In 1846 Rokitsky stated that valvular disease is invariably antagonistic to phthisis, while later Traube modified this statement to the effect that only mitral stenosis can thus be credited. Fagge also held that mitral stenosis is an almost complete bar to tuberculosis, the post mortems record of Guy's Hospital supplying only four cases in the course of thirty years. Kidd's statistics give one instance only in 500 cases, and Walsham's one in 130 cases.<sup>10</sup> While these statements may give the impression of too great rarity, because we occasionally meet with a case of mitral stenosis complicated by phthisis, yet we must be extremely careful before pronouncing a case tuberculous when we find a defect in the mitral valve. It is, however, remarkable that many cases of mitral disease are mistaken for tuberculosis, especially at present when the apices are so carefully scrutinized for signs of phthisis. And signs are found at times in the apices because degeneration of the cardiac muscle, and especially mitral stenosis, very often produce congestion or even induration of one or both pulmonary apices. That this is not borne in mind by many of those who should be familiar with such a condition is attested by the fact that many cases of mitral stenosis are treated for months and years in the tuberculosis clinics and day camps of this city. I see every year about a dozen such “consumptives” who are being annoyed by inspectors and nurses of the Health Department, and are refused shelter in case they have to live with strangers, etc. Of the many cases of this character that have come under my observation, I shall mention but one which I saw while preparing this paper:

M. B., thirty-five years of age, tailor. Family and personal history negative, excepting that he had typhoid fever fifteen years ago. Did not recall ever having had rheumatism. Three years ago he began to cough and expectorate bloodstreaked sputum and to suffer from dyspnea on the slightest exertion. This dyspnea had been increased in intensity, until he became a semiinvalid, and orthopnea was at times so severe that he was obliged to sit up the greater part of the night. His cough was moderate; expectoration rather scanty, but at times tinged with blood. Two years ago his physician reported him to the Health Department as tuberculous; a nurse called and advised him to take treatment at one of the clinics. Ever since he has been visited at regular intervals, his family was warned against intimate contact with him, etc. Examination showed a case of mitral stenosis, with a loud presystolic and feeble systolic murmur with maximum intensity at the apex, which was displaced downward and outward; also cardiac hypertrophy, enlargement of the liver, edema of the ankles, etc. Percussion of the lungs showed defective resonance of left apex above the second rib anteriorly and in the supraspinous fossa posteriorly, bronchovesicular breathing, some sibilant râles, and some crepitation in the same region after coughing. Fluoroscopic examination showed a shadow at the left apex, thus confirming the findings by auscultation and percussion. That the process

<sup>10</sup>S. West: *Diseases of the Organs of Respiration*, n. p. 536.



at that apex was not tuberculous was evidenced by the fact that at no time did this patient have any fever, night sweats, etc. Also he maintained his weight during the last two years, and several examinations of the sputum did not show any tubercle bacilli. Yet an inquiry at the tuberculosis clinic at which he had been under treatment brought forth the information that this patient had a tuberculous infiltration of the left apex, in spite of the fact that repeated examinations of the sputum gave negative results.

That the apical signs shown in this case are not of tuberculous nature is also confirmed by the fact that in most cases of mitral disease there is some alteration in resonance and breath sounds at one or both apices. Some simulate tuberculosis to such an extent that the patients are admitted to sanatoriums and hospitals and kept under observation for months before tuberculosis is excluded. At the Montefiore Home and Hospital we sometimes get this sort of cases in the tuberculosis ward. In one case it was very difficult to exclude tuberculosis, and in another similar case the patient was admitted to this hospital after having spent two years in another institution for advanced tuberculosis. The pulmonary signs in the latter case simulated tuberculosis to an extreme degree, yet on autopsy it was shown that there was only a heart lesion, while the lungs were free from any lesion suggestive of present or past tuberculosis. Similar cases have been reported by Caussade and Questre.<sup>21</sup> I have carefully examined the cases of mitral disease that have come under my observation within the past six months, and found that of thirty-eight patients, twenty-seven showed either defective resonances, at times amounting to dullness, at one or both apices; which would be sufficient to suggest tuberculosis had there been no other explanation for this abnormality. Twenty-two cases showed either small crepitant or subcrepitant râles, or some sibilation. Five of these thirty-eight patients gave a history of bloody sputum, and one stated that he had had a profuse hemorrhage. During a short service of two months in the female ward of Lebanon Hospital I met with two cases of mitral stenosis showing pathognomonic signs of tuberculous involvement of the apex. One of these patients had even been admitted to a sanatorium, from which she was discharged in six weeks as nontuberculous, and now there was again presented the problem as to whether or not we were dealing with a case of mitral stenosis complicated by pulmonary tuberculosis. Repeated examination of the sputum gave a negative result. In spite of the fact that there was a continued subfebrile temperature, I was not inclined to consider this case tuberculous. A similar case in an adult male was believed to be tuberculous by the attending physician because of the apical signs, yet no tubercle bacilli could be found in the sputum, and the patient kept on gaining in weight and strength after a rest and the use of digitals. In children also I have often met with cases of mitral disease showing signs simulating apical infiltration, yet the subsequent course of the affection showed conclusively that we were dealing with congestion due to faulty circulation, and not with tuberculosis.

**Résumé.** Unilateral apical signs which simulate those characteristic of pulmonary tuberculosis are not as rare as is generally supposed. In mouth breathers we often find retraction of the right apex, dullness, altered breath sounds, and even râles which are circumscribed and localized, giving a clinical picture of pulmonary tuberculosis; and the patient is often treated for a considerable time as being tuberculous. These patients are often admitted to sanatoriums, and they are also responsible for the fact that so many methods of treatment and drugs have had the reputation of curing tuberculosis "when the disease is recognized in its incipency." Many of the rapidly cured incipient cases are, in fact, instances of collapse atelectasis of the apical parenchyma due to interference with the entrance of air into the right apex in mouth breathers. Individuals who neglect the nasal obstruction for a considerable time, and do not have their polypi, adenoids, or hypertrophied tonsils, etc., removed, may ultimately get collapse induration of the right pulmonary apex, which remains permanent, and thus be in constant danger of being pronounced tuberculous when their health deteriorates from any cause and they are losing weight, have cough, etc.; or, even when feeling in excellent condition, they are liable to suffer unjust discrimination at the hands of examiners for life insurance companies. But a careful study of the history, symptomatology, and course of this affection obviates such a mistake. Collapse atelectasis and induration are to be borne in mind in all right sided lesions of the lung apex occurring in mouth breathers, showing no tubercle bacilli in the sputum, and manifesting no tendency to follow the usual course of pulmonary tuberculosis, with fever, night sweats, tachycardia, malaise, languor, progressive loss of weight, etc. In such cases the fact that the patient has been working all along in spite of his cough, which may date back to childhood, and has developed physically at a normal rate, speaks very strongly against tuberculosis, and the apical signs are indicative of collapse induration. Physical signs of a lesion at one apex occurring after an attack of influenza, or met with in persons with pulmonary emphysema or defective muscular development, especially in young women, and among indoor workers generally, should not be hastily pronounced as indicative of tuberculosis. It must always be borne in mind that a person who never coughs and has suffered no progressive loss of weight, anorexia, malaise, etc., for months before the onset of an attack of gripe, may have a simple localized apical catarrh giving signs simulating those of incipient pulmonary tuberculosis, although it is not due to acid fast bacilli. On the other hand, the vast majority of cases of tuberculosis give a history of several attacks of "gripe," or "colds," extending over several months or years preceding the last "cold," which, in their opinion, was the beginning of their present illness. Clinical observation for a few weeks, with the judicious use of the thermometer and several examinations of the sputum, usually clears up the diagnosis even in cases in which the physical signs persist for months. In persons having a defect of the mitral valve a diagnosis of

<sup>21</sup>G. Caussade et P. Questre: De quelques congestions-œdèmes pulmonaires localisées aux sommets des poumons simulant la tuberculose et de quelques congestions pulmonaires péricuberculeuses. *Presse Médicale*, xvii, 1909, p. 497.

tuberculosis should not be made without the most valid evidence, i. e., positive bacteriological findings. Although mitral stenosis is not an absolute bar to phthisis, as some have maintained, it is exceedingly rare to find this disease complicated by tuberculosis. To diagnosticate tuberculosis in persons suffering from mitral stenosis without acid fast bacilli in the sputum is rather risky. Still, there are often met cases of mitral stenosis presenting symptoms and signs of tuberculosis of the lungs—subfebrile temperature, cough, hemoptysis, tachycardia, loss of weight, dullness, altered breath sounds, râles, etc., localized at one apex—to a perplexing degree. Indeed, I may say that the apical signs in some cases of heart disease have given me much more concern at times than any other class of nontuberculous apical lesions. Often only careful observation for a long period of time will determine whether a given case of mitral disease is complicated by pulmonary tuberculosis or not. My rule has been to consider such cases tuberculous only when finding bacilli in the sputum or signs of cavities on physical exploration.

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### THE EARLY DIAGNOSIS OF RENAL TUBERCULOSIS.\*

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Having had the opportunity during the past few years to observe several cases of renal tuberculosis, and having been attracted particularly by the varying clinical manifestations which they have shown, and the extreme difficulty of getting at any satisfactory and definite diagnostic conclusions, I thought it would not be out of place, or unconstructive, for me to present to you the pitfalls, errors, and elusive symptoms which this not uncommon and so manifestly latent disease has presented to me personally in the earliest stages of its course.

That renal tuberculosis is a frequently overlooked condition is shown by the records of Kapsammer at the Vienna General Hospital. He reports that from 1897 to 1907 there were found on post mortem examination 191 cases; of these only two were correctly diagnosticated and four partially so, while in 185, sixty-seven of which were unilateral, the disease was not suspected. The writer will not attempt to consider in detail the pathology, predisposing causes, treatment, and other conclusions of the tuberculous kidney, nor the scrofulous kidney which is secondary to infectious diseases, stone, pyonephrosis, floating kidney, or those conditions in which there is an interference with the urinary outflow, but would ask to call your attention particularly to the diagnosis of primary kidney tuberculosis; trying to unravel, in some kind of fashion, the clinical manifestations only in the very incipency of the disease, and not in the terminal state of caseation of the organ, in which the ureter and bladder are also most seriously involved. Kronlein states that 29.8 per cent. of all surgical affections of the

kidney are tuberculous. Israel states that one third of all purulent processes which may be traced to the kidney are of this character. It may not be irrelevant here to say that by a large number of investigators the tubercle bacillus is found in only fifty per cent. of all cases. This includes not only the incipient, early, solitary, miliary type, but likewise those instances where large caseating foci and marked involvement of the ureter and bladder are also found. Were we able to find the tubercle bacilli earlier, the diagnosis would naturally be much easier. Steinthal asserts that fifty per cent. of all cases of renal tuberculosis are limited to one kidney, while James Israel goes so far as to say that eighty-eight per cent. of all renal tuberculosis is unilateral. This would seem to substantiate the contention of those authors who say that all tuberculosis of the kidney is of a hematogenous origin, and to discredit the transmission of infection by the ascending route. It is in males, in the second and third decade, that the disease is most commonly encountered. Collinet states that one out of every eighteen consumptives suffers from some form of genitourinary tuberculosis. He also affirms that the tuberculous process may start anywhere in the urogenital tract independent of a pulmonary or general tuberculosis. It has been pretty well substantiated that the kidney may become infected from the blood without an established tuberculosis being found in any other part of the body. It has also been pointed out that the blood infects the kidney as a secondary expression in tuberculosis of the lungs or any other organ, and further that the kidney may be involved by continuity of surfaces in ascending tuberculosis from the genital organs below. In this latter instance there must be a fibrotic degeneration of the ureteral os in order to permit of regurgitation, and since this is uniformly bilateral, hematogenous infection would seem to be still further established as the recognized means of kidney infection.

Tufter subdivides tuberculous invasion of the kidney into some six or seven categories. Duret gives about the same classification, and calls attention to the cavernous type, with single or multiple cavities, and also to that condition of the fatty capsule (adipose sclerosis) which at times renders it so hypertrophic as to burst through the kidney into the pelvis, thus blocking it effectually. Senn classifies involvement of the kidney by tuberculosis as 1, miliary tuberculosis; 2, caseous nephritis; 3, tuberculous pyelonephritis. This is a classification which covers the different pathological findings which develop in the course of the disease. Our consideration, however, will be limited to the first division, our intention being to ignore the diagnosis of strumous kidney with which there are associated distinct tuberculous lesions; for, with a constitutional invasion by the disease, with the large renal tumor, the ureter, bladder, and urethra seriously invaded, numerous tubercle bacilli in the urine, and marked dysuria, hematuria, and pain, the positive diagnosis ought not to be in doubt. Since it is essential for our interpretation and diagnosis of the obscure clinical signs of this primary miliary condition to have a familiarity with the pathological state which has given rise to this mor-

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bid expression, a hasty review of the miliary kidney will not be out of place. For it is in just this form of renal tuberculosis, the incipient, miliary type, in which there are only a few minute foci scattered here and there in the cortex of the organ, that a diagnosis is most difficult. These foci uniformly start subcapsularly and in the cortex of the organ. They are implanted here by the blood current of the kidney, which, entering at right angles to the pelvis, flows to the cortex, where its vertical twigs are given off; the centrifugal action of the blood current whirling the tubercle bacilli out to the furthest periphery of the organ. In this stage of tuberculous invasion the urine is negative, but it is now that the toxins cause the dysuria which we find so constantly present in the early stage of the disease. Soon there follows the replacement of the foci by fibrous tissue, and then there ensues polyuria, which, we have noted, seems to be one of the significant features of the disease. With a mixed infection occurring, these small nodules swell and discharge their product into the pelvis, or, occasionally, the capsule is broken through and a perinephritic abscess is established. Neither this condition nor the invasion of the pelvis will, however, be taken up, as they belong to the second or more advanced stage of strumous kidney. We might take this opportunity to refer to the lymphatic supply of the primary tract and say that the drainage of the epididymis is different from that of the testicle, which flows into the retroperitoneal glands about the sacrum. The epididymal chain runs to the floor of the bladder, where its drainage unites with the mural lymphatic drainage from the kidney about the ureteral mouth. It would not be extraordinary, then, to note a case in which one of the primary evidences of a cortical tuberculosis would be the establishment of a focus by means of this lymph stream in the epididymis. The writer had, on one occasion, such a case under his observation. Nor will we overlook the possibility of this lymphogenous infection occurring in the opposite kidney by way of the flow across the lumbar vertebra or by means of the small veins which ply between the kidneys.

In the very earliest stages of implantation there is no urinary complication, but soon we are at a loss to know why a frequency of urination should occur, particularly since the urinalysis and the microscopical and x ray examinations have on repeated occasions been negative in their results. With the establishment of a new focus or the slight spreading of one of the former foci, the kidney becomes more congested, and a permanent polyuria ensues. Now and then some of the products of this invasion, dammed back in the organ, escapes, and the character of the urine is temporarily changed. This polyuria is the result of the stimulation of the glandular tissue caused by the presence of miliary nodules which have not developed so far as to compromise the parenchyma of the organ. It is, indeed, an irregularly scattered interstitial nephritis of one or several parts of the kidney, and it is at this time that traces of albumin and pus and a few red blood corpuscles may be detected in the urine which not infrequently comes, by virtue of a renorenal reflex, from the un-

affected side. The slight dysuria at the time of these outbreaks is doubtless caused by the liberated toxins irritating the mucosa. This, at least, would appear to be the explanation, and the frequency of urination simply Nature's method to throw off injurious products. Many patients have found that drinking large quantities of water helps the pain. This may be explained by the dilution of the irritating elements of the toxins which the ingestion of water causes. As an illustration of this early type of case, the writer would record the following:

CASE I. Mrs. J. B. L., aged thirty-eight years, referred by Dr. E. W. Gee, of Richmond, had for several years had an annoying and intermittent frequency of urination, attended with considerable pain at times. This pain was low down on the right side, in the region of the pelvic course of the ureter. She had been operated upon for appendicitis with no relief. When seen by the writer the patient, weighing about 180 pounds and with good spirits and color, presented every appearance of enjoying the very best of health. Bimanual examination showed a very markedly retroflexed and retroverted uterus. Repeated urinalyses, cystoscopy, catheterism of the ureters, pyelography, and radioscopy (for stone) were all negative. After a careful consideration of her condition the dysuria was traced to the door of the retroflexed uterus, which had produced a slight degree of cystocele, and, since the climacteric had been passed, and in the absence of all urinary findings, hysterectomy was advised. The operation was performed March 27, 1912. She remained in the hospital about four weeks, and was seemingly benefited. A few weeks later the frequent and painful urination developed again, so that catheterism of the ureters was once more carried out. On July 17, 1912, Dr. E. G. Hopkins, of the University College of Medicine, Richmond, reported, "Tubercle bacilli present in the urine from the left side, none found in urine from the right kidney." August and the findings were the same as on July 17th. October 30th a small amount of pus and a few tubercle bacilli were found to be present; November 18th tubercle bacilli present in specimen from left kidney.

It is interesting to note that the tubercle bacilli were found only on the sixth or seventh investigation, no suspicion of a tuberculous condition having been previously aroused; and, further, that during the entire course of the disease the pain and distress had been regularly referred to the right side, while the lesion was on the left. This woman is now undergoing tuberculin treatment and seems to be improving daily.

CASE II. J. W. D., thirty-eight years old, male, for several years had been having periodic and irregular attacks of frequent and painful urination, for which he had consulted a considerable number of physicians who had prescribed varying treatments. December 24, 1911, a cystoscopic examination was made, and a slight trigonal injection observed. The ureteral ora were normal, and the capacity of the bladder was twenty ounces. The prostate and seminal vesicles were stripped and subjected to microscopical examination, but nothing unusual was found. For the past few months he had been urinating on the average every two hours, day and night. There were periods of relief, which were usually of short duration—a day or so. He found that drinking large quantities of water helped the pain, but this doubtless aggravated the pollakiuria. Examination of the urine showed it to be of a specific gravity of 1.009 and neutral in reaction. It contained occasional pus corpuscles and a few small and round reniform cells, but no casts. Catheterism of the ureters showed the urine practically identical on both sides and bilateral pyelography proved the kidneys to be normal in outline and in their proper beds. X ray was negative. May 11, 1912. Patient returning for further investigation of his case, still complained of vesical discomfort and constant pain about the left kidney which was usually worse at night, and although the frequency of urination was not so great as a few months ago, there were considerable embarrassment and inability



to attend to work in consequence of this nagging pain and frequent desire. His appetite was good, his bowels were kept well open, and he did not drink so much water as previously. Cystoscopy, catheterism of the ureters, and x ray examination were again negative; rectal and urethral investigation gave no clue to his trouble. The urine continued of a low specific gravity and was acid, but was otherwise of a negative character. It was at this juncture that military tuberculosis of the left kidney was suspected, and a rigid examination instituted to find tubercle bacilli. The polyuria, which would seem to be significant in this case, might be explained not only by the slight irregular accompanying interstitial nephritis, but theoretically also by a greater or less involvement of the pelvis of the organ or the ureter, with partial retention of the urine in the pelvis of the kidney; a condition which would necessarily lead to a pressure atrophy of the tubules in the pyramid, and thus influence the water absorbing power of the kidney. The retention of the urine in the kidney pelvis could also be caused by the fact that so great a frequency of micturition must mechanically interfere with the normal rhythmic contraction of the ureter. It is just such cases as this, with that indefinite, obscure, and indirect train of symptoms, which should put the surgeon on the alert, so as to follow every clue to the possible diagnosis of a disease so insidious in its incipency and so fatal in termination. The condition of affairs was explained to the patient and an exploratory nephrotomy advised. The kidney was found somewhat enlarged and mottled, but no foci were discovered. A peculiar thickening about the upper pole of the kidney was noticed. Dr. S. B. Moon, pathologist to Grace Hospital, Richmond, gave the following report from the examination of a small section: "About half the kidney tissue is normal in appearance. Here and there are congested vessels. A large number of tubules are blocked with debris, which widely distends them, and the surrounding epithelial cells are largely disintegrated. The protoplasm, however, stains well. Diagnosis, moderate parenchymatous nephritis." It is now several weeks since the operation. There has been no return of the old pain, and the patient is apparently relieved of his dysuria. Although the findings and the operation would appear to negative tuberculosis, the writer is still of the opinion that a focus somewhere in the left kidney was the cause of the trouble.

CASE III. Mrs. E. C. L., aged twenty-four years, multipara, until recently had always enjoyed the best of health, weighed 170 pounds, and had had no illness since childhood. Family history negative. About two months ago she began to complain of frequent micturition, voiding the urine about every thirty or forty minutes. She noticed slight blood in the urine at times, and suffered constant pain, which was made worse by the act of micturition. There had previously been some slight pain in the kidney region, perhaps a little more on the left side than on the right, and also marked tenesmus. The condition came on gradually and insidiously, and she at length consulted Dr. Howard Armstrong, of Edom, Va., who referred her to the writer.

In vaginal examination considerable tenderness was found about the trigone of the bladder. The capacity of the bladder was two and one half ounces; uranalysis showed albumin; no casts; occasional blood cells; a few large, round, squamous epithelial cells; no crystals; a large quantity of pus. There was no pain posteriorly or along the course of the ureter, nor was the abdominal wall anterior to the kidney rigid. Cystoscopy, which was very painful, showed marked edema and inflammation about the floor, and particularly in the region of the left ureteral mouth, the congestion being so great that the ureteral os could not be located for catheterism. By vaginal examination a positive pulsation was felt in the left fornix, and a cordlike projection extending upward, which was taken to be the left ureter, was noted. With the x ray examination negative for stone, a provisional diagnosis of tuberculosis was made, and daily examinations were made of the urine for tubercle bacilli. Numerous other bacilli were observed, especially the colon bacillus and its analogues, but only on the twelfth examination of the urine was the tubercle bacillus in large numbers found. This confirmed the diagnosis and the irrigations and instillations which had been enetically carried on were stopped, and appropriate treatment directed toward the kidney proper. Lumbar ureteronephrectomy was performed. The capsule

of the kidney was studded with minute foci, particularly about the poles anteriorly. One or two had burst through into the fatty bed and were surrounded by fibrous tissue, the kidney was mottled in appearance, and irregular areas of fibrosis were noticed in the cortex. There was one cavity about the size of a hazel nut in the upper pole, the walls of which were smooth and hard. The ureter was considerably involved in its upper segment, and after a swabbing out with pure carbolic acid it was tied off as low as possible. On the third day marked improvement was apparent, the frequency of urination being considerably lessened, and the pain not so severe. Already the remaining kidney secreted forty ounces in the twenty-four hours. No tubercle bacilli had been found in the urine since the second day following the operation, and the course of convalescence so far had been uneventful and most happy. At the present writing, one month after operation, the patient is up and about and seems to be going on to a satisfactory recovery.

The narration of these three cases, selected from a series, is designed to emphasize particularly the cardinal features of diagnosis of early renal tuberculosis. In our series we find first, that there are no pathognomonic evidences of the early stages of the disease; second, the distressing vesical disturbances would appear to be the leading clue to the diagnosis; third, the repeated negative examinations for tubercle bacilli, in one instance twelve such being made before the germ was found; fourth, the absence of marked papillary hemorrhage, which is accorded a prominent diagnostic symptom, but which pathologically cannot be identified with the cortical invasion; fifth, the stormy and febrile reaction following nephrectomy, with the liberation of a large number of toxic substances and endotoxins into the surrounding tissues. The physical evidences in the early stages of renal tuberculosis are most indefinite and obscure. The patient has at irregular intervals a distressing and annoying frequency of urination, which is more evident by night and continues for an irregular period of time—days or weeks. During the height of the attack there may be some slight tenderness over the kidney, with a slight rigidity of the abdominal wall anteriorly. On the left side an old varicocele may become congested, giving rise to some discomfort. Rectal palpation should always be carried out. At best the findings and chain of evidence are most unsatisfactory, and we must rely in our diagnosis of this condition upon 1, uranalysis, 2, the microscope, 3, the cystoscope, with urethral catheterism, 4, tuberculin and its allies, 5, kidney efficiency.

The uranalysis in incipient miliary tuberculosis is instant in the character of its results, for tubercle bacilli are not always implanted upon an absolutely normal kidney. The urinary findings, then, may show evidences of a nephritis of more or less severity, and, in fact, the laboratory returns constantly report the condition present as Bright's disease of varying degrees, for in this early stage the urine is that of a renal congestion. The specific gravity, on account of the renal stimulation and water drinking, and because of the irregular thickening of the capsule producing a patchy interstitial nephritis, is low. Later on, with cellular elements coming away and the kidney not responding so promptly to the toxic stimulus, it is considerably higher. It is, however, seldom as high as in the normal state. The reaction of the urine is one of the most notable features of the strumous kidney; this is regularly and constantly. Pus is one

of the characteristic indices of the invasion of the tubercle bacilli, and its production represents nature's attempt to prevent the spread of infection. Although the pus is not constant, but intermittent, a few cells in a regularly acid urine would at least give us a clue for diagnosis if we were satisfied as to the absence of stone. Pus in a constantly acid urine would appear to be the password for early renal tuberculosis. Blood is found in the urine from time to time, and, with the implantation of the process on the tip of a papilla, there may be severe hemorrhage. The bleeding may be so free as to cause a blocking of the ureter by the inspissation of the debris from above, resulting in an embarrassing train of disagreeable symptoms, a veritable Dietl's crisis. This papillary tuberculosis is rare, but occasionally the large loss of blood, with all other findings negative, gives a clue to the possible diagnosis. Albumin may or may not be present. With a considerable amount of epithelium the test will be positive; protoplasma and serum albumin must therefore be differentiated. The albuminuria of the ordinary tuberculous patient is bilateral, while that of a renal tuberculosis is unilateral. The character of the epithelium present represents the location of the morbid process. Uric acid crystals are frequently present as the result of the constantly acid urine. Casts, hyaline, granular, and epithelial, may be found in the urine as the result of the tuberculous invasion; which would appear to be the kidney's response to the toxic irritant, and not as a phenomenon of acute circumscribed nephritis. Hunner reports casts present in ten per cent. of his cases. Morris asserts that polyuria (the thaluria of Tilden Brown) in a frail patient of tuberculous family, for which no other cause is assignable, should excite suspicion of renal tuberculosis. This pollakiuria is peculiarly nocturnal, and not relatively so marked during the day.

In the microscopical examination the smegma bacillus and acidfast streptothrix must be differentiated from the tubercle bacillus. The writer would recommend that all the urine voided be carefully collected with the strictest precautions, preferably in a Stenbeck's sedimentator, preserving it with boric acid, one grain to the ounce of urine, and that the best expert obtainable be employed to investigate it for the tubercle bacilli. It may require a week or more for a result in any way positive. Even then a negative bacteriological examination does not disprove the clinical diagnosis; for, with only a few cortical spots well surrounded with unyielding fibrous tissue, the extreme difficulty of securing, segregating, and recognizing the offending tubercle bacillus must be at once evident. It is sometimes surprising how examinations for a week or more give no evidences of the tubercle bacillus; yet then suddenly a large number will be found to have come away. This condition of affairs has obtained in several of our cases (see Case III). It would appear that the multiplication and evacuation *en masse* of the bacilli would be of less damage to the urogenital mucosa than if a constant stream of less numbers were to be always present. The urgent importance of repeated examinations cannot be too strongly emphasized.

As to cystoscopy, in the very early stages nothing

may be noted about the patient's bladder or ureteral ora. Soon, however, with the more marked invasion of the kidney proper, there is a fluffiness, blueness, and injection of the ureteral opening which is consequent upon a fibrotic formation and retraction (Fenwick's golf hole orifice). Only recently Buerger has called attention to an "edema bullosum" of the ureteral os which is present even when the ureter is not involved. He considers this the most distinctive initial feature in the diagnosis of early renal tuberculosis. In the second and third stages of the disease well defined tuberculous ulcers are seen about the trigone and ureteral mouths. Catheterism of the ureters is here a tedious and difficult procedure. Ureteral spasm is easily provoked, and biting of the catheter ensues, which causes a considerable amount of pain and discomfort. Radioscopy may be used for differential purposes, but not with much hope of its confirming a possible diagnosis. Pyelography would not seem to be of any material benefit in the diagnosis. The tuberculin or T. R. test, von Pirquet's reaction of the skin, and Calmette's reaction of the conjunctivæ may be used as corroborative measures. These latter tests are to be more or less condemned or at least conducted with great caution, as they are dangerous procedures on account of the marked edema of the ureteral mouths which have been noted—in certain instances producing fatal suppression. Injections of the sediment into the peritoneal cavity of the guinea pig would appear to be an efficient diagnostic measure. Culture processes may be tried also. The renal efficiency may be investigated by one of the following means: Cryoscopy, the freezing point of the blood and urine; the chromocystoscopy of Völcker and Joseph with indigo carmin; phloridzin, producing a temporary glycosuria; Morro's test, particularly good in the case of children; Wright and Killmer's method of hemolysis; the determination of urea secretion as perfected by Rovsing; and finally the phenolsulphonephthalein test, which the writer highly commends as the best means for ascertaining unilateral efficiency, consequent fibrotic replacement, and renal degeneration. It must be borne in mind that the kidney, like other organs, may suffer a pathological invasion and still possess sufficient resistance to ultimately attain a *restitutio ad integrum*. The adjustment of the actual kidney condition and the pathological findings to what we hope to get by uranalysis and microscopical and other investigations cannot always be so arranged as to be simultaneous and complementary. Although spontaneous cure of tuberculosis of the kidney is unknown and the disease usually progresses *per saltum*, it might be possible to imagine a discreet miliary focus which had given rise to considerable embarrassment and yet on investigation yielding no definite findings to justify a positive diagnosis. The focus has healed, and patches of irregularly scattered fibrous tissue, here and there, just under the capsule and burrowing but a short way into the cortex, are the only remaining evidences of the former tuberculous invasion.

A hasty review of the foregoing signs would lead us to attach particular significance to the subjective complaints of dysuria and pollakiuria, for these would appear to be the constant and cardinal symp-

toms given by the patient in his distress. Objectively there are no physical findings of value in the early stages of cortical tuberculosis. The questionable rigidity in the abdomen anteriorly, or the tender spots posteriorly, cannot at all times be elicited. The general practitioner must confine his energies toward the investigation of the urine, the significant features of which are a constant acidity and intermittent pyuria, for it must rest with the expert microscopist to differentiate the renal morphology and stain for the germ of tuberculosis. Cystoscopy and the tests for renal efficiency should be placed in the hands of one peculiarly skilled along this line. Too much importance cannot be attached to these two means of diagnosis. At best, however, all our investigations and clues are hazy and indecisive, so that it is by a combination of agencies rather than a single one, that we are made acquainted with the pathological processes which in the large majority of cases is constantly progressing unfavorably. There are many of us who doubtless during our professional lives have witnessed a considerable number of cases which have been characterized by a frequent and painful urination and in whom the findings have been repeatedly negative. Could not this condition be put at the door of a renal tuberculosis of limited extent which ultimately became absorbed or replaced by connective tissue? The writer is of the opinion that the strumous kidney occurs more frequently than is generally believed, and in the absence of stone, tumors, floating kidney, and diseases of the kidney and pelvis proper, that an earnest and repeated investigation of the physical findings and urine will on certain occasions be rewarded by the establishment of a tuberculous trouble. It would appear, then, that reduced to its final analysis, the diagnosis of renal tuberculosis is actually one of exclusion rather than substantiation. In conclusion, we would recommend the less radical means for treatment in the early stages, such as tuberculin and dietetic and hygienic measures. During its entire course the physical condition and the urine must be investigated most carefully and thoroughly. Any evidence of progressive invasion should be interrupted by immediate nephrectomy or nephroureterectomy, provided the kidney of the opposite side has been tested as to its capacity. It would seem, from a review of the cases which have fallen under the observation of the writer, that nephrectomy is preferable. We cannot, however, believe that such heroic measures should be adopted in any instance without proper investigation directed along the most scientific and deliberate lines.

301 WEST GRACE STREET.

## THE LUETIN SKIN REACTION IN SYPHILIS.

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Great progress has been made during the past decade in the diagnosis and treatment of syphilis. The impetus given by the discovery of the *Spirocheta pallida* and of the application of the Bordet-

Gengou phenomenon of complement fixation to the diagnosis of luetic conditions has resulted in the accumulation of a mass of scientific data, making possible the application of the newer chemotherapeutic principles in a practical, as well as scientific manner.

However, in spite of great strides forward, the detection of syphilis by means of laboratory aids has not been perfected to such an extent that additional help would be superfluous. While the means at our command are on the whole quite satisfactory, they occasionally fail in the detection of conditions which, etiologically and clinically, are syphilitic or the result of previously existing active syphilis. Therefore the recent endeavors of workers to cultivate the *Spirocheta pallida* in pure culture have been of interest in view of the possibility of applying cutaneous tests analogous to the well known skin reaction of von Pirquet in tuberculosis. The scientific labors of Noguchi in the field of syphilis research have been productive of remarkably fruitful results. He has, for the first time, cultivated the spirochete, or *Treponema pallida*, in pure culture, differentiating it morphologically, as well as culturally, from similar organisms. He has infected laboratory animals with these cultures and has been able to recover the spirochete from the tissues and fluids of the infected animals. He has also proved by means of biological tests the presence of the infection in the blood of the animals experimented upon. And now, as a result of this work, he has devised a means of applying a suspension of a number of strains of the killed cultures of the spirochete locally by intradermal injection. This test is based upon the fact that animals suffering with a chronic infective condition enter into a state of altered reactivity or allergy. Individuals sensitized or made allergic by passing through certain infectious diseases, or still harboring the organisms of such disease, react peculiarly when vaccinated with a concentrated culture of the organisms or with the extract of the tissues or organisms of the infective process. In this respect the person injected behaves analogously to certain animals reinjected after an interval following sensitization with a foreign protein.

Numerous methods of cutaneous and subcutaneous vaccination in syphilis have been tried, but up to the present time none has proved of any definite value. The results have hardly been either specific or of sufficient constancy to be depended upon.<sup>1</sup> A recent repetition of most of the methods tried up to date by Fontana proved that the results do not approach those obtained by the use of the Wassermann test. They were not of sufficient constancy or specificity in syphilis to give any of them a place in our clinical armamentarium.

It is of interest, therefore, to inquire into the merits of the reagent prepared by Noguchi for intradermal injection. The first material used con-

<sup>1</sup>Neisser and Bruch used extracts of organs rich in spirochetes; Tedeschi used extracts of hard chancres containing numerous organisms; Nicolai, Favre, Gauthier, and Chorlet, used a glycerin extract of syphilitic livers. They called it syphilin. Leper, Desbouts, and Dareaux used concentrated solutions of sodium glycolate; Oppenheim and also Ciffio used lecithin solutions. Other workers used extracts of guinea pig heart and other normal and specific extracts in alcohol and other solvents, both hypodermically and into the skin. Quite recently Fischer and Klausner published the results of injection of a sodium chloride extract of fresh tissue from the lungs of infants who had died of pneumonia alba.



tained two strains of the *Treponema pallida*. The reagent was first injected into rabbits infected with syphilis, and later human beings were injected. The appended table gives the results of the first 315

(free from organisms) preserved with tricresol or phenol.

A satisfactory reagent is one that is rich in spirochaetae, preferably containing as large a number of

TABLE 1.—LUTIN REACTION IN VARIOUS SYPHILITIC CONDITIONS AND IN CONTROLS.

	Primary syphilis		Secondary syphilis		Tertiary syphilis		Congenital syphilis		Cerebro-spinal syphilis		Controls	
	Symptoms present	Symptoms absent	Symptoms present	Symptoms absent	Symptoms present	Symptoms absent	Under one year	Late cases	Symptoms present	Latent syphilis	Normal individuals	Non-syph.
Lutin reaction .....	1	—	1	—	—	—	—	—	—	—	—	—
No antisyphilitic treatment.....	13	—	—	—	—	—	—	—	—	24	6	200
Slight mercurial treatment.....	1	25	—	—	—	—	5	18	—	—	—	—
Regular mercurial treatment.....	—	—	14	3	31	20	1	3	15	5	5	—
Salvarsan and mercurial treatment.....	—	1	42	12	—	22	3	—	9	—	—	—
	1	25	3	25	43	0	6	21	5	24	6	250
	26		90		68		52		10		30	

315

cases injected by Noguchi. There were 250 normal controls, none of which reacted positively. The lutin prepared recently has had incorporated in it six or seven strains of the *Treponema pallida*. There have been a number of confirmatory reports by clinicians using the material prepared by Noguchi. Owing to the great difficulty of isolating the *Treponema pallida* in pure culture and growing the organisms in any abundance, all the reports that have been published up to date, including the author's, have been the result of the injections of the reagent (called lutin), prepared by Noguchi.

The lutin is prepared as follows: The organisms obtained originally from chancres, condylomata, etc., are grown in ascitic agar and ascitic broth containing sterile tissue, usually placenta or kidney. The cultures are grown anaerobically in the thermo-

strains of the pallida as available, and as free as possible from irritating culture medium and preservative. Up to the present time the great difficulty of obtaining the organisms free from the medium in which they grow has in all probability been a factor in the number of nonspecific reactions obtained. It is essential to dilute the concentrated lutin sufficiently to prevent a local irritative reaction. Thus, each new preparation of lutin should be tested on a number of normal controls to determine its irritative properties before suspected cases are subjected to the test.

The reagent is injected into the superficial layer of the skin with a very fine and smooth hypodermic needle until a small, pale wheal is produced. About 0.05 c. c. to 0.07 c. c. are usually injected. The flexor surface of the forearm or the outer side of

TABLE 2.

No. cases.	Lutin		Wassermann reaction		
	+	—	+	—	
Primary and secondary lues. . . . . 30	3	27	24	6	Wassermann positive and lutin negative. . . . . 20 cases
Tertiary lues (active). . . . . 30	19	11	23	7	Lutin positive and Wassermann negative. . . . . 1 case
Latent lues (old cases) . . . . . 7	0	7	4	3	Positive lutin and negative Wassermann. . . . . 4 cases
Cerebrospinal lues . . . . . 13	4	9	11	2	Wassermann positive and lutin negative. . . . . 7 cases
Tabs and Taboparesis . . . . . 32	3	29	16	16	Lutin positive and Wassermann negative. . . . . 0 cases
Hereditary lues . . . . . 10	1	9	5	5	Wassermann positive and lutin negative. . . . . 4 cases
Control cases . . . . . 225	12	213	0	225	Wassermann positive and lutin negative. . . . . 7 cases
					Lutin positive and Wassermann negative. . . . . 0 cases
					Wassermann positive and lutin negative. . . . . 0 cases
					Lutin positive and Wassermann negative. . . . . 12 cases

stats for periods up to fifty days. Bits of culture medium are isolated which appear (macroscopically and microscopically) to contain the organisms in large numbers. Then the solid and fluid media are ground together in a sterile mill until a medium of moderate fluidity is obtained. This is then heated for one hour at 60° C., and is preserved with one half per cent. tricresol or phenol.

The innocuousness of the reagent is determined by animal inoculations and cultures on the medium described before injection into human beings. It is of great importance to make bacteriological tests from time to time to determine the continued sterility of the final product, otherwise nonspecific results may be obtained from local infection at the site of injection. A control injection is prepared by grinding up in a similar manner the culture medium

the upper arm may be used for the injection. I have been in the habit of using the left forearm for the lutin injection and the right forearm for the control. According to the published reports of Noguchi and others, there is either no reaction at all at the site of injection in normal individuals or a small erythematous area which recedes within forty-eight hours. After observing the reaction to the injection in a large number of apparently normal individuals I have come to the conclusion that with the present method of preparation of the lutin there occasionally develops at the site of the injection of the reagent, and also at the site of the control injection, a small area of infiltration varying in size up to about eight or ten millimetres, which is often surrounded by a blush of erythema and which may persist for from two to four days.

There is usually no marked infiltration present. The occurrence of this type of reaction has been of sufficient frequency to lead me to disregard what Noguchi calls the "papular" reaction as a specific phenomenon, unless the area is greater than eight or ten millimetres in diameter and is markedly infiltrated. The reaction that I have learned to consider positive is a markedly infiltrated papule over eight millimetres in diameter, which persists after the third or fourth day as such or progresses to definite softening or pustule formation. The inflammatory area may be capped by a few small vesicles, which may rupture or become filled with pus. The pustule may begin to form after the second or third day in severe reactions and increase in size until it reaches the size of a plum. It may rupture spontaneously or become absorbed; in the latter event the site of injection may remain infiltrated and pigmented for a month or more. The severe reactions are occasionally accompanied by intense itching and burning in the arm, but I have failed to observe general symptoms attributable to the local lesion. In only a few instances have the axillary nodes been slightly enlarged.

It is usual for the reaction in positive cases to begin to disappear about the sixth or seventh day, but in some cases the local lesion may remain infiltrated for a longer time and pigmentation may persist for many weeks, or even a few months, after inoculation. There is a torpid or tardy form of reaction which has been observed in a small number of cases, usually of cerebrospinal lues or tabes. At the end of the usual period of observation the reaction appears to be negative, but about the seventh or tenth day a small vesicle or papule appears at the site of inoculation of the luetin. This lesion is usually about one centimetre in size and may rupture and discharge a small amount of serosanguinous material (hemorrhagic reaction) or go on to the development of a small pustule. In a very few cases I have observed, only at the site of the control injection, a definite reaction, similar in all respects to the positive papular or pustular reaction. These cases were in normal individuals. Similar specimens of control injection fluid in other individuals failed to cause any reaction whatever. I have no explanation to offer for this paradoxical reaction other than the possible presence of irritative factors in the control material or local skin susceptibility to infection.

In about ten per cent. of all active syphilitics who reacted positively to the luetin test there was a reaction of equal intensity at the site of the control injection. In a few instances the control injection reacted even more markedly than the luetin site. This peculiar phenomenon may be explained as follows: It is a well known fact that the skin of syphilitics is susceptible to trauma, and that not infrequently gummata form at the site of such injury. Finger was of the opinion that at such a place a *locus resistentiæ minoris* is formed, into which the virus or organisms of the disease wander and cause a lesion. This is the theory of superinfection. Neisser, since he could never find the organisms in these lesions, denied this hypothesis and maintained that there was an altered condition of the skin itself responsible for the pathological

condition. This condition of the skin Neisser called *Umstimmung*. It is this explanation that Noguchi offers for the occurrence of reactions at the site of the control injections in cases of syphilis.

Marked *Umstimmung* was observed in a number of tertiary cases and in one of the hereditary cases. Further, a few cases in which I have been unable to discover any specific taint (the history, clinical course of the disease, and the Wassermann reaction all being negative) gave definite *Umstimmung*. Inasmuch as all the cases were injected in series, the reaction at the control site could not be attributed to too great concentration of the luetin. The reagent was always sterile when injected. Of course, we must always bear in mind the possibility of infection by skin bacteria of an area rendered somewhat susceptible by the injection of a slightly irritating reagent.

This paper is the result of experience gained by the injection of nearly four hundred cases of syphilis and nonsyphilitic conditions.

#### PRIMARY AND SECONDARY SYPHILIS.

In primary and secondary syphilis the proportion of positive results is so small as to render the test of little practical value. In thirty cases, in most of which there were active lesions, the reaction was definitely positive in three cases (ten per cent.). Some of the patients were injected before and some after treatment. The Wassermann reaction in these cases, treated and untreated, averaged eighty per cent. of positive results. In one of the cases, in which the luetin reaction was positive after the patient had received salvarsan and mercury, the Wassermann reaction became negative and remained so. No definite relationship could be noted between the amount of treatment and the outcome of the test in this stage of the disease. It would appear that in the active stages of syphilis, when the tissues are invaded by the organisms, the body has not entered into a condition of altered reactivity or allergy.

#### TERTIARY SYPHILIS.

It is in the tertiary stage of the disease that the test seems to have its widest and most useful application. A few published reports by observers have shown a very high proportion of positive results in tertiary syphilis. My figures are not quite so high. In thirty cases of tertiary lues I have obtained positive luetin reactions in nineteen (sixty-three and one third per cent.). In a number of the test was positive in twenty-three of these cases (seventy-seven per cent.). In a number of the patients the Wassermann test was positive, although they were under very active treatment. Two cases gave both a negative luetin and Wassermann reaction, one being that of a patient with malignant lues, the other a tertiary luetic with spinal symptoms. Four cases gave positive luetin reactions and negative Wassermann reactions. One was that of a patient with marked periartthritis and synovitis who recovered after antisyphilitic treatment. The others were cases of aneurysm of the aorta, myocarditis with tertiary luetic manifestation and cerebral endarteritis. In all these instances the diagnosis was established or confirmed by the positive luetin reaction. In a case of spinal tumor both the Was-

sermann test and the luetin reaction were positive. The tumor removed by operation proved to be a glioma. Of course, there is the strong probability here of the existence of a neoplasm in a specific individual. In seven active cases the Wassermann test was positive and the luetin test was negative, while in four cases the luetin test was positive and the Wassermann reaction resulted negatively.

Thus, the reaction was of definite diagnostic value in a number of cases, although the figures were not as high as those obtained by the Wassermann test. It seems that the individual is in a state of allergy in this stage of syphilis, and it is to be hoped that with the further purification of the reagent and the incorporation in it of a larger number of strains of the *Treponema pallida*, the allergic reaction may be brought out in a larger percentage of the cases.

#### HEREDITARY SYPHILIS.

The luetin test was positive in but one case, while the Wassermann test was positive in five cases. *Unstimmung* was marked in the positive cases. All of these cases were in children over three years of age who had manifest lesions, and but one of them had been treated. Two of these cases gave suspicious reaction to luetin. In four other members of luetic families in which a serum test could not be obtained the luetin tests were negative.

#### TABES.

In thirty-two cases of tabes in which the Wassermann test was positive in the blood and spinal fluid in about half the cases, the luetin reaction was positive in but three cases. In no case in which the Wassermann test was negative did I obtain a positive luetin reaction. Many of these patients were in the late degenerative stage of the disease, in which all the tests, both of the blood and spinal fluid, were negative. In one of the cases, which also showed lesions of tuberculosis, a tardy pustular reaction with *Unstimmung* was obtained.

#### CEREBROSPINAL SYPHILIS.

The test is of more value in cerebrospinal syphilis. Of thirteen cases, four gave a positive luetin reaction and nine were negative. Thus, in this form of lues, representing a more or less active invasion of the nervous system, the reaction tends to give a larger proportion of positive results. One of the patients were injected three times, and each time a pustular reaction resulted. Two of the cases showed the tardy reaction and one of these gave the tardy reaction twice.

#### LATENT LUES.

In seven old luetics who had been well treated and had not recently presented lesions, the tests were uniformly negative. In four of these cases the Wassermann test was positive.

#### CONTROLS.

As to controls, I was able to observe for a sufficiently long time to be able to rule out all latent or delayed reactions—225 cases of the type, one is apt to meet in the wards of a large hospital. It must be taken into consideration that while syphilis is a factor in the lives of the type of patient coming to the Mount Sinai Hospital and the Montefiore

Home, this disease is not so frequently met with as in the patients of some other institutions. This is especially true of the older generation of Hebrews. My results show that out of the 225 cases there were twelve definitely positive luetin reactions in cases in which the Wassermann tests and histories were negative. In none of the cases could any evidence of the disease be found *intra vitam*. (As mentioned above, I have not taken into account small papules at the site of the inoculation, else the number of "nonspecific" results would be greater and, it should also be mentioned, the proportion of positive results would approach the higher figures of other observers.) Each of these twelve cases presented a negative history and repeated Wassermann tests were negative. One was a case of gout, another cirrhosis of the liver and a third nephritis. The two latter occurred in individuals who were fathers of large and healthy families. Three cases of tuberculosis gave definitely positive reactions. In thirty other cases of tuberculosis the test was negative, although I noted a tendency to slight papule formation in many of these patients. A case of myasthenia gravis gave a definitely positive reaction three times. The blood and spinal fluid yielded a negative result to all tests. A case of multiple sclerosis at the Montefiore Home twice gave a positive reaction. A case of scrofuloderma reacted positively three times. At various institutions this was regarded as a case of tuberculosis. Antispecific treatment was of no therapeutic value, but tuberculin treatment was decidedly beneficial. The three remaining cases were of nephritis, endocarditis, and psoriasis; all without ascertainable specific taint.

That syphilis may be a latent factor in some of these cases is possible, though the usual criteria for determining the condition were absent in all. This leaves us with a small proportion of nonspecific results for which I can offer no explanation. However, I think that in any intradermal reaction the introduction of the reagent under or into the skin is occasionally attended with a certain traumatic risk to the skin, and the presence of skin bacteria must always be a latent factor in causing occasional nonspecific reactions. As I suggested before, a further purification of the luetin will probably reduce the proportion of nonspecific results to a minimum. In this event the reaction will be of exceptional negative value as a routine test for the presence of latent lues. It will require further work, both on the part of investigators trying the reaction upon patients in the wards and dispensary, and on the part of the originator of this new aid to the diagnosis of specific infection, to whom we must look for a more virulent and less irritating product, before the final value of the test will be known and before any comparison with other methods which have been in use for diagnosis for almost a decade can be made.

To summarize, from what has gone before, it is apparent that the test, as now applied and with the luetin now in use, is of little value in the active early stages of syphilis—i. e., in the primary and secondary stages. I have been unable so far to formulate any definite criteria from a prognostic standpoint concerning the value of the reaction in



treated cases of active lues. The luetin test is of little help in so called parasyphilitic conditions, especially the old degenerative types, and I agree with Noguchi that it cannot compare with the Wassermann reaction for diagnosis in such conditions. In cerebrospinal syphilis, on the other hand, it is of service, and the results in an extended series of cases in the active stages of this disease should approach those obtained in the tertiary period. In the tertiary stage of syphilis the reaction seems to be of the most value and is a valuable supplement and adjunct to the Wassermann test. In a large series of cases the test was specific for lues with the exception of five per cent. of the cases in which syphilis may possibly have been a factor.

I wish to express my sincere thanks to the attending physicians and surgeons of Mount Sinai Hospital for their courtesy in extending the privileges of the wards to me, to Dr. S. Wachsmann, of the Montefiore Home, for similar courtesies, and to Dr. David Beck, of the Mount Sinai Hospital House Staff, and Doctor Palefsky, of the Montefiore Home, for their kind assistance.

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1070 MADISON AVENUE.

## THE NEED OF THE MICROSCOPE IN THE TREATMENT OF GONORRHEAL URETHRITIS AND PROSTATITIS.

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Most of the textbooks and monographs outline the treatment of gonorrheal urethritis, according to different stages, each to last a certain number of weeks, into which the disease is arbitrarily divided. Each of these stages is supposed to last for "so long," and then another stage is expected to begin, and to be treated accordingly. If these conditions were treated scientifically, and with the aid of the microscope, to actually see the changes that take place in the urethral canal, as shown in the discharge, no such unscientific stages and consequent treatment would be called for, as will be shown later.

Concerning prostatitis, altogether too little is mentioned, and yet the existence of an uncured infection of this gland is the cause for more recurrences of specific and nonspecific urethritis than many are willing to believe. The mere fact that there is enlargement of the prostatic gland, as found by palpation with the finger in the rectum of a young man, is not enough reason to suspect it of carrying infection. Nor is a small prostate always healthy. Even such prostatic glands as feel nor-

mal or nearly normal on palpation may be infected, and the only certain way to determine the condition of this gland is to obtain the secretion therefrom for a thorough microscopical examination.

*Acute infections of the urethra.* We all know that not every discharge from a meatus is of gonorrheal nature, and yet, unless this is properly examined to determine the cause we are apt to treat such cases as gonorrheal infections. Should it happen to be an infection due to some organism other than the gonococcus, appropriate treatment may cure it within a few days, while if such a case is to be treated as gonorrhea without first consulting the microscope, the patient would be much better off if he had not consulted the physician for a few days, because by this time he would probably be well without any treatment at all except the constant flushing of the urethra by the urine.

More frequently than is generally supposed, an acute discharge from the urethral meatus is due to the presence of a chancre in the urethral canal. The presence of syphilis as the cause would not even be suspected in most cases if it were not for the fact that upon microscopical examination no gonococci were found in such acute discharge.

If a patient who presents himself for treatment really has a gonorrheal infection, the diagnosis should be made or confirmed by making a smear of the discharge present and examine with the microscope to determine whether the gonococci are intracellular or extracellular and the portion of the extracellular gonococci with the intracellular ones when both are present. Physicians who treat their patients in this manner know that a great deal of benefit results from these determinations. If all gonococci in a given case are extracellular, such case can sometimes, if not often, be aborted, and the probability of aborting these cases diminishes with the increase of the number of intracellular gonococci. It very often happens that a patient with discharge, and a large number of intracellular and extracellular gonococci, or even only intracellular gonococci, being treated only once at the office, is instructed how to treat himself at home, and returns to the office the next day, not showing a single gonococcus in the smear. In other cases the gonococci may not disappear for two or three days, while in others this may take a week or ten days, or even a longer time. In cases where the gonococci disappear promptly, after appropriate treatment is instituted, and if such treatment is modified according to the microscopical findings as the case progresses, the patients get well in a very short time—certainly much less than the proverbial "six weeks."

But beside having the gonococcus and its situation to guide us, if we use the microscope, we have other constituents in the discharge to give us additional information. Thus we find the presence of pus cells, epithelial cells, and mucus, and it is only by a thorough understanding and consideration of the presence of these constituents in greater or less quantities or proportions, and an appreciation of the significance of their absence during the course of treatment, that we can treat our patients properly and in accordance with scientific principles. A great many of these infections, especially those which have been treated for some time with some

of the silver salts, show a very profuse purulent discharge, due to overtreatment and consequent irritation, as shown by the microscopical findings, and not a few of such patients are treated even more vigorously because of this very discharge, whereas a proper examination would have indicated the necessity of discontinuing the injections. It is undoubtedly true that to treat a gonorrheal infection without the aid of the microscope as a control, is just as reprehensible as it would be to treat typhoid fever without taking the patient's temperature.

**Chronic urethral infections.** Chronic infections of the urethra may be due to gonococci, or to some other bacteria. Unless we are quite certain what we are dealing with, how can we give appropriate treatment? It is true that in a small proportion of cases even the microscope is not of sufficient aid; so that we have to resort to cultures to determine the nature of the infection. Chronic infections often require a great deal of instrumentation, and it would be very unwise to introduce instruments of any kind without finding out whether the canal is free from bacteria. The presence of a mucoid secretion, as we find it in such cases, does not necessarily denote the presence of bacteria, nor does the scantiness of a secretion exclude their presence. There are types of bacterial urethritis which, under appropriate treatment, will clear up in a couple of days, some that will take a few days, or even longer for this, and still others that are perhaps incurable. But who can diagnose and treat these without microscopical aid?

The instrumentation essential in the treatment of chronic urethritis often gives rise to an irritative discharge, but since a discharge may also arise from the use of nonsterilized instruments, the only possible way of making a diagnosis of the nonbacterial discharge in the first, and the bacterial one in the second instance, is by means of the microscope. Naturally, the treatment should vary in these different conditions; can this be done without a proper diagnosis?

But few chronic cases of urethritis are due to the presence of gonococci, and it is of great significance when their presence can be demonstrated, because they are very resistant to treatment. Instances where gonococci persist for from four to six weeks, or even longer, in the discharge should not be referred to as chronic unless it is certain that their presence is not due to inappropriate treatment. A discharge does not have to be profuse, or even moderately large, to contain gonococci, and it is very surprising sometimes to find that a very slight, innocent looking mucoid secretion contains them. It is important to examine microscopically the well known "morning drop" of chronic urethritis, though in most cases only an endoscopic examination will reveal its cause; for often the gonococci will be found in this drop, when during the rest of the day none can be found. On the other hand, the morning drop may be due to diplococci, staphylococci, the micrococcus catarrhalis, or other microbes. We often see instances in which two or three days after sexual intercourse a man has a slight discharge from the urethral meatus which looks purulent and is more profuse in the morning. Such discharges are due to an irritative secretion

the female was afflicted with, and on microscopical examination they generally show, beside the other constituents of pus, a large number of other bacteria, but no gonococci. If they are properly diagnosed, from three to five days, or even less time, suffice for a cure.

**Acute prostatitis.** To treat a case of gonorrheal infection, especially one in which the patient does not markedly improve or get well in the first two or three weeks, without making an occasional microscopical examination of the prostatic secretion, is almost equivalent to allowing a prostatitis to progress without treatment. These examinations are very important because, though we may have a prostatitis involvement of severe enough degree not to escape notice, we may also have slight involvements that deceive us for the time being, and later, if wondering why the patient does not get well, we do examine the prostatic secretion, and find that the delay has been due to a prostatitis, which may have steadily grown worse. Even those instances in which the last portion of urine is turbid, denoting a prostatic infection, it would be far more scientific to actually find an increased amount of pus in the prostatic secretion, because, after all, this is not the only condition in which the last portion of urine is turbid. Gonococci are as apt as not to be found in a gonorrheal prostatitis, and their presence is of importance because in just such cases are some of the severe complications, such as gonorrheal rheumatism, endocarditis, epididymitis, orchitis, etc., prone to develop, and also because in such involvements of the prostate, the treatment would have to be more directly and more vigorously applied to that source.

According to many authorities the treatment of urethritis should be greatly changed as soon as an extension of the infection to the prostate takes place. It would therefore seem necessary to be able to make a positive diagnosis of such extension as early as possible. In prostatic involvements the urine will clear up long before the prostatitis, and if we are to have no microscopical examinations of the secretion, how are we to tell when the process is over? The appearance of the urine and the size of the prostate are entirely untrustworthy as indices. The appropriate treatment at the outset of prostatic infections until microscopically cured would reduce the number of patients suffering from chronic prostatitis very appreciably.

**Chronic prostatitis.** This includes those slight or moderate infections of the prostate that have been overlooked and also those that became chronic in spite of our best efforts and care. The size of the prostate may be normal or it may be larger or even smaller than normal, and therefore this is of no diagnostic value. To illustrate: A patient came to me who had previously been to a number of physicians who had treated him by copious massaging; and I cured him without massage. He complained of a discharge from the urethra recurring at frequent intervals, which was more marked after partaking of alcohol. Upon examination I found him a man of twenty-eight years of age, of large stature and good development. He had a moderately large prostate, and it seemed that every physician he visited took this, evidently on account of its enlarged

size to be the seat of his trouble. When I palpated his prostate, I had the same suspicion, but, upon examination of its secretion with the microscope, found it perfectly normal. Then looking for the seat of trouble elsewhere, and finding it in the anterior urethra, I soon had the patient cured. This case is mentioned merely to show emphatically how important these details are.

In treating chronically infected prostates, we all know that many of them take months to cure; yet, how are we to judge when treatment is no longer necessary? The microscope is the only guide.

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## Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXXI.—How do you treat burns? (Closed June 16th.)

CXXXII.—How do you treat cholera infantum. (Answers due not later than July 15th.)

CXXXIII.—How do you treat threatened abortion? (Answers due not later than August 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXXII has been awarded to Dr. John H. Shaw, of Philadelphia, whose article appears below.

## PRIZE QUESTION CXXXIV.

### THE TREATMENT OF MUSCULAR RHEUMATISM.

By JOHN H. SHAW, M. D.,  
Philadelphia, Pa.

The treatment of muscular rheumatism or myalgia depends entirely on the etiological factors and the locality of the affection.

Before taking up the treatment it will be necessary to give briefly a description of the condition usually seen.

Muscular rheumatism is an acute and sometimes chronic affection, characterized by pain, especially on movement, tenderness, spasm, and more or less localization in certain muscle groups. It is usually caused by unaccustomed overuse of certain muscles and may be brought on through exposure to cold and wet. Localized chilling of the body by draughts have caused the condition. Some persons have a certain predisposition to the disease. There is usually, however, a history of a sudden exertion followed by severe pain which disables the person sometimes absolutely, lifting weights and indulging in unac-

customed sports are commonly observed. There are certain muscle groups which are particularly prone to suffer: The muscles in the loins and their tendinous attachments, giving the condition commonly called lumbago. Torticollis is a similar affection involving the trapezius and sternocleidomastoid muscles. Pleurodynia is an involvement of the intercostal muscles. The treatment of the condition may be divided into local and internal. A patient suffering with myalgia of the back often demands morphine, as the pain will be unrelieved by other drugs. He must be put to bed and absolute rest enjoined. Catharsis if indicated is necessary, especially if the patient has a tendency to the affection. Salol and acetate and citrate of potassium or potassium iodide may be administered if there is especial indication. The diet should be light and liquid principally. The main treatment together with rest in bed is the application of heat (not cold) in the form of fomentations, poultices, and hot water bags. Dry cupping over the region of tenderness one half hour twice or thrice daily is very beneficial. If there is electricity in the patient's home, one or two electric light bulbs placed a half a foot from the body directly over the affected part, a piece of asbestos, tin, or woollen covering encircling, so as to concentrate the heat, will produce a hyperemia, which will greatly facilitate Nature's process. The skin should be protected by anointing with petrolatum; blistering has resulted without its use. The electric light baking apparatus is, however, more serviceable. This treatment I have found very beneficial, together with light massage, after which a woollen cloth is placed over the hyperemic area.

The galvanic current for five or ten minutes may be applied. Acupuncture has been used, but I have found it not necessary. Turkish baths are very helpful, especially in those predisposed, care being taken against exposure to cold afterward.

Light massage with the use of a suitable lubricant which contains analgesic qualities I have found serviceable. The following I prescribe:

R	Menthol, {	.....āā 5i-5ii;
	Camphor, {	.....5ss-3i;
	Hydrated chloral	.....5ii-5iv;
	Oil of gaultheria,	.....3i-3ii.
	Hydrous wool fat,	.....3i-3ii.
	M. ft. unguentum.	

After the patient is able to be out of bed a suitable adhesive plaster dressing will enable him to walk with slight muscular fixation.

Those who have a tendency to myalgia should be directed to indulge in systematic, but not violent, exercise, to keep the skin open by the weekly or twice weekly Turkish bath. Any tendency to constipation must be corrected by the daily habitual movement without the usual drug addition. Any tendency to visceroptosis will be helped by exercise or, if marked, a suspensory abdominal binder will relieve.

In torticollis the same measures may be used. If the condition should be of long standing, myotomy may be necessary. Pleurodynia is best treated by hot applications, massage with an analgesic lubricant, and strapping with adhesive plaster.

In summarizing the treatment of muscular rheu-



matism is will be found that the most suitable management of such a condition would be the use of

1. Rest.

2. Hyperemia } Heat { dry.  
                  } Cupping { moist.  
                  } Electricity

3. Galvanic current.

4. Massage, at first light, later by friction.

5. Correction of any tendency to the affection.

6. Exercise (systematic).

7. Baths.

*Dr. Karl A. Meyer, of Hot Lake, Oregon, says:*

The treatment of muscular rheumatism is of marked importance to the general practitioner for two reasons: 1. The great number of these cases that come under his observation; and, 2, his inability to secure results in the great majority of cases, these same patients securing results at the various hydropathic and osteopathic institutes.

The first part of our discussion is to be taken in the prophylactic treatment of this disease. Here we should begin by educating the children of the great family of rheumatics. Next, in case there is a history of previous articular rheumatism it behooves us to advise against exposure to cold for fear that this abarticular trouble may come on at any time. In immediate prophylaxis we have the treatment of all throat infections, sinus troubles, and pyorrhea alveolaris. This latter is of marked importance. Then, too, we must guard against rheumatic symptoms of certain intoxications, as iodism, plumbism, food poisoning, and autointoxications.

The second part of our discussion will be given over to the general measures to be used in a given case.

1. General directions: The first thing to impress on the patient is rest and this means rest to its fullest extent—that is in bed. If this idea is fully carried out the duration of the disease is much shortened. We need but mention here that the room should be light and airy. If we are dealing with a severe case a nurse should be in constant attendance.

2. The diet as a routine should be liberal and consist of milk, eggs, light meats, farinaceous articles and cruciferous vegetables. Between the regular meals buttermilk may be allowed *ad libitum*. The drinking of water is pushed to its fullest extent.

3. The next in order of general treatment is hydrotherapy. This phase of the subject is much neglected by the general practitioner and is the reason that our various hot springs have their repute. Very few in the general field of medicine use this measure to the fullest advantage. After a thorough general examination we should outline the course of baths to be given and the duration. If in a private home the general bath should be used daily, increasing the temperature of the bath as judged by the condition of the patient. The duration of the bath varies from five to twenty minutes, after which I give either a blanket or alcohol sweat. The length of time this is continued also varies with the condition of the patient. During this

treatment all the hot liquids, that can be comfortably borne by the patient, are given.

Other measures that may be used are the various hot air equipments that are on the market. My personal observation has been that moist heat has much the preference.

4. The question of massage comes up at this point and has much to commend it, but always with the general rule, that it is not to be instituted until after the pain and tenderness have been under control for at least twenty-four hours. The massage should be general, with special attention to the area involved. One should always begin with light treatments. The success of the osteopath in the treatment of muscular rheumatism is due to the fact that he usually sees these patients after the acute symptoms have abated; but allow him to use his manipulations in an early case, and he is usually not called upon to give the second treatment.

5. In some cases of lumbago and other localized muscular troubles we do not have results with any of the general methods at hand. Here I have used acupuncture to good advantage. Of use also has been the injection of ten c. c. ice cold normal salt solution. The injection is made directly into the muscle involved.

6. Medicinal: The medicinal treatment I have purposely left to the last, for it is fully discussed in all works on treatment. In case of severe pain where our other methods are still to be instituted, we may have to use the opiates. Personally I use one or two injections of morphine in preference to the other derivatives of opium. Here, as in articular rheumatism, the salicylates stand out preeminent. My directions are to give large hourly doses until symptoms of intoxication appear, and then rely on smaller doses. Sodium bicarbonate is given to lessen the gastric irritability. In cases where the gastric symptoms are such as to preclude their use, the hypodermic injection of sodium salicylate or of salicylic acid in oil may be tried. Here also we may mention the use of sodium salicylate per rectum. Instructions are given to use fifteen grain suppositories four or five times daily, but always looking out for rectal irritability.

In chronic cases the iodides and arsenic may be of much benefit. As in other forms of rheumatism, we must combat the secondary anemia. A friable pill of iron carbonate, extract of nux vomica, and arsenic may be used three times daily after meals.

Constipation is to be combated with the salines or vegetable cathartics. This feature is of marked importance, for when the bowels do not act the rheumatism is usually much worse.

For local use we have the twenty per cent. salicylic acid ointment or a liniment of oil of gaultheria. After these local applications we may apply the flannel jacket or bandages with the addition of local heat with water bottles or electrical pads. The constant current used locally is of some benefit.

The third part of our discussion comprises specific medication. First to be considered is muscular rheumatism of a gonorrheal nature. Here

we must treat the local symptoms and institute a course of mixed vaccine. Much of the general treatment given above should be instituted. Internal medication is of no benefit. Next we have the muscular pains of syphilis. These are to be treated by mercury rubs or injections and possibly salvarsan. We must also mention the use of quinine in the complication of muscular rheumatism with malaria.

The general practitioner is now called upon to decide whether or not to use an alleged specific for all forms of rheumatism of a nongonorrheal character. I refer to the phylacogen treatment. As a personal measure I have never instituted the treatment, for I could not see my way clear in justice to my patients. However, I may add, that many cases have been brought to my attention in which this treatment has been employed without any benefit, and in several with much detriment to the general health of the patients.

(To be concluded.)

### Therapeutic Notes.

**Treatment of Seborrhea Sicca.**—C. Sabatié, in *Progrès médical* for March 1, 1913, states that in the treatment of dry scaly seborrhea of the face mild measures should alone be employed, as unduly energetic methods may bring on eczema. Washing with hot water alone, without soap, is sometimes sufficient to overcome the condition; where this is not the case a teaspoonful of salt or sodium bicarbonate may be added to the wash water. If this fails the following solution should be applied locally every evening, with a pledget of cotton:

R Acidi salicylici.....gr. xv (1 gramme);  
Alcoholis (65 per cent.).....5iij (100 grammes);  
Aque.....5iiss (100 grammes).  
M. ft. lotio.

After using this preparation the skin should be dried and the following ointment applied:

R Zinci oxidi.....5i (4 grammes);  
Petrolati.....5i (4 grammes);  
Adipis lane hydrosi.....5i (8 grammes);  
Aque rose.....5iij (12 grammes).  
M. ft. unguentum.

Where the condition persists in spite of these preparations more active treatment is justifiable. If the skin is dry ointments containing tar, oil of cade, or oil of birch may be used:

R Olei betule.....m. xv (1 gramme);  
Rosorcinolis.....gr. iv (0.25 gramme);  
Zinci oxidi.....5i (4 grammes);  
Adipis lane hydrosi.....5i (8 grammes);  
Petrolati.....5iij (12 grammes).  
M. ft. unguentum.

If the skin is red and the scales greasy and moist a weak potassium sulphide lotion—ten drops in a glassful of water—or one containing the following powder, may be used:

R Sulphuris præcipitati.....gr. xv  
Talc pulvis.....5iiss  
Mise.

Trouble of this latter type constitutes a connecting link between seborrhea and eczema. The treatment customary in eczema may thus become indicated.

**Treatment of Hyperchlorhydria.**—Anthony Blasser, in the *American Journal of Gastro-Enterology* for January, 1913, in addition to describing the dietetic treatment of these cases, recommends that alkalies be given in one of the following forms:

R Magnesii oxidi.....  
Bismuthi subcarbonatis.....  
Sodii bicarbonatis.....  
Sodii carbonatis exsiccati.....  
Sacchari lactis.....  
Fiat pulvis.

Sig.: One half teaspoonful in water one, two, or three hours after meals.

Or,

R Magnesii oxidi.....5iiss (10 grammes);  
Bismuthi subnitratris.....5v (20 grammes);  
Syrupi acacia.....g. s.  
Aque destillate.....q. s. ad 5vii (200 grammes).  
Fiat mistura.

Sig.: One tablespoonful plain or in water, one, two, or three hours after meals.

Where constipation exists the following is suitable:

R Magnesii oxidi.....5iiss (5 grammes);  
Misture rhei et sodie.....5vii (200 grammes).  
M. Sig.: One tablespoonful in water after meals.

If a powder or mixture is not desired, tablets may be prescribed:

R Magnesii oxidi.....  
Bismuthi subcarbonatis.....  
Rhei pulveris.....

Ft. in tabellas No. L.

Sig.: One or two tablets one, two, or three hours after meals.

Belladonna, the drug next in importance, after alkalies, may be given thus:

R Extracti belladonnæ foliorum, gr. v (0.32 grammes);  
Bismuthi subcarbonatis.....5iv (15 grammes).  
Ft. in tabellas vel pone in chartulas no. xx.  
Sig.: Take one before meals.

For a mechanical sedative effect on the gastric mucosa, the following combination of Stockton's should be used:

R Cerii oxalatis.....5iiss (10 grammes);  
Bismuthi subcarbonatis.....5v (20 grammes);  
Magnesii carbonatis.....5x (40 grammes).  
M. ft. pulvis.

Sig.: One half teaspoonful every four hours.

Gastric hyperesthesia is commonly present in these cases, the symptoms of it being most pronounced when irritation from free hydrochloric acid is taking place. To overcome it the author recommends the following:

R Sodii bromidi.....  
Tinctura valeriane.....  
Fluidextracti sambul.....  
Syrupi.....5iij (10 grammes).

M. Sig.: One teaspoonful in water after meals.

Olive oil, 100 or 200 c. c., by stomach tube each morning (Cohnheim), or in smaller quantities before meals, may be administered where there is no objection on the patient's part. Free use of butter, cream, or milk at meals is often advantageous.

A morning dose of Carlsbad salts in a glass of warm water is very useful in cases of very high acidity or marked oversecretion. The salts can also be used in doses of fifteen grains (one gramme) in Vichy after each meal.

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THE ANTITUBERCULOSIS WORK IN THE  
EAST RIVER HOMES CONDUCTED BY  
THE ASSOCIATION FOR IMPROV-  
ING THE CONDITION OF THE  
POOR.

Among the papers presented at the recent annual meeting of the National Association for the Study and Prevention of Tuberculosis in Washington was a notable report by Dr. Edward C. Brenner, describing the first year's operations of the Home Hospital in New York city. This unique institution marks a new departure in methods of combating tuberculosis in that it constitutes the first really adequate attempt at home treatment and control of indigent cases of tuberculosis in this country.

Soon after the completion of the East River Homes, which were built with every modern hygienic device to bring sanatorium conditions as far as possible to the city patient, the Association for Improving the Condition of the Poor leased for a term of three years an entire section, consisting of twenty-four apartments. The objects of the association were not only to care for the tuberculous patient, but also for the family as a unit, to prevent the spread of the disease from the afflicted to the well, and particularly to protect the children from infection, to cure incipient patients, to preserve the family from sinking into dependency, and

to restore at least to partial earning capacity the patients in moderately advanced cases. To carry out these objects a sufficient medical and nursing staff was provided, and, where necessary, the income of the family, crippled in its resources by the illness of its breadwinners, was supplemented sufficiently to relieve the patient of the anxiety which is so often an unfavorable factor in the treatment of the tuberculous poor.

During the past year there have been cared for a total of seventy-nine patients, including thirty-four children, distributed in twenty-seven families containing also fifty-six presumably healthy members, not a few of whom, however, were ill nourished, anemic, and likely candidates for tuberculosis in the unfavorable environment from which they were removed. The results obtained compare very favorably with those of sanatorium treatment, sixty-one per cent. having been apparently cured, twenty-two per cent. having had their disease arrested, and eleven per cent. being much improved. A striking feature in practically every case has been the marked gain in weight during the first two months of residence in the East River Homes. This in itself is an indictment of ordinary tenement housing conditions. The results have been especially good in the care of children, not only for those who are frankly tuberculous, but also for the undeveloped, marasmic, and puny infants which are so numerous in the squalid tenement homes.

The economic showings of this valuable experiment of the Association for Improving the Condition of the Poor promise to be as satisfactory as are the medical results. If it can be demonstrated that the tuberculous poor can be efficiently cared for at home with actually less expense than is entailed in breaking up the family, placing the patient in sanatorium or hospital and the children in charitable institutions, an important step toward the solution of a difficult question has been taken.

## HOOKWORM DISEASE.

Humankind is prone to look to the macroscopic, while losing sight of the microscopic, for the causation of untoward epic events. Historians, for example, have almost entirely ignored the material, physical reasons for the deterioration of the Greek race, once the noblest in civilization and the fountainhead of most others since its Golden Age; in point of fact the decline and fall of Hellas began when Alexander and his men brought back anophels and malaria (one of the most enervating of diseases) from terrible old Mother India. Here, as so oftentimes elsewhere in history, did the conquered land avenge itself on its conquerors, and the



ethnic disaster was eventuated by means of the parasitic plasmodium.

For decades past great numbers of the people in our Southland have been considered perversely indolent and "no account." We now know that here was no fault of disposition, but that "the lazy man's disease" (from which at least 2,000,000 men, women, and children have been suffering) has been due to *uncinaria*. Its victims are unable to work: there is a physical reason for their languor, their lack of initiative and of ambition. However willing the spirit, their strength has been sapped and their blood drained by the vampire hookworm.

Such, then, is the essential cause of the common anemia in the South (the disease does not prevail above the thirty-fifth parallel of latitude, except among miners and brick and tunnel workers). Perhaps the first to rightly and justly interpret the phenomenon was Dr. V. W. Stiles, of the United States Public Health Service, who is now the scientific secretary of the Rockefeller Commission for the Eradication of Hookworm Disease. And it was this physician's exposition of the subject which led, in October, 1909, to the formation of the commission, to whose humane ends Mr. Rockefeller engaged to contribute one million dollars. Many agencies—local physicians (as a matter of course), State and municipal health departments, churches, boards of trade, women's associations, and the ever helpful lay press—have most loyally, earnestly, and efficiently worked with this commission since its inception, and its revenues have been supplemented from moneys contributed, according to their abilities, by the communities benefiting. Its objects have been, and are, to determine the area and the degree of hookworm infection, to treat the sufferers, and to remove the source of infection by putting a stop to soil pollution.

The third annual report of the commission (whose office is in Washington, D. C.) tells a most refreshing story of achievement. Its pages are informing as to well nigh every phase of the subject. In the three years past upward of 400,000 have been treated; 238,755 patients were taken care of in 1912, an average of 762 every day, except Sunday; 108,892 were treated in October, November, and December last. The medication is by thymol and Epsom salt or castor oil, and it is almost invariably effective—at a cost of 77 cents the patient. Something over one half the rural children examined have been found infected; many of them and their parents were destitute and well nigh over the edge of pauperism. And yet, though the poor suffered most, the well to do have been found by no means exempt; thirty per cent. of students at the University of Georgia, many of them of families of social distinction and material resources,

were found affected. There is now a superb spirit of mutual helpfulness throughout our eleven Southern States concerned which promises most redundantly for the eradication of this devitalizing disease and for the physical, psychic, and economic restoration of those who have heretofore been its victims.

## TROPICAL DISEASES IN THE UNITED STATES.

At first thought there does not appear to be any very intimate connection between the United States and tropical diseases, but, unfortunately, the association is much closer than generally imagined. Although this country is in the so called temperate zone, we are approaching a season that in many of the States will indeed resemble the weather that is thought to be peculiar to the tropics. It therefore behooves the physicians of the country to be on their guard against the possibility of some alien disease gaining a foothold, or, if already present, from increasing. In past years there was not so much danger, because the communication between widely separated lands was slow and it took as long to go from city to city as it does now from one country to another. Consequently, tropical diseases, with some exceptions, did not demand much attention. But conditions now are very different; communication is rapid, and thousands of immigrants from all parts of the world are pouring in. Of course, the barring out of disease is the correct method, but that is not always successful; so all physicians should be prepared to recognize the invader whenever or wherever it appears.

When a list of such diseases present in the United States is made it assumes a distinctly formidable aspect. The eastern coast does not include so many, for it is in some respects further away from the tropics, but the epidemics of yellow fever that have occurred from New York as far down as the Gulf are historic. To-day in many parts of the country the stegomyia is present in large numbers, and all that is necessary is the importation of a case of fever. Along the southern portion of the Mississippi Valley many cases of abscess of the liver occur, and, according to the statements of numerous physicians in that part of the country, this condition is secondary to amebic dysentery. In Mexico, between whose territory and ours there is no sharp boundary line, typhus fever is endemic, and Brill's disease is also found. Inasmuch as the latter affection, when experimentally produced, gives immunity to typhus, there must be a very intimate relation between the causative factors of the two diseases. If we go to the Pacific Coast it will be found that bubonic plague must be carefully

guarded against, as one serious outbreak has occurred there and many rats and squirrels have been found infected; consequently, it is an ever present danger. To the diseases mentioned must be added leprosy, one which is supposed to be distinctly Oriental, if not necessarily tropical, but which does occur in northern countries. It is present, though the cases are not numerous, in all parts of the United States, from Louisiana to Wisconsin, from New York to California. Although none of the trypanosome infections of man have occurred primarily in this country, cases of these have been met within our confines, and as we have plenty of biting flies, some such might be capable of playing host.

It would, therefore, seem more necessary than ever that the possibility of such infections be kept in mind, and that every graduate in medicine be sufficiently well informed as to be aware of the dangers of such foreign invaders.

#### INSANITY AMONG IMMIGRANTS.

The article dealing with mentally defective immigrants, written by Senior Surgeon George W. Stoner, Chief Medical Officer at Ellis Island, and appearing in the *JOURNAL* of May 10, throws new and heretofore unexpressed light on the immigration question in relation to the increased number of insane inmates of our public institutions. Especially is this interesting in view of the recent attempts at legislation aimed at the immigrant, on the plea that a large number of them are undesirable, because they are either actively or latently defective and thus tend to increase the burdens of the State in their support, or have a tendency to lower the eugenic standard of this country. If, however, as Stoner says, only about thirteen per cent. of the insane admitted to public institutions are aliens who have been here less than three years and whose mental condition can, therefore, be ascribed to a mental constitution defective before arrival, then the immigrant population is showing up remarkably well; when it is considered that the influences working upon a newly arrived immigrant are of such a character, probably because so different from the conditions under which he was living previously, as to predispose to a breakdown of some kind. In an immigrant the rapidity with which life here, and of a bewildering kind, moves about him, is apt to cause a mental vertigo which must sooner or later take him from his feet. But, in spite of this tendency, it does not seem to take the average immigrant very long to get into the whirl himself—much sooner in fact than natives of this country would, under similar circumstances—

and be swallowed up and assimilated with the rest of the people. Indeed, Boas demonstrated that even their physical character changes in the succeeding generations.

To a large degree the reason why immigrants flock to our public institutions is because they have been hearing, on the other side, of our wonderful public institutions and the treatment received therein, and they do not hesitate, on the slightest provocation, to apply to them; whereas the native American naturally shuns them either from pride, fear of publicity, or other reasons not holding with the immigrant. Physicians practising in foreign settlements have this very complaint to make, that the people have more faith in institutional treatment than in private, even where they can afford the latter.

The increase in the insane population of public institutions is general all over the civilized world, and is not merely local here and due to immigration. It is the stress of modern civilization which is at the root of the increase of insanity; so much so that the public is now aroused to the necessity of combating it. The large increase in the number of suicides in recent times is another manifestation of the increasing tendency to mental breakdown. For, in spite of the fact that in law suicide is not necessarily an act of an irrational mind, medical men are inclined to place it at the door of a psychosis. The increase in insanity is, therefore, an evil of civilization and of the civilized, and not of those lacking it, as exemplified by the immigrant. It would be interesting, in view of the fact that a certain proportion of the insanity in the public institutions is almost wholly ascribed to immigrants and immigration, to investigate the causes of the insanity in the admittedly larger proportion of natives; then perhaps the immigrant would in large part be freed from the entire guilt, and beside, it would leave our minds open to finding possible causes in another direction. At any rate, ascribing the increase of insanity to the large immigration and leaving it there, is unscientific, to say the least. A little further information on this question would be edifying.

#### INTRAMUSCULAR INJECTIONS OF MERCURY (EMULSION) IN THE TREATMENT OF SYPHILIS OF THE NERVOUS SYSTEM.

L. L. Cazenavette, in the *New Orleans Medical and Surgical Journal* for May, states emphatically that mercury has been, and is still, our best weapon against the ravages of the spirochete, and of value in all stages of syphilis. While admitting that remarkable results have been obtained by a single dose of salvarsan, it is not only necessary to

repeat the injection of salvarsan two or three times at intervals of a few weeks, but to follow this by mercurial treatment, in order that the spirochete may be destroyed and the disease cured. The advent of salvarsan, according to the writer, has helped to strengthen the belief in the therapeutic possibilities of mercury. In the treatment of syphilis of the nervous system rapid mercurialization is necessary to arrest promptly the ravages of the disease. The writer's favorite method is the intramuscular injection method, as this has several advantages: The treatment is entirely in the hands of the physician; the amount of mercury administered is small. Salivation is infrequent and the amount absorbed into the system is definite. Finally, there is no disturbance of the alimentary canal. He favors the use of the biniodide in oily solution.

### News Items.

**Changes of Address.**—Dr. R. Pettit, to 544 West 157th Street, New York.

**Philadelphia Laryngological Society.**—At the annual business meeting of this society, held on June 17th, the following officers were elected: President, Dr. E. B. Gleason; vice-president, Dr. George W. Mackenzie; secretary and treasurer, Dr. Charles A. O'Reilly. For two vacancies in the executive committee Dr. Ross Hall Skillern was elected to serve for two years, and Dr. Fielding O. Lewis for one year.

**American Society for Physicians' Study Travel.**—At a meeting of this society, held in Minneapolis on Monday, June 16th, the following officers were elected to serve for the ensuing year: Dr. James M. Anders, of Philadelphia, president; Dr. William J. Mayo, of Rochester, Minn., first vice-president; Dr. Llewellys F. Barker, of Baltimore, second vice-president; Dr. Frank Billings, of Chicago, third vice-president; Dr. Albert Bernheim, of Philadelphia, general secretary.

**Resolution Adopted by American Association for Cancer Research.**—At the annual meeting of the American Association for Cancer Research, held on May 5, 1913, the following resolution (the report of the Committee on Statistics and Public Education) was unanimously adopted:

It is the sentiment of this association that:

1. The present instruction of medical students in the symptoms and early diagnosis of cancer is seriously deficient.
2. The medical curriculum should include special lectures in the clinical departments dealing specifically with this subject.
3. The universities should provide competent lecturers in this subject to address the local medical societies.
4. The associate members of the association should be urged to take up the question of the proper methods of approaching the public on the subject of cancer.
5. The activities of this association should at present be chiefly confined to the education of the medical profession.
6. This resolution shall be sent to the deans of the medical schools and the secretaries of the State medical societies in the United States and published in the medical press.

**A Hindi Translation of Doctor Knopf's Prize Essay on Tuberculosis.**—Dr. Balkrishna Sharma, of Delhi, India, has sent to this country a number of copies of his recent Hindi translation of Dr. S. Adolphus Knopf's international prize essay on tuberculosis. Doctor Balkrishna has been fortunate enough to find a philanthropic publisher so that the essay can be retailed at five annas (about ten cents). In view of the great prevalence of tuberculosis in India and the fact that the Hindi language is spoken by more than eighty million people, the desire to educate the masses in the combat of tuberculosis in that part of the world is a gratifying sign of the universal progress of the antituberculosis campaign. A new issue of Doctor Knopf's Seventh American edition of *Tuberculosis as a Disease of the Masses and How to Combat It* has just come out so that, since the appearance of the original first German edition in 1900, there have appeared in all, including this Hindi and the recently issued French-Canadian translation, thirty-six different editions in various languages spoken in Europe, America, and Asia.

**The J. Hood Wright Hospital Changes Its Name.**—The J. Hood Wright Memorial Hospital, which was incorporated in 1898 as the Manhattan Dispensary, has got permission from Supreme Court Justice Page to change its name to the Knickerbocker Hospital. The petition says that since Mr. Wright's death the population of the district served by the hospital has increased greatly and the necessity for more funds has increased proportionately. The hospital managers and Mr. Wright's heirs believe that the present name of the hospital leads to the belief that it is so liberally endowed it does not require outside assistance, and for this reason none has been forthcoming. It is said that Mr. Wright desired outsiders to contribute toward the maintenance of the institution.

**Examination for Assistant Surgeons in the Public Health Service.**—Boards of commissioned medical officers will be convened to meet at the Bureau of the United States Public Health Service, Washington, D. C., and at the Marine Hospitals in Boston, Chicago, New Orleans, and San Francisco, on Monday, July 7, 1913, and Monday, August 4, 1913, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the Bureau. Candidates must be between twenty-three and thirty-two years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. For further information, or for invitation to appear before the board of examiners, address Surgeon General, United States Public Health Service, Washington, D. C.

**Changes in the Staff of the Rockefeller Institute for Medical Research.**—The board of directors of this institute announce a number of changes in the staff for the coming year, among them being the following new appointments: Wade Hampton Brown, M.D., associate in pathology and bacteriology; Carroll G. Bull, M.D., assistant in pathology and bacteriology; Frederick Lamont Gates, M.D., fellow in physiology and pharmacology. The following assistants have been made associates: Frederick Burr La Forge, Ph.D., chemistry; James Bumgardner Murphy, M.D., pathology and bacteriology; Gustave Meyer, Sc.D., chemistry, and Martha Wollstein, M.D., pathology and bacteriology. Michael Heidelberger, Ph.D., has been promoted, from fellow to assistant in chemistry. Dr. G. Canby Robinson, formerly associate in medicine, has been appointed associate professor of medicine in Washington University, St. Louis. Dr. Jacques J. Bronfenbrenner, formerly assistant in pathology and bacteriology, has been appointed director of the pathological laboratory of the Western Pennsylvania Hospital, Pittsburgh. Dr. Richard Vanderhorst Lamar, formerly associate in pathology and bacteriology, has been appointed professor of pathology in the University of Georgia.

**Personal.**—Dr. Joseph A. Blake has resigned as professor of surgery in the College of Physicians and Surgeons, Medical Department of Columbia University, a position he has held for twenty-five years, and as surgeon to the Presbyterian Hospital, after five years' service in that capacity. Both resignations took effect on July 1st. Doctor Blake is retiring from these positions in order to maintain his private practice.

Dr. Francis Barnes, clinical director of the Government Hospital for the Insane, Washington, D. C., and Dr. Nicholas J. Dynan, senior assistant, have resigned their positions. An examination was held on July 2d to fill the vacancies.

Dr. Francis H. Donoghue, of Boston, has been appointed by Governor Foss to represent the State of Massachusetts at the Third International Cancer Congress, to be held in Brussels, Belgium, during the first week in August, and also at the Seventeenth International Medical Congress, which will be held in London, from August 6th to 10th.

Dr. Stephen J. Maher, of New Haven, Conn., has been elected chairman of the Connecticut State Tuberculosis Commission.

The degree of doctor ophthalmology was conferred upon Dr. George F. Libby, Dr. William H. Crisp, and Dr. Daniel G. Monaghan, all of Denver, by the University of Colorado, at the annual commencement held on June 4th. This degree was never before conferred by an American university.



# The American Medical Association, Sixty-fourth Annual Meeting,

MINNEAPOLIS, JUNE 16 TO JUNE 20, 1913.

(Concluded.)

## Report of Sections.

### SECTION IN SURGERY.

TUESDAY, JUNE 17TH.

**Chairman's Address: The Surgeon and the Research Laboratory.**—Dr. A. F. JONAS, of Omaha, urges closer cooperation between the operating surgeon and the experimental research laboratory. Modern surgery is a science more than an art, and must be based upon scientific laws, which alone can be obtained by laboratory experimentation. Clinical and bedside findings and observations are more important than those obtained in the laboratory, but are insufficient. Apparatus and thoroughly equipped laboratories are necessary to the carrying on of such work, but it should always be remembered that architecture and apparatus are second to men. The work of the laboratory must not be detached, as shown by the fact that the blood pressure apparatus had been used in experimental laboratories for fifty years before taken up by the clinicians.

**Posterior Gastroenterostomy in Acute Perforating Ulcer of the Duodenum.**—Dr. JOHN B. DEEVER, of Philadelphia, describes the symptomatology, as based upon a personal experience of over thirty cases. The condition is absolutely surgical, for death is certain without operation, and cure practically certain when the interference is instituted early. The diagnosis is commonly confounded with that of acute indigestion. The pain is sudden, violent, and agonizing; rigidity extreme. The symptoms all come on very rapidly, and are sufficient to make the diagnosis a surgical diagnosis. Time should not be lost in the making of blood examination, etc.; when in doubt, operate. Of twenty-six cases, particularly within twenty-four hours of the perforation, there were twenty-five recoveries and one death. The early peritonitis, that is up to twelve hours, is largely chemical, rather than bacterial, peritonitis, due to the escape of irritating secretions from the duodenum, which prepare the way for the subsequent bacterial invasion and usual result in fatal peritonitis. This is borne out by clinical and bacterial observations. He advises (1) infolding of the ulcer with plication of the duodenum to throw it out of function; (2) posterior no loop gastrojejunostomy; (3) pelvic tube drainage through suprapubic stab; (4) avoidance of irrigation; (5) appropriate aftertreatment, consisting chiefly of sitting posture, continuous enteroclysis, nothing by mouth until peristalsis is resumed, and ice bags applied to the abdomen. The results obtained make primary gastro enterostomy the operation of choice.

In the discussion Dr. William J. Mayo, Doctor Ochsner, and Doctor Coffee advised that in localities where a skilled surgeon could not be promptly secured the practitioner should close the perforation and provide adequate drainage; never performing the gastroenterostomy, which should be reserved for the expert surgeon. An operation performed within the first twelve hours by the amateur would save many patients who if operated upon later by the most skilled surgeon in the world could not be saved.

**Postoperative Ileus.**—Dr. ANGUS McLEAN, of Detroit, presents the records of much experimental work on dogs, from which he made the following conclusions: Patients attacked by ileus die from the loss of body fluids, and not from toxemia. Hence, the proper treatment is that of supplying the body with fluids by enteroclysis and intravenous infusions.

**Proctoclysis: An Experimental and Clinical Study.**—Dr. HUGH H. TRUIT, of Roanoke, Va., has made a study of the comparative value of plain tap water as a normal

saline solution in about 2,500 cases. His conclusions are: Normal saline showed no advantages over the plain tap water, but had the following disadvantages: There was distinctly more rectal irritation, and increased amount of thirst, some of the individuals actually tasting salt; and some of the patients showed both edema and albuminuria.

**Etiology and Significance of Membranes about the Cecum and Colon.**—Dr. DAVID CHEEVER, of Boston, gives the results obtained from a study of embryos and infants. The conclusions reached are that there are probably several varieties due to several etiological factors, some congenital, that is embryonic, and others inflammatory. He cites clinical cases tending to prove that they are rarely of clinical significance.

**Anaphylaxis in the Diagnosis of Cancer.**—Dr. J. LOUIS RANSOHOFF, of Cincinnati, describes a method of injecting sensitized guinea pigs with human blood serum for the purpose of diagnosing cancer. In a careful study of fifty or more cases he found that ninety-two per cent. of advanced, incontestable cases of carcinoma gave positive reaction, while eight per cent. were negative. The blood serum of tuberculous and leucic patients was also tested and found not to give the reaction. He hopes that the test ultimately may prove of value as an aid in the early diagnosis of concealed abdominal carcinoma.

WEDNESDAY, JUNE 18TH.

**External Bone Clamp versus the Internal Bone Plate in Fractures of Long Bones.**—Dr. LEONARD FREEMAN, of Denver, mentions the following advantages: The simplicity of its use with minimum disturbance of the tissues; ease of removal at any time, which may be accomplished without anesthesia; fewer cases of delay or nonunion; and the great advantage of not burying a permanent foreign body in the tissues. He asserts that the reduction is just as perfect as with the internal bone plate. The clamp should preferably not be used too near the epiphyses in compound fractures, particularly when infection is anticipated. The clamp is by all means the method of choice, not alone not doing harm, but the screws themselves prove avenues for drainage.

In the discussion Dr. J. E. MURPHY recommended the use of the external bone clamp, saying that the plate should never be used in cases of compound fracture.

Doctor McARTHUR reported very satisfactory employment in 210 cases of open fracture of the worst character occurring during the building of the Panama Canal.

**The Mechanism of the Production of Fractures.**—Dr. EMMETT RIXFORD, of San Francisco, presents the subject from the standpoint of the teacher, great stress being laid upon the fact that the principles of the mechanism are most important to the proper understanding on the part of the student. Incomplete fractures in children in the majority of cases are fractures by buckling; they are improperly designated in this country "green stick" fractures. The Germans more correctly call them subperiosteal fractures. Fractures of adult long bones usually result from tensile stress. Spiral fractures result from twist, and so occur always in the direction of the twist. Fractures of short bones result from compressive or tensile stress.

**Surgical Management of Injuries to the Elbow Joint, Primary and Secondary.**—Dr. JOHN B. MURPHY, of Chicago, states that the poor results obtained in the treatment of joint injuries is bringing more discredit to the profession than any other branch of the practice. The time is not distant when the profession will be held financially responsible for these avoidable evils. Poor results in the treatment of injuries of the elbow joint follow luxation, and fractures are next in frequency to

those in Colles's and Pott's fractures. By more careful and thorough diagnosis, an insistence upon perfect reduction, and the maintenance of the same, these results can be avoided. When perfect reduction can be obtained and maintained by conservative bloodless manipulation, operation and the nailing of fragments must be resorted to. Fractures of the external and internal condyle, or both, may be nailed with the ordinary eight, ten, or twelve pennyweight carpenter nail, through a small nick in the skin. This can be done with impunity, and great numbers of skiagraphs demonstrating practically perfect results were thrown on the screen. Fracture of the olecranon process is also held better by nailing than by the former method of subcutaneous wiring. The non-union of fractures has become a very common condition; ten times more common since the year 1895 than previous to that time. Doctor Murphy believes that this is due to the too perfect and rigid holding together of fragments, as by the bone plate and plaster cast. Slight motion and irritation to the ends of fragments favors osteogenesis. Lane distinctly advises against the use of the bone plate in cases of nonunion for this same reason. The Germans in applying plaster casts always have the patient walk about, so as to obtain this desired stimulation by irritation of bone production. Volkmann's paralysis is a traumatic myositis followed by degeneration atrophy of the muscle fibres, due to too tight bandaging, and always occurs within the first forty-eight hours. He absolutely deprecates the practice of passive motion. Passive motion causes irritation, laceration, increased hemorrhage, and so increased osteogenesis; resulting in the overproduction of callus formation, with the subsequent limitation to the function of the joint up to and including the degree of ankylosis. Very useful joints can be made of these ankylosed conditions by resections or the formation of artificial nonunion above the elbow joint.

The paper was discussed by Doctor Cotton, of Boston, Doctor Lemon, of Milwaukee, Doctor Sherman, of San Francisco, and Dr. Willy Meyer, of New York, all of whom agreed with Doctor Murphy in urging less passive motion in the aftertreatment of fractures in the neighborhood of joints. They all, however, believe that the conservative nonoperative methods were sufficient in the great majority of cases, and that operation should be the last resort.

**Surgery of the Thyroid; Observations on Five Thousand Operations.**—Dr. CHARLES H. MAYO, of Rochester, Minn., states that drinking water seems to have much to do with the etiology of goitre. Transplantation of the gland in cases of defective thyroid is of no more value than the feeding of such gland, as it is in a short time eaten by the host. The vocal chords and all enlargement of the glands should be examined, as paralysis of one of the chords from pressure frequently occurs without alteration of the voice, due to the pressure of the recurrent laryngeal nerve; the left being more commonly involved. Substernal thyroid is more common than is generally appreciated, and should be regularly examined for. Diagnosis is made by dullness on percussion over the sternum and by x ray examination. Iodine is of benefit in the simple hyperemic goitre. It is of real danger when given to cases of fetal adenoma or old colloid goitre, in which, due to the stimulation, a state of thyrotoxicosis develops; the latter condition in a short time giving myocardiitis. X ray treatment is of value at times in carrying a patient over an acute exacerbation of the exophthalmic type. The operation of ligation is very important in severe cases as a preliminary step in the preparation of the patient for the more radical procedure. Partial thyroectomy cures the progression of the thyrotoxicosis, but the injury already caused to the nervous system, heart, etc., is permanent. Removal of the superior and middle sympathetic ganglia frequently cures the exophthalmos.

In the discussion of the paper Doctor OCHSNER told of a village in Switzerland in which seventy per cent. of the inhabitants were afflicted with goitre. A change in the water supply very greatly reduced the development of more thyroid in young individuals. He advocated the boiling of water in thyroid districts.

**Study of the Circulation in Some Cases of Gangrene of the Foot.**—Dr. J. E. THOMPSON, of Galveston, from a very careful study of three cases of gangrene, one of thrombosis, and two of diabetes, and a review of the literature, concludes that the lower third of the thigh is in-

variably the proper site for amputation. Even with the main trunks completely blocked, the collaterals will be sufficient to nourish the flaps in this location.

**Extrathoracic and Intrathoracic Esophagoplasty.**—Dr. WILLY MEYER, of New York, urges complete radical extirpation for all malignancy of the esophagus; removing the diseased parts widely and providing for the replacement of the function of the esophagus later. A tube outside the thorax will enable the patient to swallow as well as inside, or plastic formations of new tubes by employment of skin or even transposed coil of small intestine, which has been successfully employed. The rubber tube connection employed outside the thorax, between the stomach opening and the oral opening, is very satisfactory. Cancer of the lower third of the esophagus, in the light of recent animal experiments, will probably before long be likewise radically dealt with.

**Oration on Surgery: Who Shall Do Surgery?**—Dr. WILLIAM D. HAGGARD, of Nashville, believes that modern surgery has made such great advances and become such a large subject that special preparation is required for its practice. The profession must insist upon better trained men; otherwise great discredit will result. Of 4,500 graduates there are 3,000 hospital internes, which is not enough; and he recommends that all medical schools should require a fifth hospital year. He urges the establishment of special courses for the training of surgeons, and then the conferring of a special degree, as of M.S.—Master of Surgery—to those qualifying themselves. This work should consist particularly of the study of gross pathology, surgical anatomy, operative surgery on the cadaver and animals, and research laboratory work done in connection with clinical work at hospitals. Following this, an apprenticeship of from three to five years with an established surgeon is recommended.

#### SYMPOSIUM ON INFECTIONS.

**Chronic Focal Infections as a Causative Factor in Chronic Arthritis.**—Dr. FRANK BILLINGS, of Chicago, states that as a result of work, experimental and clinical, performed in close cooperation by medical, nose and throat, laboratory, and surgical practitioners, a great deal of information regarding chronic arthritis, myositis, and neuritis has now been obtained. His conclusions are that these are practically all due to chronic focal infections. Focal infections of the tonsils, of the sinuses of the head, of the dental alveoli, of the prostate, of the seminal vesicles, and of the urethra, gallbladder, appendix, and elsewhere are causative. The treatment is removal of the cause. Gratifying results have been obtained by autogenous vaccines.

**Infections of the Prostate and Seminal Vesicles; Their Role in Toxemia.**—Dr. HUGH H. YOUNG, of Baltimore, says that prostatitis and vesiculitis are very commonly involved in gonorrheal urethritis without symptoms manifesting themselves in later life by rheumatic infections. Prostatitis is frequently caused by infections from the rectum, more commonly in cases of hemorrhoids. These lesions frequently cause lumbago, sciatica, multiple arthritis, bursitis, exostosis, myocardiitis, and nervous symptoms, all of which have been cured by attention to the cause. For prostatitis and vesiculitis the treatment is massage, prostatictomy, or incision of the seminal vesicles.

**Injection of Boiling Water for Hyperthyroidism.**—Dr. MILES F. PORTER, of Fort Wayne, Ind., from a clinical observation of over twenty cases, recommends the employment of this treatment in both severe and mild cases of hyperthyroidism. The immediate effect of the injection of the boiling water is the actual destruction of the thyroid cell in the vicinity of the injection; resulting in diminution in the quantity of tissue forming the secretion.

THURSDAY, JUNE 10TH.

**Nephritis as a Surgical Problem, and Its Treatment as a Preliminary to Operation.**—Dr. J. F. PERCY, of Galesburg, Ill., advocates the use of desiccated thyroid gland in large doses as a means of improving the surgical risk in cases of nephritis. He reports some cases of actual cure of the condition. The treatment is contraindicated in cases complicated by incompensation of the heart, in severe chronic myocardiitis, and in inflammations of the kidney secondary to infections of the genitourinary tract. The thyroid extract may be of value as an agent in cases of suppression of the urine.



### Technic of Roentgenoscopy of the Gastrointestinal Tract, and Interpretation of Screen and Plate Findings.

—Dr. R. D. CARMAN, of Rochester, Minn., from the observation of a large number of cases, advises more routine x ray examination, many unsuspected lesions being found by so doing.

### The Added Responsibility of the Surgeon when Called on to Treat Surgical Lesions in their Earliest Stages.

—Dr. J. C. BLOOMGOOD, of Baltimore, makes a plea for greater attention to and more careful examination of patients with mild symptoms. A failure to diagnose malignancy in its incipency is a much greater mistake than later in the disease, for in the early stage the condition is curable by operation, and in the later never. The real problem of surgery to-day is the one of making early diagnoses, and particularly in cases of malignancy.

**Fetal Peritoneal Folds and Their Relation to Post-natal Acute and Chronic Occlusions of the Large and Small Intestine.**—Dr. J. RILUS EASTMAN, of Indianapolis, cites cases of acute obstruction of the colon due to Jönnesco's parietocolic fold, or Jackson's membrane. Acute obstruction has been caused at various places in the alimentary canal by these membranes. Many of the cases of intestinal stasis and chronic autointoxication are caused by the persistence of these fetal membranes and folds.

**Symptoms and Diagnosis of Membranous Pericolitis.**—Dr. JABEZ N. JACKSON, of Kansas City, Mo., states that pain along the course of the ascending colon, general diffuse tenderness over the whole abdomen, constipation, mucous colitis, tympanites, digestive disturbances, and neurosthenia, all resulting in loss of weight, are the main symptoms in the diagnosis of membranous pericolitis. Roentgenoscopy is of great value in demonstrating the stasis and sites of obstruction. Increased temperature and pulse disturbances are always absent.

**The Necessity of Preserving the Periosteum in Bone Transplantations.**—Dr. CLARENCE A. MCWILLIAMS, of New York, in this paper, which is based upon a large amount of experimental work in bone transplantation, concludes that the life of the bone graft depends exclusively upon its blood supply, the periosteum or marrow present or absent having no particular effect. Small fragments of bone denuded of their periosteum will live in tissues without absorption, due to a rich blood supply. Large fragments without periosteum die because of insufficient blood supply. The periosteum is bone forming and lives when the bone dies, because of its ability to appropriate nutrition. Complete subperiosteal bone resection is followed by the reforming of the bone.

**Roentgenoscopy of the Liver and Biliary Passages.**—Dr. JAMES T. CASE, of Battle Creek, Mich., has found the x ray examination of the liver to be of value in diagnosing changes in the size and shape of the liver, local tumors, hepatic and subphrenic abscesses, adhesions, and many cases of gallstones giving vague symptoms.

**Original Uses of the Bone Graft in Surgery.**—Dr. FRED H. ALBEE, of New York, reports the results of his use of bone graft in the treatment of fractures of the spine, all long bones, neck of the femur, and club foot; showing a large number of skiagraphs and pictures as proof. His results are very satisfactory. Doctor Albee uses graft with periosteum and bone marrow, believing the latter two, though not always essential, to be of value in insuring future life of the graft.

### SYMPOSIUM ON ANESTHESIA.

**Nitrous Oxide and Oxygen Anesthesia.**—Dr. HARRY G. SLOAN, of Cleveland, believes that nitrous oxide and oxygen anesthesia is particularly indicated in very bad surgical risks; these taking it the easiest. It is the anesthesia de luxe; it is pleasant to take and causes less subsequent nausea. Diabetics do well with this anesthetic. Owing to the inability to obtain complete relaxation, as with ether, local blocking of the nerves is resorted to. The principal disadvantages are the cost of the apparatus, the necessity of having a skilled anesthetist, and the difficulty of obtaining pure gas.

**Intratracheal Insufflation Anesthesia (Meltzer-Auer).**—Dr. CHARLES H. PECK, of New York, gives his personal experiences with 334 patients operated upon at Roosevelt Hospital during the past two years under this form of anesthesia. The cases were distributed as follows: Operations on the thorax, sixteen; head and neck, fifty-six;

goitre (simple and exophthalmic), sixteen; the kidney and ureter, twenty-two; breast, twenty; abdomen, 116; miscellaneous operations, eighty-eight. The advantages and disadvantages of its employment are explained.

**Local Anesthesia.**—Dr. J. F. MITCHELL, of Washington, D. C., refers to the extensive use of local anesthesia in Europe, and predicts its greater employment by American surgeons. It is particularly indicated in operative work in the aged, and whenever general anesthesia is contraindicated. By the intravenous method of Bier all major surgery of the extremities may be performed, the particular value of its employment being the protection of the central nerve system from shock due to the blocked condition of the nerves. Practically all surface surgery of the torso, and all of the major surgery of the extremities may be performed under local anesthesia. Novocaine is the anesthetic of choice.

**Surgical Aspects of Intestinal Stasis from an Anatomical Point of View.**—Dr. JOHN E. SUMMERS, of Omaha, points out that mechanical obstruction and interference are responsible for a large number of the cases of intestinal stasis. Neglect of the function and disease of the nervous system also play a part and frequently result secondarily from the mechanical condition, forming a vicious circle. The recent interest in these various constricting membranes has been occasioned by the writings of Lane and Jackson, who are, however, only redescribing conditions observed and recorded by Jönnesco, Juvara, Treves, Reid, and others. These are mostly due to embryonic conditions. Some are of inflammatory origin, and give rise to conditions of obstruction and intestinal stasis which can be relieved alone by operative interference.

FRIDAY, JUNE 20TH.

**Gastric Tetany.**—Dr. W. L. RODMAN, of Philadelphia, has met with great satisfaction in the treatment of gastric tetany by means of gastroenterostomy or pyloroplasty. The relief obtained was usually very prompt. The indication in the treatment is that of gastric drainage. Gastric lavage continued for long periods of time may carry a patient along, and now and then result in a cure. Sedatives such as morphine, bromides, and chloral are indicated.

**An Experimental Study of the Mobilization of Ankylosed Joints.**—Dr. NATHAN ALLISON and Dr. BARNEY BROOKS, of St. Louis, present conclusions reached as a result of a review of the literature and personally conducted experiments and clinical work. Mobilization of ankylosed joints is based upon the freeing of such ankylosis, and the interposing of materials to prevent a return of the ankylosis: Cargile membrane, Baer membrane, silver nitrate fascia, fascia with a pedicle, free fascia, and killed fascia. Among these the interposition of fascia has yielded the most satisfactory results.

**Therapeutic Possibilities of Transfusion.**—Dr. BERTRAM M. BERNHEIM, of Baltimore, states that transfusion of blood is indicated not only in cases of exsanguination, but also in toxemias, and in many of the abnormal blood conditions, as splenic and pernicious anemias. It should be performed in earlier stages of these conditions to ascertain its real value, as the method gives promise of great value. The difficulty in the past has been that it has been performed usually only upon moribund patients, though even then with marked success at times. With a simplification of technic, its field of usefulness is being gradually widened and the results are most encouraging. Therapeutically, the field is still practically unexplored, although a beginning has been made.

**Theory and Practice of Transfusion.**—Dr. J. J. HOGAN, of San Francisco, concludes, as a result of experiments to ascertain the comparative values of solutions for transfusion, that the beneficial effects from salines, while very marked, is also very transitory. Human blood serum is of much more permanent value, and whole blood the superior of all.

**Thyroglossal Cyst and Fistulas: Report of Three Cases.**—Dr. HERMANN B. GESSNER, of New Orleans, says that thyroglossal cysts and fistulae are of embryonic origin, being remnants of the ducts leading from the foramen cecum to the isthmus of the thyroid. The fistulae always open in the median line of the neck, in contradistinction to those resulting from permanency of branchial cleft structures. The skiagrams of injected fistulae are of great diagnostic and operative value. The treatment is by excision.



## SECTION IN DISEASES OF CHILDREN.

TUESDAY, JUNE 17TH.

**Chairman's Address: Radiographic Studies of the Intestines in Infants.**—Dr. HENRY D. CHAPIN, of New York, refers first to the difference between anatomical studies after death and an x ray examination of the same parts during life. The great advantage of the latter method is that it deals with a living, functioning body. He then goes on to say that post mortem studies of the viscera frequently give erroneous information. He emphasizes the value of radiographic studies of movements of the viscera and the necessity of confirmatory conclusions from the movements observed. Two normal infants were given suspensions of bismuth by the mouth, and the course of these followed through the alimentary canal by x ray and the bismuth was found to pass from the sigmoid into the rectum in seven hours. Another series of experiments was made to determine the location of the sigmoid, the distensibility of the colon, the form and position of the hepatic and splenic flexures, and the patency of the ileocecal valve. Enemas of barium sulphate were given, and, after being forced beyond the sigmoid, the fluid quickly passed to the cecum. Marked variation in the size and position of the sigmoid was observed. From the evidence obtained in these studies it seems improbable that rectal tubes pass above the sigmoid.

**The Use of the Röntgen Ray in the Diagnosis of Obscure Abdominal Conditions in Infancy and Childhood.**—Dr. J. L. MORSE, of Boston, states that by this means information is afforded which can be obtained in no other way. He presents illustrative histories, with many fine radiographs; the cases including pyloric stenosis, pyloric spasm, chronic gastric indigestion, splachnitis, abdominal adhesions, and intussusception. The x ray is of value in determining the location of abdominal masses, whether these are ventral or dorsal, and a great help in the differential diagnosis between ileocolitis and intussusception. A cup shaped upper end of the shadow, after a bismuth meal has been given, is diagnostic of intussusception.

**The Use of the Röntgen Ray in Pyloric Obstruction.**—Dr. L. R. DEBUYS, of New Orleans, makes a plea for early x ray studies of suspected cases of pyloric stenosis or spasm, and for further studies of such patients during childhood and even adult life. He cites cases of spasm with palpable pyloric tumor, and shows the difficulty of differentiation between spasm and stenosis. In stenosis, however, the delay in emptying the stomach after a bismuth meal is constant, while in spasm it is occasional. The speaker presents x ray plates showing various types of pyloric obstruction, and concludes with a demonstration of moving pictures showing peristaltic waves in a living infant.

**Rupture of Mediastinal Lymph Node into Bronchus.**—Dr. A. L. GOODMAN, of New York, reports a case in which there was a sudden development of dyspnea and cyanosis in a child. Tracheotomy was performed, and caseous material was discharged through the tube, affording relief of the symptoms. The following day an x ray examination showed enlargement of a mediastinal gland, and the conclusion was reached that the gland had ruptured during the introduction of the tracheotomy tube. Inoculation of guineapigs with the caseous material failed to cause tuberculosis. The symptoms of pressure from mediastinal tumor are (1) respiratory—dyspnea; (2) circulatory—cyanosis; (3) digestive—vomiting and associated meningism. The condition is likely to remain undiagnosed unless an x ray examination is made. Radiographs of the case reported were shown.

WEDNESDAY, JUNE 18TH.

**Report of Case of Staphylococcus Meningitis in a Child.**—Dr. F. S. S. CHURCHILL, of Chicago, reports this case, which, after thirty days' duration, was treated with one injection of autogenous vaccine. There was marked relief of the symptoms within twenty-four hours, and the patient made a complete recovery.

**Acute Acid Intoxication in Children.**—Dr. T. C. McCRAVE, of Berkeley, Cal., has found acid intoxication most frequent between the ages of two and ten years; the etiological factors being acetone and diacetic acid. The

primary cause is still obscure, but he believes that the condition may be due to any chronic infection, such as an intoxication producing interference with the storing of glycogen in the liver. The treatment consists in removal of the above mentioned factors, especially by means of a diet low in fats and rich in fruits and cereals, and by the administration of glucose and sodium bicarbonate by mouth and rectum.

Dr. J. JAHORSKY says he thinks there is little value in the removal of adenoids in this condition. He has frequently found the liver enlarged during the attack, and he considers the affection related to migraine.

Dr. I. A. ABB has seen the acidosis sometimes develop at the time of weaning; causing vomiting and diarrhea at first, and, later, rapid breathing, pallor, and obstinate constipation. The urine contains tyrosin and leucin, as well as acetone and diacetic acid. He reports three cases occurring in one family, and states that the third child was saved by treatment with glucose and sodium bicarbonate. The cause of the condition, he thinks, may possibly be a toxic protein.

The paper was discussed also by Doctors Snyder, Johnson, Morse, Price, DeBuys, and Lounsbery.

**The Protein Poison and Its Relation to Disease.**—Dr. VICTOR C. VAUGHAN, of Ann Arbor, Mich., has shown that all proteins, particulate and formless, cellular and in solution, contain a poisonous group. If for any reason proteins taken into the alimentary canal escape digestion and are absorbed unchanged they undergo parenteral digestion, and in this process the poison is set free in the blood and tissues and manifests its full effect. In enteral digestion the poison is most marked in its action at or about the pepton stage. When the digestion is normal and proceeds beyond this point the poison is destroyed by farther cleavage. The intestines of children are more permeable to proteins than those of adults, and this is the reason why infants suffer more largely than adults from gastrointestinal disturbances. There is no special bacterium which causes the summer diarrheas of infancy. Saprophytic bacteria may render the proteins of milk, and possibly of other foods, more readily absorbable. The symptoms of poisoning are: 1. Peripheral irritation; scratching (erythema; urticaria). 2. Incoordination of movements; air hunger. 3. Clonic convulsions of increasing frequency; death. He believes death is due to the pouring of lethal amounts of the protein poison into the circulation. The different bacteria cause liberation of protein in different tissues, giving rise to the symptoms of various diseases. Sodium bicarbonate, *in vitro*, tends to neutralize the protein poison, and this effect may explain the value of alkalies in acidosis.

**The Nature of Ileocolitis from an Etiological Standpoint.**—Dr. C. G. GRULEE, of Chicago, mentions the following theories regarding the cause of ileocolitis: 1. Direct bacteriological action, most commonly by the dysentery bacillus or the streptococcus. 2. Bacterial action on food, forming endotoxins. 3. Primary disturbance of metabolism. 4. Heat. He discusses the relations of each of these to the others, and expresses the opinion that the most important element in the etiology is the decomposition of food by the intestinal bacteria.

In the discussion Dr. R. M. SMITH said he believed that many cases were caused by direct bacterial action. In cases due to dysentery bacillus infection the patient did well when food with a high sugar content was given, but the reverse of this was true in some other forms of bacterial infection.

**Nutritional Injuries Produced by Starch.**—Dr. I. A. ABB, of Chicago, describes the chemical changes observed in the infantile organism from excessive starch feeding and the disastrous clinical results, and presents case reports.

**Status Thymolymphaticus; with Report of Four Cases in One Family.**—This paper is presented by Dr. W. L. BIERING, Dr. D. L. GLOMSET, and Dr. J. A. GOODRICH, of Des Moines. The four children all died suddenly within three months, and without known predisposing cause. In all the cases the autopsy showed enlargement of the thymus, spleen, and lymphatic nodes. X ray treatment was of most service in lessening the size of the lymphatic tissues, but did not prevent the fatal result.

**The Treatment of the Hemorrhagic Diseases of Children.**—Dr. T. B. COOLEY, of Detroit, states that in most

instances of these affections the blood is slow to coagulate; a condition due to a deficiency in fibrinogen or in prothrombin. A deficiency in calcium has never been found. The injection of horse or human serum is the most valuable means of treatment, and with the latter there is less danger of anaphylaxis. He advises early resort to transfusion, and describes his own method of aspirating blood from the donor and its immediate intravenous injection into the patient.

**Treatment of Inguinal Hernia in Children.**—Dr. A. E. HERTZLER, of Kansas City, believes that truss treatment is not only never curative, but may be extremely harmful. Operative treatment is the only escape, and it is certain and safe.

**General Anesthesia in the Surgery of Children.**—Dr. W. C. WOOLSEY, of Brooklyn, assigns the following reasons for the greater danger of anesthetics in children: (1) Proportional greater heat radiation; (2) unstable vasomotor system; (3) small air passages, liable to irritation and occlusion; (4) status lymphaticus. He believes ether is the anesthetic of choice in children. Tracheal intubation is especially valuable for operations such as those for cleft palate and sarcoma of the jaw.

**Spasmophilia; with Especial Reference to Familial Reactions and "Repeated Absences."**—Dr. J. P. SEDGWICK, of Minneapolis, points out the probable relation of this condition to disturbed calcium metabolism, and its rarity in nurslings. He gives the histories of two cases characterized by convulsive attacks in which the "repeated absences" resembled petit mal, but were due to spasmophilia. Charts were presented showing electrical overexcitability in different generations of several families.

THURSDAY, JUNE 19TH.

**Election of Officers.**—The following officers were elected for the ensuing year: Chairman, Dr. F. S. Churchill, of Chicago; vice-chairman, Dr. L. R. De Buys, of New Orleans; secretary, Dr. G. P. Gengenbach, of Denver; delegate, Dr. J. P. Sedgwick, of Minneapolis.

**Vulvovaginitis in Children.**—Dr. RICHARD M. SMITH, of Boston, believes the complement fixation test valuable in the diagnosis of questionable cases of gonorrhea. He reports a series of thirty cases of vulvovaginitis, seventy-five per cent. of which were known to have been preventable by proper home care; showing the importance of the education of parents regarding the gravity of infection and methods of preventing it. The treatment, he says, must be thorough and prolonged.

In the discussion the chairman, Doctor Chapin, said that by using vulvar pads of cheese cloth on all girl babies in wards, placing the soiled pads in bags, to be immediately sealed and burned, and employing individual thermometers, gonorrheal vaginitis can be reduced to a minimum. The eyes and other organs are rarely infected, and most cases of cure are spontaneous.

**Roseola Infantum.**—Dr. JOHN ZAHORSKY, of St. Louis, reports thirty cases in children under two years with the following clinical syndrome: Prodromal fever, with temperature of from 103° to 105° F., of from three to five days' duration. The temperature falls by crisis when the eruption appears. Eruption is masclar; most marked on the trunk. No Koplik spots, and no catarrhal symptoms. This affection differs from rubella in that the eruption does not take on a crescentic form, and the disease is not contagious. Practically all the cases observed were in bottle fed infants.

**Atypical Forms of Meningitis (Posterior Basic Meningitis; Aseptic Meningitis).**—Dr. A. SOPHAN, of Kansas City, states that turbid, sterile spinal fluid may be found: 1. After a previous puncture; 2, after administration of Flexner's serum; 3, frequently in otitis media; less frequently in frontal sinusitis. There are many varieties of meningococci, some of which are not affected by Flexner's serum. Posterior basic meningitis may give a fluid containing meningococci, or may be sterile. The cases usually show signs of pronounced intracranial pressure, but on lumbar puncture only a few cubic centimetres of fluid are obtained. He advises puncture of both lateral ventricles and injection of serum if meningococci are present in the fluid. The prognosis is very grave.

In the discussion Doctor Morse said that one must be very cautious about making a diagnosis in the absence of specific bacteria in the spinal fluid. He has found an in-

creased cell count in the fluid in a number of cases of summer diarrhea, where the patients made a normal recovery. He considers basic meningitis a hopeless condition whether meningococci are discovered or not.

**Leucocyte Counts in Epidemic Meningitis and Pneumonia.**—Dr. J. H. HESS, of Chicago, instead using the usual percentage method of differential counting, counts the actual number of the different cells. He considers leucocytosis in its relation to infections in general, and gives the result of leucocyte counts in epidemic meningitis, before, during, and after treatment by serum. From these may be derived indications for further treatment. He describes the findings in the stage of anaphylaxis, and their significance. He also treats of leucocyte counts in pneumonias of different types, as an aid to their classification, differential diagnosis, and prognosis.

**Precocious Menstruation.**—Dr. G. P. GENGENBACH, of Denver, reports a case of this in an infant, and gives a summary of the literature on the subject. Possible etiological factors may be disturbances of the ovaries, adrenals, thyroid, pituitary, or pineal glands. In his own case the cause was not determined. No treatment for the condition is known.

**Clinical Report and Post Mortem Findings in the Case of a Child Dying from Acute Nephritis.**—Dr. H. M. McCLANAHAN, of Omaha, reports this case. The heart showed disease of the tricuspid and mitral valves, with almost complete absence of the auricular septum. During life the red blood count was eight millions, and the polycythemia was probably physiological, to compensate for the cardiac disease.

**The Hospital Management of Contagious Diseases.**—Dr. D. L. RICHARDSON, of Providence, R. I., describes a system of so called aseptic nursing. Many cases commonly considered suitable for isolation are kept in the open wards of the provident hospital without spread of infection. Contact infection between patients is eliminated. He concludes the paper with statistics showing the frequency of "cross infections."

**Federal Children's Bureau: The Law, the Organization, the Scope of Its Present Work.**—Dr. JULIA C. LATHROP, of Washington, D. C., explains that this bureau was established to gather statistics relating to all phases of child welfare. It also distributes educational literature, and is now making studies to determine the best civic measures to promote the health of children. The speaker makes a plea for a nation wide registration of births and for the support of the medical profession. At present the infant death rate is decreasing in the cities, but increasing in rural districts.

**The Etiology of Artificial Feeding; a Plea for the Study of Breast Milk Problems.**—Dr. H. LOWENBURG, of Philadelphia, states that the causes leading up to the discontinuance of breast feeding are: 1. Psychic.—Fear on the part of the mother of inability to properly nourish her child or selfish desire for pleasure. 2. Economic.—The mother being obliged to earn a living. Vomiting, diarrhea, colic, or fretfulness in the infant are not indications for weaning; neither is mastitis, unless the breast is discharging pus from the nipple. Too much stress is laid on artificial feeding, and too little is taught of the proper management of breast feeding. He believes that every mother can nurse her baby if she is willing to do so, provided that she has proper surroundings and proper care. All obstetricians should be breast feeding enthusiasts. The money now contributed for summer camps, free milk, day nurseries, and floating hospitals would be better spent if given to worthy mothers to enable them to continue nursing. He thinks the State should, if necessary, appropriate funds for this purpose.

JOINT SESSION OF THE SECTION IN DISEASES OF CHILDREN, WITH THE AMERICAN ASSOCIATION OF MEDICAL MILK COMMISSIONS.

**Certified Milk.**—Dr. T. C. McCLEAVE, of Berkeley, Cal., reviews the history of the development of the conception of certified milk, and of the standards required by the American Association for its production.

**The Cost of the Production of Certified Milk.**—Dr. STEPHEN FRANCISCO, of Fairfield, N. J., discusses the cost, the possibility of reducing this, the narrow margin of profit, and the just price the consumer should pay.

FRIDAY, JUNE 20TH.

JOINT SESSION CONTINUED.

**The Efficiency of the Medical Milk Commission, Graphically Illustrated.**—Dr. H. L. COIT, of Newark, N. J., by means of charts, shows the greater degree of efficiency of milk production, with the expenditure of a given amount of activity, under the supervision of medical milk commissions.

**The Effect of Barn Operations upon the Germ Content of Milk.**—Professor H. A. HARDING, of Urbana, Ill., recounts experiments made to show that the condition of the walls and floors of stables, failure to clip cows, and the presence of moderate amounts of stable dust are not the chief factors in raising the bacterial count in milk. More important are the proper sterilization of milk pails, their care after sterilization, and the proper cleaning of the cow and the milkman's hands.

## SECTION IN DERMATOLOGY.

TUESDAY, JUNE 17TH.

**Chairman's Address: Our Tendency to Fads.**—Dr. JOSEPH ZEISLER, of Chicago, in his opening address, comments on the way dermatologists tend to follow to extremes certain new ideas in therapy and methods of diagnosis. He censures especially the giving of salvarsan when not indicated, and the cutting down on a vein to give it; thus needlessly marking the patient for life. The too free use of various vaccines, and especially certain mixed vaccines, is condemned. The taking of a Wassermann test in many easily recognized skin diseases is also included in the chairman's list of fads.

**Two Cases of Pemphigus Foliaceus.**—Dr. J. B. KESSLER, of Iowa City, after giving the description of typical cases of pemphigus foliaceus, and commenting on various well known points in the etiology, diagnosis, and prognosis, describes two cases which he has treated. The treatment employed, which was adopted after he had read of its being used successfully in pemphigus vulgaris, consists of large doses of quinine, as high as ten grains every four hours, given over a period of several weeks. Both cases responded to this treatment in connection with bran or bran and compound creosote solution baths. One patient has relapsed, the other is still well after three months.

Doctor PUSEY said he had seen a case get well, and remain so, with only bland local treatment.

Doctor SUTTON told of obtaining a pure culture of *Bacillus pyocyaneus* and treating successfully a case with a vaccine of this germ.

**An Anomalous Case of White Spot Disease.**—Dr. H. H. HAZEN, of Washington, D. C., describes a case of white spot disease which does not seem to come under either of the two general classifications of morphea guttata and lichen atrophicus. He first made a diagnosis of morphea guttata in a patient showing numerous white atrophic scarlike spots, but later, upon microscopic examination, concluded that evidence was present of a change resembling a type of lichen atrophicus. Treatment gave no results.

**Radium in Skin Diseases.**—Dr. FRANK E. SIMPSON, of Chicago, in this preliminary report, describes the results of radium treatment in forty-five cases, including fifteen different diseases. Either cures or good progress was reported in nævus, epithelioma, lichen planus and varucosus, verruca, lupus vulgaris, lupus erythematosus, blastomycosis, keloid, ringworm, and psoriasis of the nails. He has found it especially of service in lesions around the mouth and lips where it is hard to give other treatment.

Discussion brought out the fact that while many men have obtained good results, many others have not, and as a result of this and its prohibitive cost, the general sentiment was that only a very few cases present special indications for radium treatment.

**The Massive Dose X Ray Method in Treatment of Skin Diseases.**—Dr. GEORGE MACKEE, of New York, describes in detail by means of a lantern slide demonstration the exact method of giving a single large dose of x rays. This is done by means of measuring the rays qualitatively and quantitatively. The qualitative determination

depends upon a given current in the miliampèremetre and ampèremetre with a tube that tests up to number nine of the Wehnert scale; in the quantitative the dose is measured by the Holtzkecht scale with the Sabouraud pastille. He holds that with this exact method fewer cases of dermatitis occur and that in treating ringworm of the scalp permanent baldness never results. By lantern slides the results obtained are shown in cases of epithelioma, carcinoma of the breast, and various dermatoses.

**Neuromas of the Skin (with Lantern Slide Demonstration).**—Dr. M. L. HEDINGSFIELD, of Cincinnati, describes two cases of neuromas of the skin. Both occurred after injury and consisted of small tumors on the anterior surface of the thigh, in which unendurable pain was caused by slightest pressure. A diagnosis was first made of myoma, and he thinks that many cases of myoma would be correctly diagnosed neuroma if a biopsy were made, as an absolute diagnosis depends upon the microscopical finding of nerve tissue. Treatment consists of extirpation.

**Angioma Serpiginosum (Infective Angioma of Hutchinson); with Report of a Very Extensive Case.**—Dr. FRED WISE, of New York, presents an elaborate description of this disease, together with histories and tabulation of previously reported cases. Then, three cases are described in detail, one of his own and two of Dr. Howard Fox.

Doctor POLITZER, who made the histopathological examination in Doctor Wise's case, stated that out of twenty-three or twenty-four cases reported, probably only three or four were correctly diagnosed; showing that the condition is very rare.

WEDNESDAY, JUNE 18TH.

At the opening session on Wednesday morning a number of cases were demonstrated by the local men, Doctor Sweitzer, Doctor Butler, Doctor Boreen, Doctor Freeman, Doctor Crume, and Doctor Irvine. Among the cases were: Lichen planus, psoriasis, psoriasis Darier, scleroderma, and a four month old infant, whose illness had been diagnosed as psoriasis by Doctor Irvine, but which resembled at the time of demonstration more a seborrheic dermatitis.

**Salvarsan and Profeta's Law.**—Dr. A. RAVOGLI discussed the recent work and literature to show the errors of Profeta's law, and described a case where a woman after having a syphilitic child bore a healthy one following salvarsan treatment; a few months later this woman had mucous patches and the child was infected with initial lesion on chin. The case shows that the child has been given no immunity from its syphilitic parent. The conclusion is also drawn that no immunity can be present except during the time the disease is present, it does not remain after a cure.

**A Study of the Spinal Fluid in One Hundred Cases of Syphilis.**—This paper was presented by Dr. M. F. ENGMAN, Dr. RUDOLPH BUHMAN, Dr. ROBERT H. DAVIS, and Dr. F. D. GORHAM, of St. Louis. Doctor BUHMAN read the paper. Two classes of cases are examined, thirty-six early (infected within two years) and sixty-four late. Counting as positive only those cases which give a positive serological test and a cell count higher than ten, the authors conclude that only a very small percentage of cases give this positive test when no symptoms of lues of the nervous system are present. The majority of their cases that give this positive test also show other diagnostic symptoms. The value of the test as a check for treatment can not be stated, in a small number of cases the test is still positive after one year's treatment. Ten c. c. of fluid is withdrawn and immediately a full dose of salvarsan injected intravenously, examination of the spinal fluid fails to show presence of arsenic, demonstrating the fluid is resistant to chemical invasion.

**Comparative Study of Antigens for the Wassermann Reaction.**—Dr. H. R. VARNEY and Dr. F. W. BAESLACK are the contributors. After a discussion of the various antigens used in the Wassermann test, Doctor VARNEY describes an antigen used from a gumma produced in the testicle of rabbits by inoculation with the spirochete. This is an alcoholic extract made after the method of Citron. They could not find that the test was more specific with this antigen than with that from syphilitic organ (liver). Positives were obtained with florid scarlet fever and lepra serum as with the other antigen. In making a luetin test with this material a somewhat stronger positive reaction



was obtained than with the old method. Doctor Baeslack said that he thought the Wassermann test might depend upon three substances, first a lipid, second a substance from the spirochete, and third a substance from the effect of the spirochete upon the tissue.

**A Study of Skin Diseases among the Indians of Oklahoma.**—Dr. EVERETT S. LAIN, of Oklahoma City, Okla., has made a very interesting study of skin diseases in the full blooded Indians of Oklahoma, with a view to comparing them to the white. Out of 5,000 cases, 1,000 were carefully examined. Tuberculous glands of the neck were found more frequently than any other disease, some 238 positives. The next most frequent was pityriasis capitis occurring in 210 children, and these practically all in children going to school, and using a comb and brush. Acne and verruca were the next most common. Ringworm was quite rare and no cases of psoriasis, pellagra, alopecia, erythema multiforme, or sycosis were found, also no malignant growths of the skin. A surprisingly small amount of lues was found, only forty-six cases. There was an absolute immunity to most toxic plants.

**The Newer Cutaneous Mycoses.**—Dr. ERNEST DWIGHT CHIPMAN, San Francisco, after going over the diagnostic points of the pathogenic fungi, concludes that more study should be put on this work by dermatologists. He is inclined to think there is some difference between the blastomycosis and the granuloma coccidioides of the California writers. All suspicious cutaneous nodules should be carefully examined and cultures made, fewer cases would then be missed.

**Cutaneous Affections of Childhood.**—Dr. ALFRED SCHALEK, Omaha, thinks that troubles with metabolism and errors in feeding are related to many skin conditions in children. There must be a considerable difference in resistance in children and adults accounting for the different appearances of the same disease. Correction of general conditions and a plea for more careful attention to the following out of treatment are emphasized, many children with severe skin lesions should be placed in the hospital. Local treatment should not be neglected, the importance of this is demonstrated by the fact that many cases of very faulty feeding and hygiene are observed with no skin lesions.

**Empiricism in Dermatological Therapeutics.**—Dr. M. L. RAVITCH, Louisville, Ky., makes a plea for more specific therapy. He found as high as seventy drugs being suggested for the treatment of one disease in several text books. Arsenic and sulphur are the drugs most used. An attempt should be made to get at the actual relation between the disease and the therapy, and to use then a given drug for its specification.

**Primary Sarcoma of the Lower Lip.**—Dr. A. J. MARKLEY, Denver, comments on the few cases in the literature and describes a case of small round cell sarcoma occurring on the lower lip in a man, sixty-five years old. Clinically it was not dignosticated, as it had all the appearances of an epithelioma. Owing to the importance of the necessary treatment a biopsy should be made in these cases before treatment is instituted. In his case six months after extirpation a nodule was found on the neck which was promptly excised; since then no other recurrences have appeared. Dependence should not be placed on lymphatic involvement to dignosticate carcinoma as it can also occur in small round cell sarcoma.

THURSDAY, JUNE 19TH.

**Relation of Diabetes to Various Dermatoses.**—Dr. BURNSIDE FOSTER, St. Paul, calls attention to the number of dermatoses connected more or less intimately with diabetes, stating that the dermatologist could frequently be the first to suggest diabetes. The most common skin complication is the dry itchy skin; this with the scratching is likely responsible for the furuncles and carbuncles which are so frequently seen. Genital eczema from direct irritation of the sugar laden urine also occurs frequently. Treatment should be directed toward the diabetes.

**Idiopathic Atrophy of the Skin with Report of a Case.**—Dr. H. G. IRVINE, Minneapolis, presented a case with his paper showing very marked atrophy of the skin of the arms and legs and extending a little on to the trunk. The inflammatory stage of the disease was well shown on the lower legs. Comparatively few cases have

been reported in the United States, and many of those very meagerly. This is undoubtedly a distinct disease and cases of secondary atrophy and scleroderma should be excluded. No satisfactory treatment is known; only two cases have been reported as recoveries.—Doctor Sutton, Doctor Pusey, and Doctor Heidingsfeld discussed the paper.

**Mycosis Fungoides Following Psoriasis.**—Dr. HOWARD FOX, New York, observes that although there are many cases in the literature where some mention has been made of psoriasis and psoriasiform lesions occurring early in the disease, Fox was able to find only two cases that he considered actually had a psoriasis preceding the diagnosis of mycosis fungoides. This case was seen by several dermatologists, and there appears to be no doubt as to the diagnosis of both diseases. Two interesting points were brought out, there was no itching which is unusual, and the patient was a heavy drinker, although alcohol is not supposed to play any part in the etiology many have been under alcoholics.

## SECTION IN OPHTHALMOLOGY.

TUESDAY, JUNE 17TH.

**Chairman's Address.**—Dr. HIRAM WOODS, of Baltimore, calls attention to the sociological aspect of medicine and the need of a more extensive training for the future ophthalmology, and recommends that a committee be appointed to report on the subject.

**Physiological Optics the Basis for Teaching Clinical Ophthalmology.**—Dr. WALTER B. LANCASTER, of Boston, urges the more extensive training of the ophthalmologists on the line of physiological optics. Physiological optics so permeates the whole of ophthalmology that no part of that large field can be mastered without a good understanding of this subject. Nowhere in this country has there been offered a systematic course in physiological optics founded on laboratory work and covering all the main subdivisions of the subject in reasonably adequate fashion. Courses in physiological optics should include not only dioptrics and refractions, but binocular vision, ocular movements, light sense, and problems of illumination, color sense, visual fields, and all other subdivisions of the subject. Doctor Lancaster then speaks of the value of a diploma or degree of some sort as a guarantee that its holders have had adequate training before they join the ranks of specialists in any of the special fields of medicine.

**Some Modern Viewpoints with Regard to Glaucoma.**—Dr. ROBERT SATTLER, of Cincinnati, discusses these questions: Should glaucoma simplex and acute inflammatory glaucoma be assigned to separate categories? Is glaucoma a lymph or blood stasis, or is it a sudden choking off of both and retention of greater blood volume? Is this the glaucomatous impulse which starts biochemical or intraocular chemical forces? Is increased intraocular tension a distinctive feature only, which chronic and acute inflammatory glaucoma have in common? He then discusses the modern views of normal tension.

**Experimental Study of Intraocular Pressure and Ocular Drainage.**—Dr. MARK J. SCHOENBERG, of New York, states that the intraocular pressure, measured by the Schlotz tonometer, records three factors. The steady application on a normal eye of a weight gradually reduces the intraocular pressure. This diminution is mostly due to the expression of intraocular fluid through certain channels outside the eyeball. The rapidity of reduction, which the tonometer is kept steadily applied on a given eye, constitutes its rate of ocular drainage. The author's study of ocular drainage has revealed: 1. In a normal eye a gradual reduction of intraocular pressure if the tonometer is applied for a certain number of seconds. 2. Variety in the rate of ocular drainage, not only in different eyes, but also in the same eye, at different periods. Changes of intraocular pressure in one eye, sometimes followed by similar changes of intraocular pressure in the other eye. 4. No conclusive evidence regarding the possibility of some kind of action starting from distant organs and influencing the intraocular pressure. 5. The probability that the extraocular muscles play an important rôle in the various normal fluctuations of intraocular pressure. 6. Different rate of ocular drainage in glaucomatous eyes from that of normal eyes.

In the discussion on these three papers, Doctor JONES,

of Cumberland, said he had had good results with subconjunctival injections of 1/1500 cyanide of mercury and sodium.

Doctor ALT, of St. Louis, said he thought the chemistry of the blood had some relations to glaucoma, and he gave large doses of calcium chloride with fairly good results.

Doctor FOX, of Philadelphia, said he had had five or six cases of congenital glaucoma, and believed that the condition was due to a lack of development; there being no canal of Schlemm. In cases of chronic interstitial nephritis there was often a plus tension; also in conditions wherever there was a high blood pressure. In these cases he always reduced the blood pressure as much as he could before operating, and then found that eserine would work where it had not previously done. He would then do an iridectomy. He performed the Elliott operation in a great many cases.

Doctor McREYNOLDS, of Dallas, recommended the Elliott operation with some modifications.

Doctor GREENWOOD, of Boston, recommended the Le-grange operation, and said he had found a marked improvement in the field as a result. He had only lost one eye in twenty-five operations.

Doctor PARKER, of Detroit, said he thought the eye posterior chamber filtration probably caused a great part of the trouble, especially in these cases where iridectomy was not successful. He recommended the Elliott operation, also.

#### Hydrophthalmos: With a Histological Report of Two Cases, One of Which Presented a Congenital Coloboma.

—Dr. WILLIAM ZENTMAYER, of Philadelphia, describes the symptomatology, etiology, pathogenesis, and treatment of this condition. Iridectomy has not stood the test of experience. It is dangerous in most cases because the natural barrier between the vitreous and external wound has given way before the process of distention of the globe. The danger is further increased by vomiting and restlessness after general anesthesia. Objection to posterior sclerotomy and paracentesis of the anterior chamber is that the operation must be repeated, and often has to be supplemented by other procedures. Sclerotomy appears to be the operation which best meets the requirements. De Vincenti's operation also appears to be well adapted to the conditions present. He gives an analysis of replies received to a circular letter to surgeons throughout the country. Some form of sclerotomy was the only procedure which gave satisfactory results to the majority of surgeons employing it. Histological study of the eye with congenital coloboma showed an absence of the canal of Schlemm and a blocking of the angle of the anterior chamber by a proliferation of connective tissue which represented the pectinate ligament. A case of a child born without eyes and another case of infantile glaucoma were shown. The glaucoma had been trephined with good results.

**Equivalent Values in Spectacle Lenses.**—Dr. WILLIAM E. SHAMAN, of St. Louis, says the advantages of meniscus lenses are largely lost because their effective values differ from those of trial case lenses. Compensatory computations for these discrepancies can be made by calculating the advancement of the second gaussian points and the posterior poles of the lenses from the plains of their rims, and finding the corresponding equivalent dioptric values. A number of points can be calculated for the equivalent values of each lens of given posterior curvature and the result plotted on coordinate paper. From this chart, the values of the two surfaces of any meniscus lens of value equivalent to that of any given trial case lens can be read off and the prescription written without any laborious computation.

#### SYMPOSIUM ON TRACHOMA.

**Trachoma, Its Prevalence and Control among Immigrants.**—Dr. JOHN McMULLEN, of Washington, D. C., of the United States Public Health Service, speaks of trachoma as a chronic, communicable disease, often causing disastrous results. Diagnosis and prognosis is the most troublesome subject with which the medical examiner of aliens has to deal. It was classified in 1897 as a "dangerous contagious disease" by the federal government. Despite the fact that the steamship companies maintain an inspection service abroad, many hundreds of

cases are found annually among immigrants, the majority of them from Russia, Italy, Austria-Hungary, Turkey, Armenia, Syria, and Greece. Any modification of the present classification by the government would mean the addition to our population of thousands of aliens suffering from trachoma, whose immigration to this country is now prohibited. Trachoma is an important public health problem.

**Trachoma among the Indians.**—Dr. J. W. SCHERESCHEWSKY, of Washington, D. C., states that 39,000 Indians in the United States were examined, with the result of finding that over seventeen per cent. were suffering from trachoma. The incident of the disease varied from over seventy per cent. of the Indians examined in Oklahoma to 0.2 per cent. of the Indians of New York State. The disease was found to be most prevalent among the inmates of Indian boarding schools, and least prevalent among reservation Indians. All grades of the infection were seen. Its prevalence among Indians is due to their ignorance of hygiene and sanitation. The percentage of Indians suffering from visual defects due to trachoma is high, and the Indians are likely to prove a means for the widespread dissemination of trachoma in the West. Energetic efforts should be directed toward limiting the spread of trachoma among the Indians and attempting its eradication among the younger generation.

**Trachoma among the Mountaineers of Eastern Kentucky: Illustrated by Lantern Slides.**—Dr. J. A. STUCKY, of Lexington, Ky., says that the large increase in the number and gravity of cases of trachoma coming to him from the mountains of eastern Kentucky in the past twenty-five years led him to make a trip of investigation on muleback through five counties. He describes the people (genuine Anglo-Saxon) and how they live. There are unmistakable evidences of the infectiousness and destructiveness of the disease, and an appalling number of cases with destructive sequelæ of trachoma (pannus, entropion, trichiasis), corneal ulceration with perforation and symblepharon. The solution of the problem of eradicating the disease is difficult; the Kentucky State Board of Health has been unable to adequately cope with the condition for financial reasons. Lantern slides showed the people with trachoma, their homes, and how clinics are conducted in the tent and cabin hospital.

**Metastatic Ophthalmia. Report of Three Cases, One of Which Resulted in Recovery of Vision.**—Dr. WILLIAM H. WILDER, of Chicago, describes these three cases. In Case 1, a woman aged sixty-four; general sepsis of a cryptogenic character, thrombosis of one leg, paratiditis and cystitis; and also metastatic ophthalmia in left eye, followed by similar inflammation in right. *Bacillus coli communis* in urine, *Staphylococcus aureus* in blood. Death from terminal pneumonia. The second patient, a young woman aged twenty-five, suffered from tonsillitis, otitis media, pneumonia, synovitis of wrist and knee, and finally metastatic ophthalmia of left eye. Inflammation severe, but eye did not suppurate. Virulent streptococcus in tonsil, ear, and eye. General recovery with tuberculous bulbus. The third patient, a girl of eighteen, had had diphtheria followed by streptococcus infection of the tonsils. Sudden loss of vision of both eyes with violent uveitis, severe pain, and chemosis. Ultimate subsidence of inflammation and recovery of normal vision in both eyes. The speaker then takes up the general consideration of the disease, the symptoms, etiology and prognosis; referring particularly to the grave prognostic significance of this affection in general septic conditions.

In the discussion, Doctor GREENWOOD, said that five years ago they had in Boston, an epidemic of cerebral spinal meningitis, in which metastatic stages developed in a great portion of the cases in which optic atrophy occurred. Most of the patients died.

Doctor CASY WOOD, of Chicago, reported a case of pregnancy where bilateral metastasis developed. He also stated that most bilateral metastasis of this kind was fatal, not only to sight but to the patient.

Doctor JACKSON, of Denver, reported two cases of metastasis following pneumonia, in which panophthalmitis developed.

Doctor ALT said that panophthalmitis of cerebral spinal meningitis is not a metastatic, but a direct infection of the nerve sheath.



**The Diagnostic and Therapeutic Uses of Tuberculin in Ocular Diseases, with a Review of Some of the Claims Made for It.**—Dr. A. EDWARD DAVIS, of New York, speaks first of tuberculin reactions—their nature, the factors comprising them, and the part they have performed in establishing the great frequency of tuberculous infection in the human race. Next immunity is considered; then a description of the tuberculin tests and some of the more important tuberculin preparations. The author gives a review of some of the diagnostic and therapeutic results obtained by the use of tuberculin in the various ocular diseases, together with a report of personal experiences.

**Phlyctenular Ophthalmia and Episcleritis: A Study of the Bearing of the Newer Research on their Etiology as the Basis of a Scientific Therapy.**—Dr. WILL WALTER, of Chicago, states that this study is an attempt to harmonize the various views and theories as to etiology, and tends to show their interdependence. He divides the theories into (a) ectogenous theory, which concerns bacterial invasion from without; not proved. (b) endogenous theory embracing, 1, malnutrition and autointoxication theory, important and fundamental, but not specific causes; 2, endogenous infection theory, consideration of latent tuberculosis as most probable source; 3, bacillary fragment theory, proved for tubercle bacilli and some evidence of occasional similar action from streptococci; toxins but finer subdivisions of fragments in harmony with colloidal chemistry findings; 4, anaphylaxia theory, important for reactivation of preinfection. Arguments and relative interdependence of theories are considered, and general and specific theory based on the findings met with is advocated. The speaker states that practically no progress has been made in the treatment of phlyctenular conjunctivitis for twenty years. He has been able to produce the condition by an overdose of tuberculin.

In the discussion, Doctor GAMBLE recommended small doses of tuberculin injected near the spinal column, and continued for two years. He thought the Von Pirquet test only reliable when positive, and that the Calmet test should not be used. He advised outdoor treatment and bringing the patient up to the physiological reactions. He believed the condition was a latent tuberculous condition.

Doctor DERRY, of Boston, had used tuberculin in only a few patients, as practically all got well without it. He said that ninety per cent. of patients with phlyctenular conjunctivitis gave a tuberculin reaction. He did not know why the other ten per cent. did not, because he was sure it was tuberculous. In these cases he invariably found other members of the family with an active tuberculous focus.

Dr. CHARLES SRATT, Jr., of Minneapolis, showed a so called cured case of tuberculous scleritis, which he had treated with tuberculin giving some sixty-four doses. The condition cleared up under the first treatment, but after a lapse of treatment, it returned.

Doctor BULSON, of Fort Wayne, Ind., said he used tuberculin in phlyctenular conjunctivitis, beginning with small doses and increasing every five or seven days.

Doctor WOOD, of Minneapolis, said that all seemed to agree that the treatment for tuberculous conditions of the eye was plenty of fresh air and good food, with tonics, that the antituberculin injections did not seem to be universally used; nor could the eye men always realize that a great majority of these patients had enlarged tonsils and adenoids, which should always be removed, and that the bowel condition should always be watched.

**The Temperature of the Conjunctiva.**—Dr. LUCIEN HOWE, of Buffalo, states that if two thermo couples are placed in a circuit and one heated or cooled more than the other, the difference in temperature can be registered on a galvanometer. If one such couple is introduced into the conjunctival sac, and another into the mouth, the difference in temperature is registered by the galvanometer. The couple described measures easily 0.06 of a degree, or even 0.015 C. The new data obtained by these measurements are: The temperature of the cul-de-sac near the outer or inner canthus is from about 0.3° to about 0.4° C. lower than that of the mouth; the temperature immediately over the cornea is still lower; it is possible to measure the extent to which cold or hot applications change the temperature of the conjunctiva. It is probable that the thermo couples described will prove of

value in indicating changes of temperatures in the globe itself, and metabolic changes in eyestrain.

**The Topical Diagnostic Value of the Hemioptic Pupillary Reaction and the Wilbrand Hemianoptic-Prism Phenomenon with a New Method of Performing the Latter.**—Dr. CLIFFORD B. WALKER, of Boston, describes the methods of performing the hemioptic pupillary reaction test, and the method of performing the Wilbrand hemianoptic prism phenomena. He then gives examination results on twelve cases in the neurological surgical clinic of Dr. Harvey Cushing. Summarizing discussion: Hemioptic pupillary reactions; 1, possible errors; 2, the combination Wernicke-Wilbrand test of Heine; 3, central scotoma cases. Wilbrand hemianoptic prism phenomenon: 1, possible errors; 2, the factor of intelligence or power of observation; 3, pseudorefixation. Conclusions: Hemioptic pupillary reaction; 1, nothing noted in disagreement with the work of Hess; 2, the possibility of a hemioptic pupillary reaction within the central pupillomotoric area; 3, concentric movement psychic reflex; 4, clinical failure. Wilbrand hemianoptic prism phenomenon: 1, diagnostic value greatly depreciated if not entirely nullified by psychological complex; 2, especially by the presence of pseudorefixation as demonstrated by the new method.

**Preventable Blindness.**—Dr. HENRY COPLEY GREENE, of Boston, field agent of the Massachusetts Commission for the Blind, presents reports of investigations made by the Commission, and deductions therefrom.

THURSDAY, JUNE 20TH.

**Election of Officers.**—Dr. Frank S. Todd, of Minneapolis, was elected chairman for the ensuing year; vice-chairman, Dr. William Zentmayer, of Philadelphia; secretary for three years, Dr. George S. Derby, of Boston; executive committee, Dr. Hiram Woods, of Baltimore; Dr. Albert E. Bulson, of Fort Wayne, Ind.; Dr. Adolph Alt, of St. Louis; delegate, Dr. Melville Black, of Denver.

**Ocular Vertigo.**—Dr. ALLEN GREENWOOD, of Boston, states that a good deal of vertigo of moderate severity is undoubtedly caused by the eyes. Experience will show that patients with astigmatism at oblique axes are those most prone to ocular vertigo. Labyrinthine disturbances by means of rotation and thermic tests will produce rotary nystagmus, and it is reasonable to suppose that disturbance of the eyes which calls for unusual and unnatural actions of the ocular muscles will in turn disturb the labyrinths and produce vertigo. Whether all of the vertigo produced by eyestrain is a reflex disturbance of the eighth nerves, or whether possible dizziness may be produced by disturbances of the higher centres without intervention of the labyrinths, is not positively known.

**Is the Percentage of Myopic Eyes Diminishing?**—Dr. SAMUEL D. RISLEY, of Philadelphia, explains that his paper is a continuation of the statistics set forth in an article on school hygiene, showing the steadily diminishing percentage of myopia from 1874 to 1893, inclusive, as a consequence of the careful correction of the anomalies of refraction by ophthalmic surgeons. These figures are given to demonstrate the truth of the claim made in a report of the examination of the eyes of school children in Philadelphia, published in 1881. It was there shown that the increase in myopic eyes during school life was due to the congenital visual defects with which children entered on their school work, rather than on faulty environment in the schools. The present study is undertaken to discover whether the steady diminution in the percentage of nearsight has continued since the studies completed in 1894.

**The Asthenopia of Muscular Imbalance.**—Dr. HOWARD F. HANSELL, of Philadelphia, refers first to the well known relation of errors of refraction to heterophoria. Then the less well considered relative accommodation and convergence as a cause of asthenopia from persistent or changing diopters of accommodation in their relation to the muscular coordination and incoordination is described, and attention is particularly directed to frequently changing axes of astigmatism, power of adduction and of abduction in presbyopia, depending less on ocular conditions than on the general health and individual peculiarities. Muscular balance or imbalance, without paralysis, does not depend on one muscle, but on the simultaneous and harmonious or inharmonious action of the entire ocular musculature and its nerve connections.



**Apparent Esophoria and Its Relation to Convergence Insufficiency.**—Dr. H. B. LEMER, of Omaha, says that apparent esophoria is the condition of ocular imbalance in which there is an esophoria in the distance and convergence insufficiency for near vision. The convergence insufficiency is the true cause of the trouble, and the symptoms are relieved when convergence power is strengthened either by operation or exercise. The operation used is the tuck with some important modifications.

**Blepharochalasis. Report of Two Cases with Microscopical Examination.**—Dr. WALTER BAER WEIDLER, of New York, states that blepharochalasis is an atrophic condition of the skin and subcutaneous tissues of the eyelids. It occurs most often in young girls, appearing usually at the age of fourteen, and always limited to the upper lids. This condition must not be confounded with ptosis alidiosa. There are no subjective symptoms, but the deformity and disfigurement makes them seek advice and treatment. The skin of the upper lids is slightly pinkish red, and smooth in the early stage of the disease; later there is a distinct atrophy of the skin of the lids, and countless fine lines appear. The superficial veins become more conspicuous as the stretching and atrophy of the skin increase. The skin and subcutaneous tissues hang down in a baggy, pouchlike mass, the lids seem to be lower than usual, but there is no true ptosis of the lids present. As regards treatment of this condition, excision of a portion of the skin, and subcutaneous tissues and orbital fat is the only thing that has given any satisfactory results.

**Postcataract Extraction Delirium. Report of Eleven Cases.**—Dr. WALTER R. PARKER, of Detroit, gives a historical sketch of this condition, followed by a reference to the theories of the etiology. While all agree that heredity plays an important part, and that weakness incident to the operation or disease preceding is only the exciting cause, there is no agreement as to the class of cases which should be included. There is no demonstrable relation between the character of the operation and the psychosis, and no single form of mental disturbance is characteristic of postoperative delirium. Eleven cases are reported and the following observations made: 1. The delirium occurred in 0.29 per cent. of the cases operated on. 2. No case showed marked signs of mental disturbance while under observation. 3. One case showed possibility of infection from an old cystitis. 4. The urine was normal in nine cases, not recorded in two cases. 5. Codeine was administered in two cases. 6. Cocaine poisoning is eliminated.

In the discussion, Doctor JACKSON, of Denver, reported several cases of delirium after midriatics. He thought the complete change in life might be the cause. Doctor GREENWOOD, of Boston, thought the condition due to a mental shock. He tries to do the operation in the home. Doctor WESCOT, of Chicago, reported one case, seventy-eight years old, with arteriosclerosis. Delirium developed on the tenth day; patient jumped over the banister and was killed. He believed that the delirium is due to a senile condition. Doctor RISLEY, of Philadelphia, reported two cases. He never gives morphine after operating, but rather small doses of hyocyamus. He always puts his patient on a tonic of nuxvomica, tincture of gentian, and compound tincture of chinchona. He often lets them smoke. Doctor BLACK, of Denver, gives one eighth grain of morphine one half hour before operation, so as to give the patient perfect mental rest. He lets him sit up the next day.

**Surgical Treatment of a Certain Type of Penetrating Wounds of the Sclera by a Double Conjunctival Flap.**—Dr. LEE MASTEN FRANCIS, of Buffalo, says that the use of a flap of conjunctiva, as described by Kuhnt and others, to cover penetrating scleral wounds, a well established surgical principle. He explains the reasons for closing all scleral wound of three millimetres or more with scleral sutures in addition to conjunctival plasty. In wounds located far enough back from the limbus to admit of proper elevation of the conjunctiva, two flaps may be made of the conjunctiva, which will serve the double purpose of drawing the wound edges together and providing a proper conjunctival covering. The advantages of the double flap are: 1. Because of the traction exerted by the two flaps, the scleral wound lips are held in firm apposition. Consequently relatively large scleral wounds may be rapidly and safely closed without stitching the sclera. 2. The resulting scar is thicker, firmer, and more

unyielding. 3. Two layers of sound conjunctiva protect the contents of the globe from outside infection.

**Primary Lues of the Bulbar Conjunctiva.**—Dr. CHARLES NELSON SPRATT, of Minneapolis, believes that from six to seven per cent. of all chancres are extragenital. About the eye, the margins, and skin of the lid are the most, and the bulbar conjunctiva and limbus the least frequently involved. The author reports the case of a nurse girl, aged thirty-seven, who had the care of a syphilitic infant. Twenty-one other cases have been found in the literature. All except one were in adults. There were five nurse maids and two physicians. Right eye involved ten times, left six, not given six. Eight were situated on the nasal; four on the temporal; four on the inferior; four on the limbus; two not given. Mode of infection: 1. Direct, as by kissing, coughing, splashing of fluids, etc. 2. Indirect. Infection carried by the hand. 3. Mediate, instruments, etc. Symptoms: No pain noted, except when chancre is on limbus. Diagnosis: Marked chemosis, with hard indurated area with a central ulcer, and enlargement of preauricular gland.

## SECTION IN NERVOUS AND MENTAL DISEASES.

TUESDAY, JUNE 17TH.

**Chairman's Address: Neurasthenia and Increased Susceptibility to Emotion.**—This paper by Dr. H. T. PERSHING, of Denver, is based on an experience of over 1,000 carefully studied cases. He excludes from the list of neurasthenics those cases where the nervous condition is due to some previously existing organic disease which, being cured, the nervous condition disappears. He is also careful to distinguish those symptoms which, though ordinarily due to some underlying physical condition, may here be due to the neurasthenia. The neurasthenic state is not due to overwork, but to a lowering of the emotional threshold. On this basis, the habitual repetition of an emotional disturbance maintains a vicious circle of fatigue and emotional excitability. Clearly the treatment must rest in the reestablishment of this emotional stability. It must include an attempt to displace the false ideas, and requires a sympathetic and understanding attitude on the part of the physician, as well as a thorough examination. Opium is recommended as the most useful drug available.

Dr. A. A. BRILL insists on restricting the field of neurasthenia further, and ordinarily looks upon depression as suggesting something more than neurasthenia. He also considers a greater degree of fatigue in the morning than in the evening as suggestive of depressive conditions.

**Premontory Aurals in Alcoholic Neuroses.**—Dr. T. D. CROTHERS, of Hartford, distinguishes clearly between alcoholism and inebriety. The latter bears a close relation to epilepsy, and auras are common. These are of varied character, sometimes physical and sometimes psychic, which he describes at some length. Alcoholism lacks these auras, but in both, the memory early becomes deficient. In treatment the author recommends excessive hydropathic and eliminative measures and mental suggestion.

**Multiglandular Syndromes and the Nervous System, with Lantern Slide Demonstration.**—Dr. D'ORSAY HECHT, of Chicago, refers to our limited knowledge concerning the action of the ductless glands and to the relation between the disturbed action of these and various nervous phenomena. Lantern slides are shown from several cases where pains, asthenia, bone diseases, and nervousness were all probably dependent upon some disturbance of the ductless glands. Treatment is largely experimental and more or less unsatisfactory, but one case of osteomalacia is cited where castration was followed eventually by considerable benefit.

**Diagnosis, Prognosis, and Treatment of General Paresis.**—Dr. C. R. BALL, of St. Paul, discusses the changing views concerning the relation of syphilis to general paresis from the time, in 1857, when syphilis was first pointed out as a cause of paresis, to a period when syphilis was looked upon as the chief cause, and to a more recent period when the doctrine of "no syphilis, no paresis" is rather generally held. We have been slow in coming to this latter view, largely because the pathology of syphilis is not that of general paresis, and because of the general failure of antispecific therapy in the latter disease. Noguchi's recent findings mark a distinct change in our view of the pathology of the so called metasymphilitic conditions. The speaker looks with disfavor upon the com-

mon tendency to regard all cases of paresis as hopeless. Ten per cent. undergo more or less prolonged remissions. He recommends injection of sodium nucleinate and salvarsan. Under this treatment Nonne's reactions were decreased but did not disappear. The clinical condition also improved.

**Pathological Findings in Insanity; Illustrated with Lantern Slides Showing Gross and Microscopic Lesions.**—The demonstration of Dr. H. D. VALIN, of Mankato, Minn., consists largely of lantern slides illustrating a variety of pathological conditions found in insane persons.

WEDNESDAY, JUNE 18TH.

**Tumor of the Hypophysis in Acromegaly; a Clinical and Post Mortem Report, with Photomicrographs.**—Dr. JULIUS GRINKER, of Chicago, reports that this patient showed the ordinary symptom of acromegaly, along with epileptic attacks and, later, mental disturbances with uncinat fits. After fifteen years of invalidism he died, and the post mortem examination showed a large adenoma pushing up the optic chiasm and bilateral hydrocephalus.

**Symptomatology of Multiple Sclerosis.**—Dr. L. H. METTLER, of Chicago, says that in the eyes of some this is the most common of organic nervous diseases. Others consider it excessively rare. In order to make a positive diagnosis he believes that the post mortem findings are necessary unless one is dealing with a very typical case, such as of the Charcot type. In view of this, it is impossible to determine the exact frequency of the disease. One must especially distinguish from it instances of disseminated encephalomyelitis. The most important signs of multiple sclerosis are: A certain type of optic atrophy, intention tremor, speech disorders, and signs of motor involvement, less marked than in lateral sclerosis.

Dr. C. D. CAMP believes that the study of the cerebrospinal fluid is very important in the differential diagnosis of these conditions.

Dr. J. GRINKER states that with the newer methods, the Wassermann test never gives a positive reaction in multiple sclerosis.

**Epilepsy and Paresis in Railway Engineers and Firemen.**—Dr. C. D. CAMP, of Ann Arbor, Mich., says that in questioning the medical officers of railway and motor companies he has found little attention given to paresis and epilepsy in enginemen and firemen, though his own experience shows that the coincidence is not rare. He reports four cases seen recently and several from medical literature. Suggestions are offered in the paper for the detection of the two conditions in railway employees.

At the close of the discussion the following resolution was passed: "That the secretary of the section be asked to communicate with the publicity bureau of the association to the effect that the section believes it highly dangerous for epileptics and paretics to be employed on railroad trains and that means be taken to prevent it."

**Two Cases of Circulatory Disturbances of the Brain.**—Dr. C. EUGENE RIGGS and Dr. E. M. HAMMES, of St. Paul, report these clinical cases, with the results of a post mortem examination in one. A full description of the clinical phenomena presented is given. In the first case the syndrome appeared to be that of occlusion of the posterior inferior cerebellar artery, and in the second, at necropsy, a ruptured aneurysm, before the division of the right posterior cerebral and posterior communicating artery, was found.

**The Conception of Homosexuality: Its Theories, Psychological Mechanisms, and Treatment.**—Dr. A. A. BRILL, of New York, reviews the theories as to the origin and development of homosexuality, and discusses its relation to degeneracy. Illustrative cases are given, and the therapy with its results fully gone into.

**Can Rabbits be Infected with the Virus of Syphilis Directly from the Blood of General Paretics: Observations on the Recognition of the Virus in the Later Period of the Disease.**—Dr. W. W. GRAVES, of St. Louis, has succeeded in infecting two rabbits directly from the blood of two cases of general paralysis and in transmitting the disease from one of these rabbits to two other rabbits, and from the other of the original two rabbits to four other rabbits. The spirochetes have the identical morphology of the *Treponema pallidum* in tissue emulsions, india ink, and Giemsa stains. His studies of the morphology of spirochetes show the ringlike bodies first described by Noguchi, from which spirochetes seem

to develop. Further studies in morphology and special straining of the *Treponema pallidum* in pure culture may enable physicians to recognize these forms microscopically in the blood and spinal fluid of syphilitics.

**Exudative Encephalitis.**—Dr. A. E. STERNE, of Indianapolis, discusses the condition of the brain in exudative encephalitis, including the grosser and finer changes so far as they have been observed, and also reviews the clinical signs presented and the differentiation of this from other cerebral conditions.

THURSDAY, JUNE 19TH.

**Further Notes on the Preneuresthenic and Preinsane Conditions.**—Dr. ROSS MOORE, of Los Angeles, in this paper makes an attempt to define certain types of physical and mental constitution in which a distinct mental disease is likely subsequently to develop. The physical signs are: Evidences of ready fatigue, fullness of the eyelids, twitching fingers, and full abdomen—all in connection with mental apathy.

In the discussion, almost all the participants agreed that, with careful methods of operation, it is possible to foretell an oncoming mental breakdown, and, in some of these cases at least, to prevent the development of a full fledged attack. One of the speakers, Doctor Mettler, said that while he realized the importance of investigating the mental conditions in childhood, he thought there was some danger of meddlesome interference in the training of children.

A motion was finally adopted that a committee be appointed, to report in one year, as to methods by which this section may be helpful in the question of the hygiene of childhood with reference to nervous and mental diseases.

**A Division of the Auditory Nerve for Persistent Tinnitus and Vertigo.**—Dr. C. H. FRAZIER, of Philadelphia, has found a large field for surgical work in the cranial nerves. One of the last of these to come under the care of the surgeon is the auditory nerve. He considers particularly operations on the intercranial portion of the nerve. When tinnitus is combined with vertigo we should operate on the nerve, rather than on the end apparatus. As a rule, the patient is already deaf on the affected side; consequently the effect of the operation on hearing is not to be considered. A small portion of the occipital bone is removed. The cerebrospinal fluid is withdrawn. In the case quoted by the author the result was very gratifying, and the tinnitus wholly disappeared.

**Occlusion of the Posterior Inferior Cerebellar Artery; Report of a Case.**—Dr. G. W. ROBINSON, of Kansas City, remarks that so far there are very few cases of this condition in literature. He reports a case, with a very careful analysis of symptoms, and a summary of the characteristic features of the lesion.

**Demonstration of Lange's Goldsol Test of the Cerebrospinal Fluid.**—Dr. B. W. SIPPY, of Chicago, presents the result of a study of the cerebrospinal fluid in 195 cases. This study showed the method to be of great value in diagnosis. Blood in the cerebrospinal fluid will interfere with the value of the reaction, just as it does in the Nonne test. The technic of the examination is not particularly difficult, but extreme care is necessary in producing the gold solution. All syphilitic lesions react with a maximum intensity in dilutions one to forty and one to eighty. Nonsyphilitic processes react with a maximum intensity in dilutions of about one to 640.

**Certain Nervous Phenomena in Pernicious Anemia.**—Dr. C. E. RIGGS, of St. Paul, states that in several cases seen by him the nervous phenomena have long preceded the presence of any characteristics of pernicious anemia in the blood. The cord symptoms are much like those of ataxic paraplegia, and, in some instances, distinct mental symptoms, like those of dementia paralytica, were observed. Clinical cases are cited and the literature reviewed. Salvarsan intravenously is recommended in the treatment.

## SECTION IN GENITOURINARY DISEASES.

TUESDAY, JUNE 17TH.

SYMPOSIUM ON DISEASES OF THE KIDNEY AND URETER.

**A Study of the Normal Kidney, Its Pelvis and Ureter; with Stereoscopic Views.**—Dr. S. B. CHILDS and Dr. W. M. SPITZER, of Denver, state that the object of work performed by them in studying ten cases as nearly normal as possible was twofold: First, to attempt to establish a



normal kidney, pelvis, and ureter; second, to note the appearance of the pelvis with the x ray. Young patients were selected, and wherever any fault could be found with the urine it was rejected. Pictures were taken in the lying and standing positions. Colargol was injected into the pelvis of the kidney by inserting catheters in the ureters, to a point when slight pain was produced. The following points were noted in the study: 1. The catheter usually entered the upper part; 2. the ureteral length is an important point determined, as it tells whether there is any ptosis; 3. in sixty per cent. of the cases kinks of varying degrees were demonstrated; 4. the shape of the pelvis was determined. This was found to be pear shaped, quadrilateral, concave, and in one instance bell shaped. In the lantern slides the shape of the pelvis and position of the catheter were shown. In the standing position the kidney is from 0 to 3.5 cm. lower than in the lying position.

**Stereopticon Views of Pathological Conditions of the Ureter and Kidney, with Methods of Examination, and Their Bearing on Diagnosis.**—Dr. BRANSFORD LEWIS, of St. Louis, shows upon the screen a number of x ray pictures of papilloma, malignant papilloma, anamalous sacculations of the bladder, stones in the bladder, and stones in the ureter. He states that the importance of his subject is that the general practitioner should be taught diagnosis of renal conditions, as many cases of renal calculi have been treated for prostatic trouble. This teaching should be done by the specialists, by showing pictures of the conditions and the methods of passing sounds and washing out the bladder.

**Renal Hematuria.**—Dr. W. F. BRAASCH, of Rochester, Minn., presents statistics of cases in which no essential cause of the hematuria could be shown. A differential diagnosis is considered. Chronic nephritis should be differentiated by the urine findings, and the hematuria in this condition is regarded as a terminal symptom. In infectious nephritis there is really a pyelonephritis present, and the pain is more marked. In bleeding pyelitis the kidney is normal; there is a dull persistent pain and pus can always be found. Neoplasms, lithiasis, and angioma should also be differentiated. In sixteen cases of essential hematuria operated on, nephrectomy was performed, with fourteen living patients, one patient having died of complications and another being lost sight of. Nephrotomy was performed in a number, and showed a fair number of good results. He denies that epidemic hematuria is a cause of essential hematuria, and states that after operation it was invariably found that nephritis was not the cause of the hematuria.

**Experimental Kidney Surgery.**—Dr. O. S. FOWLER, of Denver, considers the causes of renal calculi. There is always some evidence in the kidney of obstruction to the outflow of urine. He believes that in a large measure the stasis of urine in the pelvis is due to the upright position. The profession should be taught early diagnosis of renal calculi, and prophylactic treatment after operation should be insisted upon. The operation performed and advised by the author is a nephropexy, in which the kidney is sewed in a transverse position, strips of fascia lata being used to braid into the capsule of the kidney, and the fascia lata fastened into the deep muscle. He considers this field a new one.

The discussion brought out considerable criticism of the operation.

**The Use of Indigocarmin Intravenously.**—Dr. HENRY DAWSON FURNES, of New York, advocates this in making the test of the relative value of the functions of the two kidneys after a determination of the combined sufficiency with phenolsulphonphthalein. As the intramuscular injection of the twenty c. c. of a 0.4 per cent. solution is quite painful, he uses the drug intravenously in a solution of 0.3 per cent. in amounts of from five to ten c. c. This is without pain, and the time of appearance in the urine is shorter and more uniform as the variable factor of absorption from the muscles is eliminated. The only case in which there was any untoward result was that of a patient who had a choking sensation, with feeble and rapid pulse; but he recovered immediately.

**The Value of Various Functional Tests in the Differential Diagnosis of Renal Disease.**—Dr. JOHN F. GERAGHTY, of Baltimore, explains that retention tests are made by testing the amount of solid substances retained in the blood. Fifty-five grammes per litre is regarded as

borderline; anything above being accumulative. As to effect, the total, the relative, and the absolute functional values should be obtained. Inhibition is determined by using the alein as an indicator. In medical cases the glomerular function is determined by using lactose, water, and salt. In nephritis a functional test of the kidney is of value in making the prognosis and the condition of the heart as a possible factor should be determined. Uremia may be foretold by the same test. The author emphasizes the value of the phthalein test in acute infections of the kidney, pyelonephritis, and double renal tuberculosis. In the latter the test will only indicate which is functioning the better, and the amount of pus may be misleading.

WEDNESDAY, JUNE 18TH.

**Ureterovesical Cysts: An Endovascular Operative Procedure for Their Relief.**—Dr. J. R. CAULK, of St. Louis, presents a summary of the cause, the pathological changes of this malady and the operative procedures which have been proposed. He reports a series of six cases. Of these, he believes five to have been of acquired origin. He describes his method of removing the cysts by means of a small long handled forceps, or by resection with the knife. In connection with one of the cases he gives a description of cystoscopic operation which was done for the relief of the condition.

**The Formation of a New Ureter: Experimental Study.**—Dr. D. N. EISENDRATH, of Chicago, states that his experiments have been performed largely on dogs. He removed portions of the bladder for transplantation, attaching them to the proximal and distal ends of the severed ureters. His attempts by using a section of an artery or a vein or a segment of bowel, failed, owing to the necessity of having an epithelium which is accustomed to the presence of urine. Even though these experiments failed, he believes that eventually a successful method will be evolved, based on the idea of free transplantation of a portion or the entire thickness of the bladder wall employed to act as a permanent bridge between the two ends of a severed ureter.

**Implantation of the Ureter into the Bowel; with Report of Two Cases.**—Dr. CARL BECK, of Chicago, reports two cases in which the ureters were implanted into the bowel. The end of the ureter was made to project well into the lumen of the gut.

#### SYMPOSIUM ON BLADDER TUMORS.

**Chairman's Address: The Present Status of the Diagnosis and Treatment of Tumors of the Bladder.**—Dr. HUGH H. YOUNG, of Baltimore, asserts that nearly all tumors of the bladder in persons over forty years of age are malignant in character. The method of treatment advised is removal, with a wide resection of tissue beyond the tumor. He advises the use of a twenty per cent. solution of resorcin painted over the surface of the tumor, and extreme care in handling the growth, during removal, in order to prevent implantation elsewhere in the mucosa.

**Chronic Cystitis in Women not a Disease.**—Dr. GEORGE C. SMITH, of Boston, from a study of ninety-eight cases at the Massachusetts General Hospital, concludes that in every case, carefully studied, the cause of the cystitis will be found to be in some lesion higher up in the urinary tract. These lesions include tuberculosis of the kidney, pyelitis, and pyonephrosis. He asserts that the cystitis is a secondary manifestation of one of these lesions.

**The Transverse Incision of the Skin and Abdominal Fascia as a Method of Approach in Suprapubic Operations on the Bladder and Prostate.**—Dr. GRANVILLE MACGOWAN, of Los Angeles, in this paper shows very clearly the advantages of this incision, inasmuch as there is less danger of infection of the suprapubic tissues. It also affords a better exposure of the bladder, and is followed by better drainage.

**Pathology of the Prostate, with Lantern Slide Demonstration.**—Dr. E. O. SMITH, of Cincinnati, presents an interesting description of the embryology and microscopic anatomy of the prostate, followed by an account of malignant growths in the gland. The symptoms and remote effects of prostatic obstruction are also enumerated.

**Radiographic Observations of Pus Tubes in the Male.**—Dr. WILLIAM T. BELFIELD, of Chicago, states that infection of the seminal duct may produce an abscess in the duct, or there may be recurring infection of the seminal



duct through the prostatic urethra. He advises drainage through either the vas deferens or the urethra.

THURSDAY, JUNE 19TH.

#### SYMPOSIUM ON DISEASES OF THE TESTICLE.

**Operative Treatment of Undescended Testis.**—Dr. ARTHUR DEAN BAXAN, of Chicago, mentions the types of undescended testicles referable to anatomical location, and speaks of the dangers a patient with this anomaly is exposed to: Hernia, injuries, malignancy, psychic results, etc. Next, he discusses the history of the operations, and describes the technic of what he believes to be the best method of procedure. He emphasizes the importance of saving the tunica vaginalis. The absence of one testis must be considered. The so called supernumerary testes are often shown to be cases of diagnostic error.

**The Probable Embryonic Origin of Tumors of the Testicle, with Report of Two Cases and Lantern Slide Demonstration.**—Dr. A. C. STOKES, of Omaha, has prepared a number of sections showing the probability of the embryonic origin of these tumors. In some of the sections are clearly demonstrated cells of different types. He emphasizes the extreme malignancy of the tumors. Metastases of various kinds occur. He points out the probable evolution from the sexual cells of the testicle. Tumors of similar character are found in the kidney, ovary, and other parts of the genitourinary system. Operation must be both immediate and radical. Every tumor of the testicle with pain should be treated as malignant and removed. In one of the two cases reported the operation was completely successful.

**Primary Tuberculosis of the Genital Organs in Children.**—Dr. O. LYONS, of Denver, states that tuberculosis is rare in undescended testes. When this infection occurs in the testes it is almost always primary. He reports three cases.

**The Operative Treatment of Genital Tuberculosis.**—Dr. HUGH CABOT, of Boston, says that the order of primary foci in genital system is usually, epididymis, testicle, prostate. The operation of choice is epididymectomy with removal of the vas from the pelvis, obviating complicated convalescence. Tumors of the prostate should not be surgically interfered with. He describes the operative technic, and gives lantern slide demonstrations.

**The Pseudodiphtheria Organism in the Urinary Tract.** Dr. P. W. TOWNSEND, of Rutland, Vt., in this paper reports a case of cystitis with the cystoscopic appearances and subjective symptoms of renal tuberculosis. Bacteriologically the tubercle bacillus was not demonstrated by smear or animal inoculation. The pseudodiphtheria bacillus was found in pure culture. The pseudodiphtheria bacillus is considered to be a nonpathogenic organism. A review of the literature reveals only one similar case, which was reported by Dr. Rosenow, of Chicago. The pseudodiphtheria organism is frequently associated with other organisms in chronic urethritis. The author gives a summary of the literature and a report on the bacteriological examination of eighty specimens of apparently normal urine.

**An Experimental Study of the Value of the Internal Use of Hexamethylenamine, with the Report of a Simple Clinical Method of Quantitative Estimation of Formaldehyde.**—Dr. FRANK HINMAN, of Baltimore, relates his observations and findings in administrations of hexamethylenamine internally. He discusses its antiseptic value as regards the urine, and calls attention to the fact that in many cases the amount in the urine is too small for effective antiseptis. It must be present to the extent of 1:30,000 in the urine. He details the qualitative and quantitative tests, and gives tables for estimation. He states the conditions upon which urotropin conversion depends. The intervals of administration should not be less than eight hours, and the dose should be fairly large.

**Clinical and Laboratory Salvarsan Relapses, and their Remedy.**—Dr. M. L. HEIDINGSFELD, of Cincinnati, speaks of untoward results and their prevention. Very careful technic is required in the administration of salvarsan. The dose should be large and often repeated. The therapy should be controlled by frequent Wassermann tests.

**Progress in the Treatment of Syphilis.**—Dr. VICTOR VECKI, of San Francisco, critically reviews the later methods in the diagnosis and treatment of syphilis.

#### SECTION ON PHARMACOLOGY AND THERAPEUTICS.

THURSDAY, JUNE 17TH.

**The Teaching of Therapeutics.**—Dr. RAY L. WILBER, of San Francisco, chairman, in his address points out the present unsatisfactory condition in the therapeutic art. Much of this was attributed to the unscientific basis on which therapeutic agents are employed. This has led to therapeutic nihilism and the origin of the drugless cults. As a remedy toward correcting this condition of affairs, he lays stress on the importance of keeping the mind still at work after the diagnosis has been made, and of associating therapeutics with clinical medicine and surgery; which, he says, should be accomplished through the practice of bedside pharmacology and therapeutics.

**The Quality of Drugs Sold to Dispensing Physicians.**—Dr. W. A. PUCKNER, of Chicago, reports no evidence of sophistication found in the drugs sold to physicians by the smaller manufacturers catering to the trade of the dispensing physician. They may be a little less reliable in that tablets and pills showed a greater variation in weight than those put out by the larger manufacturers, but this was not universal. He concludes that the criticism by pharmacists is unjustified though for the proprietary specialties it is warranted.

**The Solubility of White Leads in Human Gastric Juice and Its Bearing on the Hygiene of the Lead Industries.**—Dr. A. J. CARLSON, of Chicago, has determined the solubility of lead carbonate and lead sulphate in human gastric juice, obtained from a gastric fistula. He finds the former soluble to the extent of forty-six per cent., while that of the latter is only seven per cent. Experimentally, lead carbonate was found more toxic to dogs and cats than the sulphate. The solubility is largely dependent upon the amount of free hydrochloric acid present, as he has found that the ingestion of milk delays the absorption which may be due to fixation of the hydrochloric acid by the proteid of the milk. Owing to the great difference in the solubility of the two salts, it is pointed out that the carbonate should be eliminated for inside painting where there is danger of lead poisoning.

WEDNESDAY, JUNE 18TH

**Treatment of Angular Pains.**—Dr. C. L. GREENE believes the chief factor in angular pains is due to strain on a weak and laboring heart, and that the treatment should be directed along the lines of relieving fatigue by having in mind all the factors that produce this condition.

In the way of drug treatment he relies principally upon morphine, since this also tends to quiet the psychic element so frequently associated with the attack.

**Internal Hemorrhages: Can We Control Them?**—Dr. FRANK BILLINGS contends that the thing desired in internal hemorrhage is to produce thrombus formation, which is best accomplished by abstinence of food and keeping the patient quiet by morphine. Ergot, epinephrin, and hypodermoclysis are contraindicated, since they tend to prevent clot formation by raising blood pressure.

**Diuretics in Cardiovascular Disease.**—Dr. A. D. HIRSCHFELDER calls attention to the methods employed to produce diuresis in cardiovascular diseases and holds that digitalis is the diuretic of choice through its effect on the circulation, increasing systolic output of the heart and pulse pressure and dilating the renal vessels.

**The Value of Diuretic Drugs in Acute Experimental Nephritis.**—Dr. H. A. CHRISTIAN experimenting on rabbits, finds that nephritis induced by uranium nitrate is not benefited by diuretics of the caffeine group when the nephritis is severe, but in moderate cases these drugs are effective in improving the renal function as shown by the phenolsulphonaphthalein test.

**Therapeutic Pneumothorax as a Palliative Measure: A Report of Twenty Cases from the Cincinnati Tuberculosis Hospital.**—Dr. KENNEDY DUNHAM and Dr. CHARLES S. ROCKHILL have produced an artificial pneumothorax in tuberculous patients with very encouraging results. Sufficient gas is injected into the pleural cavity on one side to produce collapse of the lung. This measure was found very effective in checking and preventing pulmonary hemorrhage and at the same time the tuberculous cavities become obliterated by the pressure of the gas, as shown by the skiagraph. The treatment is only claimed to be palliative in certain favorable cases.

**Treatment of Pneumonia by Specific Serums.**—Dr. KILGUS classifies pneumococci into four different groups, each differing in toxicity. The serum produced by the organism of one group does not operate against the toxines of the other groups. This is one of the explanations offered why antipneumococcus serums have not proved successful in the treatment of pneumonia. Stress is laid upon the importance of determining the specific group to which the infecting organism belongs, which may be determined by the agglutination test. All patients have shown a marked reaction where the appropriate serum has been employed.

**Antistreptococcus Serum.**—Dr. G. H. WEAVER emphasizes the importance of using antistreptococcus serum that is active and employing larger doses than has usually been given. No improvement may be expected unless a true streptococcus infection is present.

**The Treatment of Lobar Pneumonia with Partially Autolyzed Pneumococci and Pneumococcus Extracts.**—Dr. L. C. ROSENOW in a series of cases shows that the partially autolyzed or detoxicated pneumococci may cut the disease short if given early, and does reduce mortality. In the last stages it has not proved so efficient, but he believes it is a useful remedy in the treatment of pneumonia.

**Non-surgical Treatment of Cirrhosis of the Liver.**—Dr. N. S. DAVIS reports good results in the treatment of hepatic cirrhosis by keeping the patient at rest, a milk diet, and the use of hexamethylenamine and cathartics. Under this treatment the ascites entirely disappears and by observing a careful diet fairly good health may be enjoyed for years.

**Venous Blood Pressure as Influenced by the Drugs Employed in Cardiovascular Therapy.**—Dr. J. A. CAPES, experimenting on dogs, finds that the drugs commonly employed in cardiovascular therapy have little, if any, effect on venous pressure. Small doses of epinephrin is ineffective, while large doses produce a rise. A fall is produced by the nitrites and large doses of morphine.

**The Elimination of the Digitalis Bodies.**—Dr. R. A. HATCHER by animal experimentation finds no evidence that the digitalis bodies are destroyed in the circulation, although they disappear very rapidly.

THURSDAY, JUNE 10TH.

**Clinical Observations on the Emetic Action of Digitalis.**—Dr. CARY EGGLESTON produces evidence to show that the nausea and vomiting resulting from the administration of digitalis is not due to its local irritant action upon the stomach, as commonly supposed, but that it acts directly upon the vomiting centre. In no case should nausea and vomiting be induced by the administration of a single large dose of the drug. This phenomenon only occurs after absorption of the drug, as evidenced by the slowing of the heart and diuresis. Where there is no evidence of digitalis absorption there is no nausea and vomiting.

**Radium in Internal Medicine.**—Dr. L. G. ROWNTREE in a review of the literature states that about eighty per cent. of all cases treated in continental Europe show signs of improvement by radium treatment. The methods of administering are by the drinking and inhaling of the water emanations. His experience in this country, where only a small number of patients have been treated, have not been encouraging, although cases of arthritis deformans show some improvement.

**Hydrotherapy in Nervous Fatigue.**—Dr. C. POPE points out the beneficial results of hydrotherapy in nervous fatigue if carried out in a scientific manner, which is best accomplished in sanatoria, while in the hands of the unskilled it is condemned. It is emphasized that hydrotherapy is a remedial agent and belongs to medicine and not to charlatans and quacks.

**What Can be Done in Cancer with Röntgen Rays.**—Dr. W. A. PUSEY states that epithelioma without metastasis may be symptomatically cured (*i. e.*, scar tissue only remaining) by the use of the Röntgen rays. Where glandular involvement is present surgical measures should be employed.

**The Healing Process of Osteosarcoma.**—Dr. G. E. PFÄHLER is able to demonstrate by the skiagraph that in the healing process of osteosarcoma treated by the Röntgen rays the deposit of lime salts is one of the chief factors leading to the formation of bone tissue and replacing the tumor mass.

## Path of Progressive Literature.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

**Theory of Hematoporphyria.**—C. Hegler, E. Fraenkel, and O. Schumm report the following *résumé* of their work: The histological examination of a patient showed that, in various internal organs, great amounts of pigment exist; part containing iron, part no iron. The bone substance was slightly pigmented with iron; the bone marrow contained many erythroblasts of the normoblastic type, which was an expression of active regeneration of red blood cells. The afterproof of iron free cells in connection with the pigment cells pointed to the loss of many red cells. This resulting loss of red blood cells, possibly from earliest youth, should give us the key to the entire process. By it the distribution of pigment in the skin and different organs is explained, as also continuous dark color in urine, darkness of bones, and roots of teeth, and the reddish brown coloring of the skeleton. The examination with the spectroscope has proved that hematoporphyrin is a characteristic biproduct of hemoglobin.

**Exanthema after the Use of Copaiba Balsam.**—W. Fischer, from his personal observations, questions whether he can recommend copaiba balsam preparations or return to the use of santol oil. Even this last is not free from slight untoward action, which results in gastric distress and pain in the region of the kidneys.

**A New Diphtheria Prophylactic Remedy.**—Von Behring believes that a remedy for diphtheria which, after one or two treatments, would result in protection for an extended period of time, such as is the case with the vaccine lymph of Jenner, and which would leave no ill effect on those vaccinated, would not be a superfluous discovery. In the face of advances which we owe to the diphtheria serums in coping with the disease, and in spite of the indisputable fact that we may also secure prophylaxis with the therapeutic serum, statistics show that, for instance, in Berlin the diphtheria mortality increased from 2,997 in 1906 to 11,578 in 1911, and since then appears to have gone still higher. Further, as we know that, for good reasons, the general use of preventive serum injections have discontinued, it can be readily understood with what energy, and that the author is vigorously proceeding to have his remedy proved by other investigators for the purpose of securing more extended observations. Jenner, it is known, had to depend on a large number of statistics for the success of his remedy.

**Pernicious Anemia.**—Queckenstedt says it would be gratifying if the familiar diminution or absence of hydrochloric acid would permit of being properly substantiated. Large experience in this matter is not at hand, though several single important observations have been made. Of three children who were found to have gastric achylia, one died of pernicious anemia, and in four more showing variations of acidity one other such case was observed. Meagre as are these results, they

help in assuming a constitutional achylia made possible by the anemia. Some importance may perhaps be attached to the fact that not a few of the individuals suffering from pernicious anemia become ill at an early age. What rôle the achylia plays in the genesis of pernicious anemia, and how important a factor it is, is at present only a matter of conjecture.

May 15, 1913.

**The Action of Collargol Enemas in Septic Processes.**—W. Wolf believes that the good effect of collargol enemata has been clearly demonstrated. He purposely waited after each injection until the next rise of temperature, so as to more effectually show the action of the remedy. When there was no question of the favorable effect of the treatment the enemata were given independently of the temperature every fifth day. That the intravenous injection of collargol was ineffectual in a case reported was probably due to the prompt development of a thrombus of the basilio vein, by reason of which a large part of the fluid was not distributed in the circulation. The author was put on his guard by this accident, and refrained from injecting the other arm of the patient. He also states that eight collargol enemata given his patient did not cause the least irritation of the rectal mucous membrane.

May 22, 1913.

**Antilueticin.**—M. Tsuzuki states that antilueticin promises good results used alone or in combination with the old antisyphilitic remedies. Antilueticin is injected subcutaneously under antiseptic precautions, and the author prefers the intrascapular region. Patients are not hampered in their daily occupation by this method. The treatment is by increasing doses, beginning at 0.025 gramme and increasing to 0.05 gramme. Then smaller doses given for four or five days, until the total amount of from 0.15 gramme to 0.3 gramme is reached. Should patients bear these injections well, the treatment is continued. In the case of less sensitive persons one can give daily doses of from 0.01 gramme to 0.1 gramme of antilueticin.

**Case of Rare Disturbance of Potency.**—Lissmann relates the case of a married clergyman, desirous, like his wife, of having children, who had suffered from years from lack of ejaculation. On examination of semen, procured by masturbation, the spermatozoa were found to be normal in character. The condition was thought to be possibly due to inactivity of the ejaculatory centre, and two epidural injections of yohimbine were given within an interval of four days (thirty c. c. of normal saline solution, with from twenty to thirty drops of a two per cent. solution of yohimbine). This stimulated the erections for a time, but otherwise was without effect. Owing to the great desire of the couple for offspring, the author suggested the possibility of ejaculation by means of masturbation up to the moment of ejaculation, when the penis was to be inserted into the vaginam. Conception, however, did not result, and finally the patient was advised to resort to artificial impregnation.

May 22, 1913.

**The Importance of Analyses of Spinal Fluid and Blood Serums in Neurology.**—D. M. Kaplan asserts: 1. Serology is of the greatest impor-

ance for the diagnosis and therapeutics of nervous diseases. 2. It is possible to distinguish between syphilitic and nonsyphilitic affections on the one hand, and between dementia paralytica and lues cerebrospinalis, on the other; even when the differential diagnosis is not clear clinically. 3. The cell content of the spinal fluid is to be considered in treating a case of tabes specifically or otherwise. 4. The serological picture is one in which most syphilitic affections will be modified by specific treatment. 5. It is capable of exhibiting serologically a characteristic picture for beginning and for fully developed paralysis. The latter is not to be treated specifically. 6. In spinal cord compression one usually finds high protein content and a decrease in cell multiplication.

**Two Cases of Eclampsia Resulting Favorably after the Use of Hypophysen Extract.**—A. Schlossberger suggests the use of hypophysen extract in all cases of eclampsia which are to be conservatively treated, so as to determine whether the remedy has antieclamptic properties, in fact, or whether the good result noted in the author's cases was simply a matter of *post hoc*.

#### ZEITSCHRIFT FÜR AUGENHEILKUNDE.

May, 1913.

**Black Cataract.**—A. Elschmig and R. von Zeynek have, they assert with positiveness, determined from the results of chemical analysis that the coloring matter in black cataract is in no way connected with the coloring matter of the blood.

**Experimental Studies of Fluorescence of the Human Lens.**—J. von Seibius gives the results of a large number of experiments with uviolet glass light and states that he obtained a yellow green fluorescence of the human lens which is more marked as age increases. The color of this tends in youth more toward green; in age toward yellow. No fluorescence worth mentioning was obtained from the swollen masses of lens substance in traumatic cataract, and no distinctly visible fluorescence could be seen in remains of the lens capsule or in exudates in the pupil. The aphakic pupil was not fluorescent.

#### LYON MÉDICAL.

May 25, 1913.

**Pathology of Disseminated Sclerosis.**—L. Béril states that from the standpoints of etiology, symptomatology, and course, disseminated sclerosis (*sclérose en plaques*) can only with difficulty be conceived of as a definite, single disease. The unity of the disorder now depends chiefly upon its pathological substratum. For the production of the sclerotic plaques there is required merely a diffuse, subacute, nondegenerative myelitis or myeloencephalitis, upon which are engrafted localized vascular changes. These conditions having been supplied, the lesions are readily accounted for according to the general laws of the nutrition and evolution of tissues. The original myelitis does not depend upon a single, specific cause.

#### PARIS MÉDICALE

May 22, 1913.

**Urinary Pepsin and Nephritis.**—M. Chiray and R. L. G. Clarac state that, of all the methods of estimating the urinary pepsin hitherto employed,



that in which edestin is employed as the albumin to be digested is the best, though even this procedure is not altogether satisfactory. The gastric mucous membrane produces propepsin, of which a portion is not converted to active pepsin, passes into the blood, and is eliminated by the kidneys; becoming in part activated to pepsin when in contact with the renal epithelium. The urine contains both pepsin and propepsin, and the latter is activated by the acid present in the edestin solution used in the test. Whereas in but one of nine patients suffering from various affections—cirrhosis, pleurisy, rheumatism, cancer—was the urinary pepsin found above normal by the authors, it was above normal in five out of six cases of chronic nephritis. Urine treated with toluene and placed in the incubator was found to be the seat of a pronounced autodigestion, causing a progressive diminution of its albumin content.

#### **Palpation of the Liver in the Standing Position.**

—L. Planter asserts that, in view of the frequency with which unsuspected abnormalities of the gallbladder are found at autopsy and upon laparotomy, there is evidently something wrong with present methods of physical examination of this organ. He has found, indeed, on many occasions, that where no sign of gallbladder trouble can be elicited upon examination of the patient in the recumbent posture, characteristic gallbladder tenderness is noted upon deep pressure at the appropriate point when the patient assumes the standing position. Apparently the gallbladder recedes above the costal margin during recumbency, and is thus not accessible to examination.

#### **PRESSE MÉDICALE**

May 31, 1913.

**Diagnosis of Aortic Insufficiency with the Sphygmomanometer.**—Camille Lian, in thirty-six cases of aortic insufficiency, found the maximal pressure higher than normal in twenty-two instances, normal in eleven, and slightly subnormal in three. The minimal pressure was normal in twenty cases, subnormal in fifteen, and slightly above normal in one. The most valuable diagnostic information is afforded, however, by the relationship of the two pressures. In sixteen cases the maximal pressure was above normal and the minimal pressure normal; in seven, the maximal was normal and the minimal subnormal, and in five, the maximal was above normal and the minimal subnormal. The characteristic features in aortic insufficiency are thus an increase in the pulse pressure and usually a normal or subnormal diastolic pressure. These features are preserved even where there coexists another valvular lesion, arteriosclerosis, or chronic nephritis. In the average case of aortic insufficiency sphygmomanometry is only an additional confirmatory factor in diagnosis; but in cases where the murmur is but slightly marked or absent (including cases in which there is muscular weakening), where tachycardia renders precise auscultation difficult, and where other valvular lesions are present, the procedure is likely to be of great service. In one half the cases of Hodgson's disease (aortic insufficiency of syphilis and arteriosclerotics), viz., those in which there is well characterized chronic arteritis and interstitial neph-

ritis, the maximal pressure is very high and the minimal normal or also above normal; but in the remainder the typical pressure conditions are the same as in Corrigan's disease (aortic insufficiency of rheumatic origin).

#### **REVUE DE CHIRURGIE.**

May, 1913.

**Technic of Jejunostomy and Its Untoward Sequelæ.**—L. Bérard and H. Alamartine report a case of death following jejunostomy by the Witzel-Eiselsberg technic. All necessary precautions had been taken during the operation, and the fatal ending, due to intestinal obstruction four days after, must be ascribed to the procedure itself. At autopsy the jejunum was found kinked at an acute angle at the point operated on. Two similar fatal cases reported by other surgeons are referred to. The authors consider this form of jejunostomy too dangerous a procedure and too time consuming, and much prefer to it the older "omega" technic advised by Albert and Mayo Robson. This operation they perform under novocaine-epinephrine local anesthesia. The laterolateral anastomosis between the two halves of the loop of jejunum brought to the surface is effected with a Jaboulay-Lumière button; at least ten minutes' advantage being thus gained over the ordinary suture method. With this procedure perfect continence is secured and accidents from occlusion of the gut cannot occur.

#### **REVUE MÉDICALE DE LA SUISSE ROMANDE.**

May, 1913.

**Banti's Disease in Infancy.**—A. D'Espine reports two cases in which the anemia and splenomegaly characteristic of Banti's disease were noted, respectively, at the ages of seven and fifteen and a half months. In neither case was syphilis a factor. The author is led to emphasize the early onset of Banti's disease. Splenic enlargement may often have passed unnoticed until adult life and the disease actually have started in infancy. Some cases of rachitic splenomegaly, considered as arising from syphilis by certain authors, are actually incomplete (*frustes*) cases of Banti's disease. Spontaneous recovery from Banti's disease may occur in children, as in two cases to which D'Espine refers. That the injection of splenic tissue from one of the author's cases into a monkey gave negative results would appear to show that the disease is not due to infection.

**New Uterine Curette.**—Jambé describes an instrument consisting of an ordinary sharp curette blade borne by a metallic ring, which is slipped over one or two fingers in such manner that the tips of the latter project. The chief advantages of the device are that direct control of the curetting by the fingers is afforded and that the leverage of the long handle of an ordinary curette, with the attendant danger of undue injury in the deeply seated uterine cavity, is avoided. The smaller monodigital device is to be used where dilatation is insufficient to admit two fingers, in cases of abortion or premature labor, while the larger bidental instrument is intended for post partum curettage in cases where complete evacuation cannot be secured with the bidental one.

**Chloride Free Treatment of Epilepsy.**—V. Demole reports the results obtained in four epileptics by the use of Ulrich's sedobrol, a mixture of potassium bromide with a minimal quantity of sodium chloride and with fats of extracts of vegetable albumins, intended to afford the advantages of "chloride free" treatment without the disadvantage of anorexia and dyspeptic disturbances arising because of distaste for unsalted food. The sedobrol tablets are dissolved in chloride free soup, to which they impart an attractive flavor. The efficacy of the remedy was shown in each of the patients receiving it, the number of seizures diminishing, on the average, by twenty-nine per cent. from what they had been during bromide treatment alone, and becoming more frequent again when the preparation was discontinued. No dyspeptic trouble was experienced during its use. The remedy was also employed with success in a case of hysterioepilepsy, both the body weight and mental condition showing distinct improvement under its influence.

#### BRITISH MEDICAL JOURNAL.

June 14, 1913.

**On Avoidable Difficulties in the Hand Feeding of Infants.**—Eustace Smith ascribes much of the trouble to the careless handling of the infant at the time of birth and shortly thereafter. At birth the infant passes from a temperature of about 100° F. into one of from 65° to 70° F., and carelessness in bathing and attending to it subjects it to prolonged chilling, which gives rise to considerable shock and disorders the digestive powers. Such children vomit even the mother's milk, and are then put upon formulas. On the bottle they suffer even more than at the breast, and the food is blamed. The real trouble, however, is a catarrh of the stomach. The continued exposures for each day's care serve to keep the condition aggravated. For the avoidance of much trouble in artificial feeding the first rule given by Smith is, "Take care that the infant is bathed as quickly as possible in hot water, and that his feet and legs are never allowed to get cold." The second rule is directed to the maintenance of proper digestive powers and their encouragement by variety of flavor in the food. Smith believes that this is of great importance in hand fed infants, and especially to those whose digestive difficulties have already been a cause of anxiety. It will usually be sufficient to give two differently tasting foods alternately during the day, and a third for the night. In exceptional cases a greater variety may be needed.

**Autogenous Vaccines in the Treatment of Chronic Joint Affections.**—Basil Hughes considers the so called rheumatoid arthritis as a metastatic arthritis due to some primary focus of infection. Such foci have been most frequently found, in his cases, to lie in the mouth about the teeth, in the nose and nasopharynx, in the ear as a chronic otorrhea, in the lungs as bronchitis or bronchiectasis, in the intestinal tract associated with dyspepsia and intestinal stasis, and, lastly, in the female pelvic organs as leucorrhea of septic origin, usually due to *Bacillus coli*. In all such conditions the offending organism or organisms should be isolated from the primary focus (it is usually impossible to cultivate

them from the joints), and an autogenous vaccine should be given for one or two doses. This raises the phagocytic powers of the patient and it is then time to give the infected region the needed local treatment. The use of the vaccine is to be persisted in for long periods of time if one is to succeed in the treatment. Hughes believes that chronic gonorrheal arthritis is due to a mixed infection with the gonococcus and the staphylococcus, both of which can be cultivated from the interior of the urethra. A vaccine containing from 100 million gonococci and 150 million staphylococci up to 500 million of the former, and 1,000 million of the latter, is to be used, and after the second dose the chronic gleet is to be treated locally. Excellent results follow this method, but it often requires many weeks or months for a cure.

**Vaccines in the Treatment of Chronic Bronchitis and of Asthma.**—J. H. Harvey Pirie has treated some sixteen cases of the former condition with autogenous vaccines made from the sputum, and containing all of the probably pathogenic organisms present. The most commonly found organisms are the pneumococcus, *Micrococcus catarrhalis* group, streptococci, and staphylococci. Attention is called to the necessity for the inclusion in the vaccine of colonies of each of the several strains of the *Micrococcus catarrhalis* group which are usually found, as many of the strains are nonpathogenic, and the selection of the one which is offending is impossible bacteriologically. Seven of his sixteen patients are almost cured, four show marked improvement, four slight improvement, and one no improvement. In asthma the same varieties of organisms were found as in bronchitis, but in the former the pneumococcus was found in every case, while in the bronchitis cases two of the sixteen showed no pneumococci. Of nine patients with asthma, two have been practically cured, five considerably improved, one shows slight improvement, and one, none.

#### LANCET.

June 14, 1913.

**The Place of Climatology in Medicine.**—William Gordon discusses the general factors which go to make up a climate, and outlines their influence on healthy humans. As to their effects upon disease, he recalls that he has shown that exposure to prevalent rain bearing winds is a marked factor in both the occurrence and the prognosis of pulmonary tuberculosis. In pneumonia, a small series of observations would seem to indicate that great altitudes, and particularly cold dry winds, exert a considerable influence leading to the greater frequency and intensity of the disease. On the other hand, in bronchitis damp wind seems to increase its prevalence. Knowledge of the influence of such factors, and of the nature of the factors of climate which characterize given sections of the country, gives us an important element in diagnosis and in prognosis, for if a patient is known to come from a region in which pneumonia is prevalent and severe, we are justified in anticipating a doubtful outcome. The influence of climate does not seem to be confined to the infectious diseases, for it has been found by analysis of the frequency of cancer and of the age of its incidence, and that at which it kills,

that in certain rural districts the disease is relatively rare, occurs later in life, and death results from it at a much more advanced age, than is the case in towns or in the country in general.

**The Finsen Light Treatment at the London Hospital, 1900-1913.**—J. H. Sequeira reports that of a total of 1,039 patients treated efficiently for lupus during the past thirteen years, 544 have remained cured for from three to thirteen years; 186 have remained cured for less than three years; 117 have been essentially cured, requiring, however, occasional treatment for slight recurrences; 161 patients have improved; and thirty-one have been wholly uninfluenced by the treatment. Not all of the benefits recorded are ascribable solely to the light treatment, for some cases were also helped out by a few exposures to x rays, and some were treated surgically, in addition to the use of the light.

**Breast Feeding.**—David Forsyth had an infant carefully weighed before and after each nursing for a period of seven weeks, beginning on the fourth day after birth. The results show that there is a general increase in the average daily consumption of milk from week to week, but that this is neither uniform nor uninterrupted. Further, the daily amounts taken vary within wide limits, and the amount taken at a single feed is even more variable. In the second week so large a single feed as 125 c. c. was taken on two occasions. The average feeds ran: Twenty-eight c. c. for the first week; fifty-seven c. c. for the second; forty-six c. c. for each of the next two weeks; sixty-six c. c. and sixty-five c. c. respectively for the fifth and sixth weeks; and seventy-seven c. c. for the seventh week. From the finding of enormous variations in the sizes of individual feeds one is forced to believe that the "test feed" method of estimating the needs of a child is worthless. Another notable feature of the observations was that the variable consumption of the milk did not seem to run in cycles, but was quite irregular. Forsyth believes the variation due in large measure to maternal factors, rather than to differences in the infant's appetite. No food or drug reputed to have galactagogue powers had any influence on the flow of milk in the case thus carefully studied.

**Breast Feeding.**—Disney H. D. Cran advocates the teachings of Variot to "let the child on the breast drink according to its appetite." From a large series of cases, all of which were conducted along this plan, it was found that the infant mortality did not exceed 4.5 per cent., being only 3.14 per cent. in 1912. The amount of milk thus taken by the child may vary from one sixth to one twelfth of its body weight in twenty-four hours, and is never so low as one tenth, as is generally taught. If the child has taken a little too much milk there is simple regurgitation. The restricted feeding advocated by many almost always leads to underalimentation, with crying, vomiting, diarrhea, wasting, etc. The use of scales more often than once a week in the case of a young mother who is healthy is to be deprecated, for it often leads to worry if the child happens to take but a small feed at the meal chosen as the test one. The methodic use of the scale is indicated when a child on the breast ceases to increase in weight, and this

will usually show that the secretion of milk is deficient.

**A Case Having a Bearing on the Localization of the Auditory Centre.**—William Boyd and J. S. Hopwood report the post mortem finding of a case of complete destruction of the entire left temporal lobe except the third convolution, and the anterior extremities of the second and first convolutions, the last of which bears on its upper surface the anterior gyrus of Heschl. In this latter the auditory centre has been thought by some to lie, and the present case seems to lend confirmation to this view, for the patient showed no deafness during life.

**An Experimental Research into the Origin of the Inorganic Chloride in the Gastric Secretion.**—Charles Singer obtained gastric juice from fasting cats by means of a stomach tube and pilocarpine. Seven different samples were tested for the inorganic chloride, and it was found to be present in all. He therefore concludes that the inorganic chloride in gastric juice is in large part due to secretory or osmotic processes in the stomach wall, and not to introduction in the food, and that it must, therefore, be affected by pathological changes in the wall. Hence the amount of inorganic chloride becomes of pathological and clinical significance.

#### JOURNAL OF TROPICAL MEDICINE AND HYGIENE

May 1, 1915

**Treatment of Suppression of Urine in Black-water Fever.**—H. S. Stannus reports a case in which, after hemoglobinuria had been present twenty hours and complete suppression forty-eight hours, nephrotomy (unilateral) was performed. This resulted in the passage of small amounts of urine, beginning within twenty-four hours after the operation and continuing until death took place in the presence of uremic symptoms, on the evening of the fifth day after operation. Although the procedure was unsuccessful in saving life in this case, the author thinks it possible that intervention at an earlier period in the suppression would succeed in cases of this kind. The first desideratum is to ascertain how long suppression can exist before a spontaneous return of renal function is precluded in a large proportion of cases.

**Spider's Web and Malaria.**—Frederick Knab, referring to the view recently urged that the web making spiders are effective destroyers of malaria transmitting mosquitoes, points out that while it has been generally taken for granted that mosquitoes are actually entangled in the webs, just as are other diptera, records based upon first hand observation of such occurrence are exceedingly few. On the other hand, the author has observed mosquitoes to choose spider webs as a resting place and habitually to repose there, without in the least becoming adherent to their meshes. In every case the mosquitoes so observed were *Anopheles*, and furthermore, in the vicinity of Washington, D. C., the author found that all the *Anopheles* on the webs belonged to the species *Anopheles quadrimaculatus*, although a second species, *Anopheles punctipennis*, was present in the locality in large number. The latter species carefully avoided the webs. Since



*Anopheles quadrimaculatus* is the principal malarial transmitter in the northern United States, while the more abundant *Anopheles punctipennis* has been proved incapable of serving as the host of the malarial parasites, it would appear that in some cases at least, the spider webs have no effect in checking malaria. The author could not find a single record of *anopheles* caught in a web.

MAY 18, 1914.

**A Clinical Study of Malarial Fever.**—J. P. Bates, from a study of malaria begun in Panama in 1905, and covering a large number of cases, concludes that this affection is not analogous to other infectious diseases in that the greater the infection the more prolonged the course, but either responds to quinine within three to four days—in a few instances of primary infection and in children, within six days—or rapidly terminates in a fatal issue. Systematic examination of the stools, Widal tests, blood cultures and a careful study of symptoms, have convinced the author that the idea long prevalent that malaria is in some instances only slowly influenced by quinine is incorrect, and that the cause of this mistake has been confusion of three conditions, viz.—uncinaria anemia, kala azar, and mild typhoid fever, with malaria, owing to the great clinical similarity. True malaria is a very simple entity and is not difficult to cure if treatment is begun before the organism is overwhelmed by the infection. Mild typhoid fever, as proved by cultivation of the bacilli from the blood, has given rise to much confusion, because its temperature curve is often irregular, as in the so called "remittent" or "subcontinuous" type of malaria, and because some typhoids of moderate severity terminate abruptly, as malarial fevers often do. At least some of these cases have malarial parasites in the blood, along with the typhoid infection. In differentiating mild typhoids from malaria, the blood cultures must be made within from twenty-four to thirty-six hours after admission.

#### BOSTON MEDICAL AND SURGICAL JOURNAL.

JUNE 10, 1914.

**Concerning Diabetes Insipidus and the Polyurias of Hypophyseal Origin.**—Harvey Cushing summarizes the experimental data by saying that: 1. The infundibular region contains, in addition to the substance capable of glycogenolysis, a chemical body or hormone capable of eliciting diuresis. 2. Under certain operative conditions which entail posterior lobe manipulations there often occurs a diuretic response, and occasionally an extreme polyuria, whereas a temporary diminution in the excreted urine is apt to follow other operative procedures requiring an equally long anesthetization. 3. Posterior lobe implants may cause a temporary polyuria, which subsides on the removal of the implanted tissue. 4. Stimulation of the autonomic system of nerves to the gland elicits diuresis. 5. Certain operative procedures, such as separation of the infundibular stalk, and occasionally a simple posterior lobe excision, may call forth a somewhat prolonged polyuria. In connection with clinical observations he suggests not only that the emotional polyurias are in all likelihood the expression of a neurogenic discharge of hypophyseal secretion, but

also that the clinical polyurias of longer duration are in many instances merely the symptomatic expression of an internal secretory disturbance brought about by injury or disease involving the hypophyseal neighborhood. Hence, whether or not there actually proves to be a form of polyuria of primary renal origin, our present conceptions of so called diabetes insipidus need to be recast, with especial reference to the factor of the secretory activity of the pituitary body, and particularly of its posterior lobe.

**Diagnosis and Treatment of Diphtheria.**—Joseph B. Greene makes the following points: 1. The diagnosis of diphtheria depends primarily on finding the organism. Cultures should be taken of every sore throat in children, and of suspicious nasal discharges. But in the absence of a positive finding, if the symptoms point to diphtheria, antitoxine should be given, especially if the symptoms are severe. 2. Much larger doses of antitoxine should be given than those suggested in the textbooks. 3. Laryngeal cases are serious, partly from mechanical obstruction, requiring prompt relief from the stenosis, and large doses of antitoxine. Intubation is preferable, in the main, to tracheotomy. Laryngologists should perfect their technic in this operation until it becomes a fairly simple one. 4. Epidemics of diphtheria are kept up largely by "carriers." They should be sought out, isolated, and the abnormality treated. Diseased tonsils and adenoids may require removal.

**Tuberculosis of the Epididymis: Its Effect upon Testicle and Prostate.**—J. Dellinger Barney says that the epididymis is the primary focus in the vast majority of cases of genital tuberculosis. The disease is bilateral in 41.6 per cent. of all cases, and becomes so within six months of the involvement of the first side in thirty per cent. The prostate and vesicles are infected in seventy-five per cent.; this infection taking place in the first six months in thirty per cent., and in the first year in fifty-four per cent. The infection takes place quite as often in the presence of unilateral as of bilateral epididymitis. The urine is pathological in forty-three per cent. of all cases; bladder irritability is found in thirty-five per cent., and in about half of these it occurs in the first six months. Tuberculosis, past or present, of organs other than those of the genitourinary tract, is to be expected in thirty-three per cent. Clinical observation shows tuberculosis of the testicle in forty-four per cent., but the pathologist finds it in sixty-six per cent., and of these the infection takes place in the first six months in fifty-three per cent. As the infection may become widespread in the first six months, removal of the epididymis is indicated at the earliest possible date. It is rarely necessary to remove the testicle, as it was not required in sixty-seven epididymectomies.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JUNE 15, 1914.

**The Treatment of Narcotic Addiction.**—Alexander Lambert describes a treatment for alcohol, morphine, and other drug habits, the essentials of which cannot be altered. The treatment consists of the persistent administration of a belladonna mixture, in small doses, and thorough elimination by a

mercurial cathartic, as blue mass or calomel, given in the form of compound cathartic pill or alone. Some patients who are easily salivated by calomel can take blue mass. The cholagogue action is essential. Mere catharses is insufficient in the process of elimination, as are also colonic enemas. There must be the cholagogue action from above. This treatment is not offered as a cure of morphinism or as a cure of delirium tremens or chronic alcoholism, but it will remove the terrible craving accompanying these addictions, when, unaided, the patients endeavor to give up the drugs or are made to undergo the slow withdrawal without some soothing substitute. It is superior to the old methods of slow or rapid withdrawal. Deprivation of a drug is not equivalent to the elimination of that drug from the system. Suffering follows deprivation, relief follows elimination. This treatment, and no other known treatment, can prevent patients, after being freed from such addiction, from re-poisoning themselves by resuming the use of the drug, which has previously poisoned them and led to their habitual intoxication. Though each individual presents a separate problem, this treatment is suggested as the best means of "unpoisoning" the patient and placing him in a position where he can be approached with a clear, unpoisoned mind, and protected from self destruction.

**Animal Experiments with von Ruck's New Tuberculo-proteins.**—From a series of experiments made with this vaccine upon guineapigs, R. S. Cummings concludes that immunity was not produced by the vaccine, but it would seem possible that as the vaccinated animals became sick first, they were more susceptible at the time of inoculation than the controls.

**Accidents Following the Subdural Injection of Antimeningitis Serum.**—Simon Flexner admonishes us not to lose sight of the fact that in epidemic meningitis we are dealing with a highly fatal malady, and the one means now possessed to combat it is the antimeningitis serum. It is not justifiable, therefore, to withhold the remedy, in spite of some small risk, in view of the far greater dangers from the disease itself. Nor should we always ascribe serious symptoms to the serum, even when they follow closely on the treatment. Sudden death not infrequently occurs in epidemic meningitis; cases have been reported in which death has taken place while the serum injection was being prepared, and even before lumbar puncture had been done. The antimeningitis serum should not be discredited because of an unfortunate experience. When everything is considered, such action seems hardly defensible.

**Advanced Treatment of Puerperal Infection.**—The rational treatment of puerperal infection, according to Robert T. Gillmore, demands that we ascertain by a blood culture the germ causing the infection. To this end a tight bandage is applied to the upper arm, and the distended median basilic vein punctured with a large needle, under strict aseptic technic, after which about half an ounce of blood is withdrawn into a sterile glass container. From this an antogenous bacterin is made. It requires five days to be absolutely certain that no other living germ is present; it is wise, therefore,

after the microorganism has been isolated, to initiate a bacterin treatment with fifteen c. c. of serum intravenously, to be followed with a reliable stock vaccine. The nonoperative treatment of an uncomplicated case of puerperal infection demands complete physical and mental rest, good ventilation, and sunshine, and that drainage be favored by the Fowler position. Cold sponging and an ice bag on the head should be used to control hyperpyrexia. If there is local pelvic inflammation an ice bag is placed over the affected area. Elimination by the bowels and the kidneys should be favored, and normal saline solution, introduced by the drop method into the rectum, will save the stomach, allay thirst, and favor renal elimination. Since this preparation of an autogenous vaccine requires about five days, a serum or antitoxine should first be administered, to be followed by a reliable stock vaccine if the blood count is favorable, and there is an indication that the patient lacks sufficient reaction to combat the disease. The stomach should be carefully guarded, and all useless medication avoided. Reserve the stomach for nourishment only. Feeding should be done with care and at regular intervals. Dispense with breast nursing, unless the mental effect is too depressing. The operative treatment should be limited to cases with absolute indication. The use of antiseptic vaginal and uterine douches is deprecated.

**Conservative Treatment of Some Aural and Nasal Conditions by Hot Air and Iodoform.**—Edward J. Brown presents a simple and practical method of treating some aural and nasal conditions. Sore throat and earache from acute pharyngitis have been relieved by a single application of hot air and nascent iodine, with no return of the trouble on the following day. This result seems to be due specifically to the destruction of the less resistant bacteria and the drying and shrinking of the tissues with the secondary increase of cellular activity and removal of inflammatory products which interfere with drainage.

**The Serum Diagnosis of Pregnancy.**—Charles C. W. Judd, in considering the Abderhalden serum tests, remarks that if putrefactive changes can be excluded, a positive reaction indicates that the tissue was digested by an enzyme of the patient's serum, which, so far as investigations have been able to determine, is present only in the gravid state, the puerperium, and in cases of retained membranes. A negative reaction, however, is strong, if not conclusive, proof that placental tissue is not or has not recently been present in the patient's body. Some thirty or more cases under the care of the writer, and tested by this method, have shown the strict specificity of this test when putrefactive changes, fresh serum, and the proper selection of dialyzers have been carefully controlled.

#### MEDICAL RECORD.

January 21, 1914.

**Incompetency of the Ileocecal Valve.**—John H. Kellogg describes the disorders arising from this condition and their treatment. In complete incompetency of the ileocecal valve the passage of a large amount of undigested food from the small intestine into the colon may cause indigestion and diarrhea. When the contents of the small intestine

pass rapidly into the colon, instead of being introduced in small successive quantities, the colon becomes overdistended, stasis occurs, putrefactive processes are encouraged, colitis, pericollitis, or appendicitis may result, and conditions are produced which favor the development of tuberculosis and cancer; pathological conditions which occur with special frequency in this part of the canal. The drag of this accumulated material upon the root of the mesentery produces obstruction at the junction of the duodenum and jejunum, and so causes duodenal and gastric stasis, the natural consequence of which in these parts, as in every other part of the alimentary canal, is the abnormal development of bacteria and toxins, with infection of the mucous membrane and resulting gastritis, duodenitis, gastric and duodenal ulcer, cholecystitis, cholangitis, gallstones, pancreatitis, adhesions about the pylorus, and the duodenum with chronic pain in the pyloric region, and various other morbid conditions connected with the stomach and digestion. Appendicitis and the various troubles referable to adhesions about the ileocecal region are a natural, almost necessary, consequence and incompetency of the ileocecal valve. Ileocecal valvular incompetency interferes with the movement of gases even more than of liquid material, and the bowel is practically unable to deal with gaseous material. Constipation and intestinal intoxication of the highest degree is produced by incompetency of the ileocecal valve. The palliative treatment of the condition includes increased activity of the bowels (three movements daily) and a change of the intestinal flora (by the use of acid forming ferments—*Bacillus bulgaricus*, *Bacillus bifidus*). The radical cure, seldom needed in the writer's opinion, consists in reconstructing the damaged habenula and reproducing the intussusception of the small intestine.

**A Clinical Study of the Application of Improved Intravesical Operative Methods in Diagnosis and Therapy.**—Leo Buerger reports eight interesting cases demonstrating the useful endovesical operation procedures that can be carried out through the modern cystoscope by means of special instruments. These include the extirpation of tumors, the excision of suspected pathological lesions, the crushing and removal of calculi, the removal of foreign bodies, the snaring of papillomas, the dilatation of ureters, the excision of ulcers for diagnosis and therapy, the exploratory or therapeutic incision of cysts, the synchronous catheterization of three ureters and the synchronous employment of three or more catheters, and the excision of portions of a ureteral orifice for the diagnosis of renal tuberculosis. The technic of operative cystoscopy is minutely described by the writer.

**Local Autogenous Temperature Variations, a Cause of Labyrinthine Vertigo.**—Edmund P. Fowler states that sufficient heat or cold applied near the static labyrinth will produce vertigo and usually nystagmus in definite directions, depending upon the position of the head. The degree of vertigo, nystagmus, etc., varies with the sensitiveness of the organ and the amount and kind of tissue between the labyrinth and the place where the heat or cold is applied. The semicircular canals and utricle are protected from extreme temperature va-

riations by the poor heat conductivity of the tissues surrounding the labyrinth, and of the blood and tissue currents, and with the usual methods of applying heat or cold, the temperature reaching the canals can be but slightly different from that already surrounding them. The bony walls are only relatively good conductors of heat and their specific heat low, but, being surrounded by poorly conducting bone and tissues of high specific heat, they are quickly affected by temperature changes, and such variations will persist near the area of application for appreciable periods of time. Portions of the static labyrinth are near the surface, and localized inflammations or congestions or anemias may cause variations in temperature which will affect the flow of the endolymph, and, if sufficiently intense, will cause vertigo and other similarly produced phenomena.

#### JOURNAL OF NERVOUS AND MENTAL DISEASE.

March, 1913.

**A Case of Hypoglossal Nuclei Paralysis.**—A. M. Moll reports a case which seems to support the theory that the hypoglossal nuclei contain cells which at least partially enervate the orbicularis oris through the seventh pair. The case was apparently one of bulbar thrombosis manifesting difficulty in eating and swallowing with almost complete paralysis of the tongue. There was no involvement of the distribution of the facial nerves except the muscles about the mouth, which were weak and gave electrical reactions of degeneration. There was also weakness in the legs, with increased reflexes, showing involvement of the motor tracts. Improvement gradually took place in all of the symptoms. In the absence of histological studies the case is, of course, not conclusive, but indicates the possibility that some of the facial fibres may arise in the hypoglossal nuclei.

**Occurrence of the Syphilitic Organism in the Brain in Paresis.**—J. W. Moore has been successful in establishing another link in the chain of evidence connecting paresis and syphilis. In post mortem examinations of the brains of seventy patients with paresis for the organism of syphilis the treponema was found in twelve specimens. Difficulties in the technic indicate that the organism is present in a much larger proportion of the cases. Whether it is present in all, in other words, whether paresis is invariably syphilitic, has therefore still to be proved. The most of the organisms found in these brains were in the cellular layers of the cerebral cortex of the frontal lobe and gyri recti. None were seen in the superficial neuroglia layer nor the pia, as is the case in cerebrospinal syphilis.

April, 1913.

**The Present Status of the Knowledge of Apraxia; with the Study of a Case.**—Alfred Glascock, in a continued article (March and April) considers the evolution, as well as the present status, of the agnosias and apraxias, and their relation to the aphasic states. To Liepmann is given the credit of having clarified the subject, and it is his classification that the author has mainly adopted. By the term agnosia is understood a mental inability to recognize objects by the aid of the senses when



sensation itself is intact. This may be referred to any of the sensory organs, and constitutes tactile, visual, or auditory agnosia; it includes, or is closely allied to, word blindness, word deafness, and astereognosis. Apraxia, on the other hand is a motor condition or defect of the performance of voluntary movements in the absence or independent of motor weakness. This not only includes the inability to write, but also the inability to handle objects and perform movements which previously required but little effort. The symptoms of agnosia and apraxia are frequently associated in the same case, and, as in disturbances of the use of language, the left cerebral hemisphere in righthanded individuals is principally concerned in their development. An interesting and vital point in the theory of leftsided apraxia is the fact that it may be caused by a lesion of the corpus callosum, or even in the left hemisphere, thus indicating that the extremities of the left side, in association with the right cerebrum, is ultimately controlled by centres in the left cerebrum *via* the corpus callosum. Precise localization of the different centres concerned in these functions is as yet a matter *sub judice*, and for its consideration the reader is referred to the original article. The case reported is a careful and detailed study of the clinical manifestations in a patient presenting symptoms of agnosia and apraxia.

MAJ. W. S.

**The Aborted Forms and Preparalytic Stage of Acute Poliomyelitis as Observed in the Buffalo Epidemic.**—Edward Affleck Sharp, in analyzing the epidemic of poliomyelitis which occurred in Buffalo during the summer of 1912, has collected twenty-nine cases, from a total of 310, which were either aborted forms or cases studied during the preparalytic stage of the disease. The classification is based on symptomatology, into abortive, meningeal, ataxic, and paralytic types. Almost constant symptoms in the preparalytic stage were fever, drowsiness, stiffness of the neck, and constipation, headache, irritability, and twitchings were also generally present. The findings in the cerebrospinal fluid were fairly constant lymphocytes and increased globulin reaction; conditions not sufficient in themselves to differentiate the condition from tuberculous meningitis or the meningeal irritation of acute infectious diseases of different origin.

**Mirror Writing and Other Associated Movements Occurring without Palsy.**—Charles W. Burr and C. B. Crow describe the case of a man of twenty-seven years who was congenitally unable to individualize the movements of his two hands; except for very simple movements the two hands moved symmetrically, with the result that when he wrote with a pencil in each hand, the left produced "mirror writing." In the absence of any evidence of a lesion, the hypothetical explanation is advanced that there was a congenital lack of development of certain association pathways or centres in the brain.

**Cerebellar Tumor Glioma; Operation; Recovery.**—Max Mailhouse and William F. Verdi present the report of a remarkable case of cerebellar tumor occurring in a girl of fifteen years, and its removal by two stage operation. Location was difficult on account of the bilateral invasion. In spite of the size of the tumor (weight, 107 grammes; di-

mensions, 7.5 x 6.8 x 4.7 cm.) it was successfully removed one year after a primary decompression, and eight months later the patient had to a large extent regained motor coordinations.

**Experimental Studies on the Nervous Mechanism in the Production of Hyperplasia.**—Walter Timme reports some experimental operations upon cats in which the pneumogastric nerves were ligated in the thorax below the esophageal plexus. Of nine animals operated on, five lived; they also gained in weight, but were sluggish. They were killed at from 111 to 140 days after operation, and five or six hours after a full meal, and control animals were killed under similar conditions. In the control animals digestion was well advanced, while the stomach contents in the experimental animals were but slightly digested and almost dry. On the other hand, the capacity of the stomach was greater, and the stomach wall much thicker, in each of the experimental animals than in the controls. In particular, the mucosa was thrown into heavy folds, and a microscopical examination revealed an abnormal number of gastric glands, as compared with the controls. The hypothesis is advanced that nervous impulses are dependent upon electric circuits through the nerves, and that ligation of the vagi diminished the currents through them, at the same time tending to increase those to the stomach *via* the sympathetics. The result of this condition might be to stimulate the trophic influences, and to inhibit the functional activity (secretion and motility) of the stomach.

## Letters to the Editor.

### THERMOSTABLE TOXINES IN URETHRAL AND BLADDER INFECTIONS.

233 LEXINGTON AVENUE,  
NEW YORK CITY, June 24, 1913.

To the Editor:

In the June 21, 1913, issue of the NEW YORK MEDICAL JOURNAL, in an article entitled "Use of Thermostable Toxines in Urethral and Bladder Infections," Dr. Frank S. Crockett states that the bactericidal activity of the blood "is accomplished by a new process, a short cut." Further on he states: "The first use of my toxines were carried out, etc." In the spring of 1912, D. J. Mangan, D.V.S., made a series of autotherapeutic tests on many animals by heating the exudate of disease, filtering it through some coarse material, such as several thicknesses of cheesecloth or gauze, to remove heavier particles, and then injecting the filtrate hypodermically. He published his results in the *American Veterinary Review*, July, 1912, under the title: "Autotherapy." This article was republished in the *London Veterinary Journal* for October, 1912, and was referred to by me in my article on "Autotherapy" in the December 21, 1912, issue of your JOURNAL. There I stated: "The writer is making many tests of treating rheumatism and kindred diseases by using the patient's own morning urine, he believes successfully." Since then I have received reports from physicians who had filtered the discharge of disease with filter paper, and injected the filtrate. One of these reported bad abscess formation.

I would respectfully refer Doctor Crockett to the Croonian Lectures on "The Pathology of Immunity," by Dr. Leonard Dudgeon (*Lancet*, June 15, 22, 29; July 6, 1912). Doctor Dudgeon made many tests upon animals by centrifugation and pipetting the top fluid before injection. He did not assert that it was a "new process." Assuming that it is a "new process," is it a "short cut" or

simpler to centrifugalize, heat, and filter, than just to filter through porcelain?

This is neither a "new process" nor a "short cut." Continuing, Doctor Crockett says: "The first use of my toxins was carried out, etc." This is not the "first use" of these toxins, nor are the toxins his. Doctor Crockett appears to be alive to the very grave danger attending the injection of living pathogenic microorganisms into the tissues, for he says: "It is open to the objection that the infecting organism might be carried through the blood stream with the resultant localization of the disease at some other part of the body." Mangan emphatically states: "This method is unreliable unless great care is exercised in its preparation. If it receives too much heat it is useless, and if too little heat it is dangerous. Possibly a water bath for two hours at a temperature of 60° C. may be a good way to prepare the pus for injection. The filtering method is according to Duncan and is the method I suggest to be adopted."

Doctor Crockett says: "Using Duncan's theory as a working basis." It would appear that he is using and appropriating it, for there is nothing new about the method he describes, not even the advantages enumerated at the close of his paper, since these are mentioned in my article in the NEW YORK MEDICAL JOURNAL for December 12 and 21, 1912. CHARLES H. DUNCAN, M.D.

### Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*Health Resorts of the British Islands.* Edited by NEVILLE WOOD, M.D., Member of the Council of the Section in Balneology and Climatology of the Royal Society of Medicine. With the Assistance of an Advisory Committee Appointed by the Council of the Section. With Forty Illustrations and Three Maps. London: University of London Press; Published for the University of London Press by Hodder & Stoughton, 1912. Pp. xii-253.

This reference book to the health resorts of the British Islands is excellently gotten up, and well arranged. Thus, it is really a handy book which carries out what the title promises. It gives all the information a physician could desire: Location, climate, indications, attractions in the way of recreation, etc., and also the chemical analysis and physiological action of the various waters, with mode of employment and therapeutic action, indication, and contraindications. The addendum with maps and index concludes a very useful book.

*Chirurgie générale et chirurgie orthopédique des membres.* Par P. MAUCLAIRE, professeur agrégé à la faculté de médecine, chirurgien de la charité. Avec 317 figures dans le texte. Nouveau traité de chirurgie, publié en fascicules sous la direction de A. Le Dentu et Pierre Delbet. XXXIII. Paris: J. B. Baillière et fils, 1913. Pp. 542.

The thirty-third volume of this new and important treatise on surgery by French authors is devoted to the subject of surgical injuries, deformities, and diseases of the extremities. It includes those of general surgical and orthopedic interest. The subjects treated are traumatism, infections, tumors, and congenital and acquired deformities of the upper and lower extremity. This combining of general and orthopedic surgery has a distinct advantage, and emphasizes the fact that both the general surgeon and the orthopedic specialist should be familiar with the subject so arbitrarily divided between them by the prevailing practice of the day. The subjects are treated in minute detail and the author demonstrates a knowledge that could only have been gained by long experience at the bedside and in the operating room. There are more than 300 illustrations, most of them original, including many radiographs or outlines of x ray plates. At the end of the various chapters a very complete bibliography is given, so

that the reader can find more detailed descriptions in various monographs and special treatises. The book is thoroughly abreast of the times and represents not only the author's practical work in this field but also the results of years of research along special line. The work deserves a cordial reception not only among general and orthopedic surgeons but also among general practitioners, who should be familiar with the main aspects of this very practical field of surgery. The present volume is fully up to the high standard of the preceding thirty-two numbers of this great French work on surgery.

*Medical Supervision in Schools.* Being an Account of the Systems at Work in Great Britain, Canada, the United States, Germany, and Switzerland. By EDWARD MILLAR STEVEN, M. B., Ch. M., Royal Commissioner of South Australia, 1909. London: Baillière, Tindall, & Cox, 1910. Pp. 268.

The author has acquired a great deal of valuable information in his official position as commissioner appointed by the government of South Australia to investigate the methods of medical supervision in schools in Great Britain, Canada, the United States, Germany, and Switzerland. The impressions received during his extended tour Mr. Steven has carefully noted, and we have thus a valuable work which brings out the methods adopted in the five countries visited, making comparison very easy. The book is certainly very instructive.

*Vademecum der Geburtshilfe und Gynäkologie.* Für Studierende und Aerzte. Von Prof. Dr. A. DÜRRSEN, in Berlin. 2 Teile. I. Geburtshilfliches Vademecum. II. Gynäkologisches Vademecum. Berlin: S. Karger, 1913. Mit 43 Abbildungen. Zehnte, verbesserte und vermehrte Auflage. Pp. xii-308.

This excellent compendium deserves to have seen ten editions in twelve years. It helps to introduce the student to the subject of obstetrics and gynecology, and assists him to memorizing certain essential points in this branch of medicine. The size of the book makes it also very easy to carry and to refer to.

*School Hygiene.* By FLETCHER B. DRESSLAR, Ph. D., Specialist in School Hygiene and School Sanitation, United States Bureau of Education. New York: The Macmillan Company, 1913. Pp. xi-369. (Price, \$1.25.)

The author has succeeded in setting forth in a simple and untechnical way some of the hygienic requirements of school life, together with suggestions as to how such requirement may be put in practice. He has selected the most important topics, and discusses these more for the benefit of the busy teacher than for that of the specialist in school hygiene. But not only the teacher will receive new and fresh ideas, the physician and even specialist will obtain instructions and valuable advice. The book shows that its author is thoroughly conversant with the subject of which he treats.

*Die Störungen des Verdauungsapparates als Ursache und Folge anderer Erkrankungen.* Von Dr. HANS HERZ, in Breslau. Zweite, umgearbeitete und vermehrte Auflage. II. Teil: Die akuten Infektionskrankheiten in ihren Beziehungen zum Verdauungsapparat. Berlin: S. Karger, 1913. Pp. 219-449.

This publication deals at some length with the relationship between the digestive system and the acute infectious fevers. The first portion discusses the etiological importance of the digestive system. Under this heading are considered the changes in the intestinal flora, the decrease in the resisting power of the tissues, the simultaneous occurrence of digestive disturbances and invasions by foreign organisms, and the changes of temperature that are brought about by diseases of the digestive tract. The second part, which is the longer, gives a very good presentation of the symptoms in acute infectious diseases that arise from gastrointestinal disturbances. The different portions of the alimentary tract are dealt with individually, and, in addition, are included the liver, pancreas, spleen, and peritoneum. The author, among other things, calls attention to the valuable information that may be obtained from a careful examination of the stools. In the pages of this book there is to be found much that is useful.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of officers serving in the United States Public Health Service for the seven days ending June 25, 1913:*

**Francis, E.**, Surgeon. Granted six months' leave of absence, without pay, from July 1, 1913. **Frost, W. H.**, Passed Assistant Surgeon. Directed to proceed to Philadelphia, Pa., for conference with the Director of Health, relative to certain typhoid conditions in that city. **Hollman, H. T.**, Acting Assistant Surgeon. Granted thirty days' leave of absence from June 18, 1913. **Knight, C. P.**, Assistant Surgeon. Granted one month's leave of absence from June 27, 1913. **Kuhn, C. F.**, Acting Assistant Surgeon. Granted six months' leave of absence, without pay, from July 4, 1913. **McLaughlin, A. J.**, Surgeon. Granted six months' leave, without pay, from July 1, 1913. **Markoe, W. W.**, Acting Assistant Surgeon. Granted sixty days' leave of absence from July 1, 1913. **Naulty, C. W., Jr.**, Acting Assistant Surgeon. Granted thirty days' leave of absence from July 1, 1913. **Porter, J. Y.**, Quarantine Inspector. Directed to proceed to Tampa Bay Quarantine Station to investigate cause of fire, repairs and equipment needed, and to fix responsibility. **Stevenson, J. W.**, Acting Assistant Surgeon. Granted three months' leave of absence, without pay, from June 16, 1913. **Withrow, M. R.**, Acting Assistant Surgeon. Granted thirty days' leave of absence, without pay, from June 16, 1913.

### Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending June 28, 1913:*

**Coe, Henry C.**, First Lieutenant, Medical Reserve Corps. Ordered to active duty for the period from June 28 to July 6, 1913, for service at the encampment at Gettysburg, Pa., and upon completion of this duty, will stand relieved from active duty in the Medical Reserve Corps. **Davis, William T.**, Captain. Granted leave of absence for four months, with permission to go beyond the sea, effective on or about July 1, 1913. **Ducher, B. H.**, Major. Relieved from duty at Fort Sam Houston, Texas, about July 1, 1913, and will proceed to San Juan, P. R., for duty. **Gilchrist, Harry L.**, Major. Will proceed at the proper time to Columbus, Ohio, for the purpose of observing the camp of instruction of sanitary troops of the organized militia to be held at that place June 22 to 29, 1913, and upon completion of this duty will return to his proper station. **Lyster, William J. L.**, Major. Relieved from duty at Fort Oglethorpe, Ga., to take effect about July 1, 1913, and will then proceed to the Army Medical School, Washington, D. C., for duty as professor of military hygiene. **Peck, Luke E.**, First Lieutenant, Medical Reserve Corps. Upon arrival in the United States will proceed to Fort Meade, South Dakota, for duty. **Shields, William S.**, Captain. Relieved from duty at Columbus Barracks, Ohio, and assigned to Fort Omaha, Neb. Will proceed to Texas City, Texas, for duty with the Second Division.

The following officers of the Medical Reserve Corps have been ordered to active duty for the encampment at Gettysburg, Pa., June 28 to July 10, 1913, and on the completion of this duty to return to their homes: First Lieutenants **W. S. Cornell**, **George C. Kieffer**, **Walter E. Lee**, **George C. Beach, Jr.**, **William S. Magill**, **Meyer M. Eckert**, **William E. Fitch**, **Howard Hume**, **Joseph V. Klauder**, **Charles B. J. Mittelstaedt**, **Raymond W. Wilcox**, **S. Meredith Strong**, **George S. Crampton**, **Arthur R. Jarrett**.

### Navy Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Department of the United States Navy for the week ending June 28, 1913:*

**Butts, Heber**, Passed Assistant Surgeon. Detached from the Naval Hospital, Canacao, P. I., and ordered to the *El Cano*. **Camerer, C. B.**, Assistant Surgeon. Detached from the *Denver* and ordered to the *South Dakota*. **Melhorn, K. C.**, Passed Assistant Surgeon.

Detached from the *South Dakota* and ordered to the *Denver*. **Smith, H. L.**, Passed Assistant Surgeon. Detached from the *Chester* and ordered to the *Des Moines*.

## Births, Marriages, and Deaths.

### Married.

**Connor—McAduff.**—In Boston, Mass., on Wednesday, June 18th, Dr. George A. Connor and Miss Mabel F. McAduff. **Davis—Geesey.**—In Atlantic City, N. J., on Monday, June 23d, Dr. Bryon G. Davis and Miss Naomi L. Geesey. **Hammond—Lawson.**—In Cambridge, Mass., on Wednesday, June 25th, Dr. William P. Hammond and Miss Sally J. Lawson. **Haus—Couzens.**—In Cincinnati, Ohio, on Wednesday, June 18th, Dr. Augustus P. Haus, Sr., of New Albany, Ky., and Miss Rosetta V. K. Couzens. **Hedblom—Pease.**—In Georgetown, Colo., on Saturday, June 21st, Dr. Carl A. Hedblom, of Boston, and Miss Ellenor Pease. **Hurley—Walsh.**—In Dorchester, Mass., on Wednesday, June 25th, Dr. Edward D. Hurley, of Boston, and Miss Isabel Bishop Walsh. **Jackson—Craig.**—In Philadelphia, on Sunday, June 22nd, Dr. James Allen Jackson and Miss Hazel M. Craig. **Jones—Musgrove.**—In Philadelphia, on Tuesday, June 17th, Dr. Frederick Jones, of Camden, N. J., and Miss Nora Musgrove. **Smith—Lander.**—In Cleveland, Ohio, on Wednesday, June 18th, Dr. E. Frederick Smith, of Lorain, and Miss Alice M. Lander. **Smyth—Kennedy.**—In Haverhill, Mass., on Wednesday, June 25th, Dr. P. Somers Smyth, of Boston, and Miss Irene L. Kennedy. **Victor—Woodward.**—In Le Roy, N. Y., on Saturday, June 28th, Dr. John A. Victor, of Brooklyn, and Miss Eleanor Woodward. **Vinup—Murchison.**—In Westminster, Md., on Saturday, June 14th, Dr. Frederick H. Vinup, of Baltimore, and Miss Marie Belle Murchison. **Wiggins—Mollison.**—In Brooklyn, N. Y., on Saturday, June 14th, Dr. Theodore C. Wiggins and Mrs. V. Beulah Mollison. **Young—Wales.**—In Dorchester, Mass., on Tuesday, June 24th, Dr. Edward Lorraine Young, Jr., of Boston, and Miss Charlotte Elizabeth Wales.

### Died.

**Banfield.**—In Worcester, Mass., on Wednesday, June 25th, Dr. Francis L. Banfield, aged sixty-nine years. **Bunting.**—In Kingston, N. Y., on Tuesday, June 24th, Dr. J. M. Bunting, aged thirty years. **Campbell.**—In Boston, on Wednesday, June 18th, Dr. Matthew Philip Campbell, of Provincetown, aged thirty-seven years. **Carter.**—In Woodstock, Va., on Thursday, June 19th, Dr. Durus Desmus Carter, aged sixty-five years. **Clowminzer.**—In Brooklyn, N. Y., on Saturday, June 21st, Dr. William Henry Clowminzer, aged forty-six years. **Davis.**—In Louisville, Ky., on Friday, June 20th, Dr. Vincent Davis, aged seventy years. **Devilbiss.**—In Creagerstown, Pa., on Monday, June 16th, Dr. J. W. Devilbiss, aged sixty-one years. **Farrow.**—In Peapack, N. J., on Saturday, June 21st, Dr. Edwin F. Farrow, aged fifty-one years. **Gorman.**—In New York, on Friday, June 27th, Dr. George J. Gorman, aged fifty-nine years. **Hoyt.**—In Chillicothe, O., on Friday, June 20th, Dr. Charles Hoyt, aged fifty-nine years. **Jones.**—In Williamsburgh, Iowa, on Thursday, June 19th, Dr. J. E. Jones, of De Soto, Mo., aged sixty-seven years. **Lamborn.**—In Saskatchewan, Canada, on Tuesday, June 17th, Dr. William H. Lamborn, of Highland Park, Ill. **Lever.**—In Flushing, N. Y., on Tuesday, June 24th, Dr. John Howard Lever, aged sixty-six years. **Linn.**—In Pittsburgh, Pa., on Saturday, June 21st, Dr. James Madison Linn, aged forty-two years. **Morgan.**—In West Orange, N. J., on Friday, June 20th, Dr. John Howard Morgan, of Westerly, R. I., aged sixty-eight years. **Shipley.**—In Alpha, Md., on Friday, June 13th, Dr. Benjamin F. Shipley, aged sixty-four years. **Watt.**—In Dunkirk, N. Y., on Tuesday, June 24th, Dr. James L. Watt. **White.**—In Grand Rapids, Mich., on Sunday, June 15th, Dr. William Hallock White, aged fifty-six years. **Worthington.**—In Trenton, N. J., on Thursday, June 19th, Dr. Anthony H. Worthington, aged seventy-six years. **Young.**—In Salisbury, N. C., on Wednesday, June 18th, Dr. Robert S. Young, aged fifty years.



# New York Medical Journal

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### Original Communications.

#### LONGEVITY AND REJUVENESCENCE.

By I. L. NASCHER, M. D.,  
New York,

Professor of Geriatrics, College of Physicians and Surgeons, Boston.

Single celled organisms like the amoeba possess potential immortality. When, however, two or more cells of different varieties combine to form a complex organism their diverse activities, reacting upon each other, disturb their mode of existence, sooner or later causing the death of the cells and the consequent death of the organism. So uniform is this procedure that like organisms have a like life history and a like duration of existence. If in addition to this fact we accept the theory of tissue cell evolution, that the cells of the tissues pass through evolutionary stages, that at one stage they are best suited to their environment and available nutrition, and the tissue which they form is then in its most perfect state, that succeeding generations of cells become gradually less and less fitted for their environment and nutrition and reproduce fewer and still more imperfect cells, we can form a basic conception of senescence and death.

Various formulas have been devised to estimate the normal duration of life in the animal kingdom, but none has a universal application or will apply to the human being. Buffon's formula, seven times the period required to attain growth, would make the normal duration of life of man over 200 years. Flouron's formula, five times the period required for the consolidation of the shafts and epiphyses of long bones would place the normal duration between 75 and 125 years. Flouron divides life into two periods, development and decline.<sup>1</sup>

A more rational estimate of the duration of life is based upon the duration of the periods of development, maturity, and decline, since these in man are or should be fairly equal in length, and each is broken about the middle by a critical period or climacteric. While growth in height ceases about the twenty-first year, the body continues to grow in other dimensions, and the organs continue to increase in size and in functional activity until about the thirtieth year. About this time the brain is heaviest and fills the skull, the lungs have their greatest respiratory capacity, and the heart has reached its

limit of normal growth. The bones are larger at thirty than at twenty-one, and we need a larger hat, larger shoes and gloves, and a larger suit of clothes at thirty. Any further increase afterward will be due to fat accumulation and not to bone growth. The vertebrae are larger at thirty, but, as I have explained in a former paper, when the body is erect the downward pressure upon the intervertebral disks, which are of uneven thickness, forces the spinal column into curves. As the pressure is greatest where the disks are thinnest, anteriorly in the dorsal region and posteriorly in the cervical and lumbar regions, the opposite side of these disks are relatively expanded, and we have, in consequence, the posterior curve in the dorsal region and the anterior curves in the cervical and lumbar regions. The body is longer on arising than on retiring, and there is an actual increase in length during a lingering illness which confines the patient to bed. This is due to the expansion of the intervertebral disks, when freed from the downward pressure.

The normal duration of the period of development is about thirty years, and this period is broken about the middle by the climacteric which we call puberty.

The brain begins to diminish in size soon after the thirtieth year, and about the same time the lungs diminish in capacity and functional activity, evidenced by a diminution in elimination of carbon dioxide, while the heart begins to hypertrophy. These changes are a departure from the state of perfect development, and this justifies Flouron's division of life into development and decline. But for about three decades after development is completed there is stable metabolic activity, the catabolic and anabolic processes counterbalancing each other, and the harmonious relations between organs and between functions are maintained. This period of stable metabolic activity is maturity, or middle age, and is broken about the middle by the menopause in the female and the male climacteric in the male. The male critical period is not as marked as the menopause, and usually occurs later.

The individual who has been able to avoid the many incidental factors that contribute to and hasten senescence will not present subjective or objective manifestations of ageing before the end of the sixth or beginning of the seventh decade of life. The early subjective manifestations are usually aches and pains in joints (which the individual ascribes to rheumatism, but which are really due to arteriosclerosis), more rapid fatigue and a longer time required to recuperate, lessened

<sup>1</sup>Read before the Medical Association of the Greater City of New York, June 2, 1913.

<sup>2</sup>Owing to the scope of the subject and the limited time I have been obliged to omit many statistics, explanations, and qualifications of statements that may appear inaccurate.

sexual virility, weakened memory, names of familiar persons and dates of familiar events being first forgotten; and one accustomed to mental labors notices that words and ideas do not come as readily as before, and whereas he may have been able to write or do other mental work for hours, he must now take frequent rests and divert his thoughts into other channels; otherwise his mind becomes confused. A lessened interest in the events of the day and the tendency to fall asleep at the sermon or lecture are both objective and subjective manifestations. The ageing individual may find that he needs glasses, that his hearing is not as acute as formerly, that he is becoming habitually constipated, gets out of breath when going up stairs, that he cannot stand the cold and that the cold shower gives him a shock from which he does not react as quickly as before. The objective manifestations hardly need description. The attitude of the senile stoop or slouch, the folds and wrinkles in the darkened, weather beaten skin, the gray and thinning hair, arcus senilis, contracted pupils, tortuous arteries and enfeebled prominent filled veins, the apathetic expression and generally sluggish mentality, and bodily movements are all interpreted by layman and physician alike. It is ageing, or the period of decline. There are numerous factors which hasten or cut short this period, but where these can be avoided the period of decline will last about as long as the preceding periods, and it will be broken about the middle by a critical period which I have described as the senile climacteric. This would make the normal duration of life about ninety years, divided into three equal periods, development, maturity, and decline; each broken by a climacteric.

The tendency to complete the normal cycle of life is inherent. The child born healthy possesses a potential force of vitality which should carry it through the periods of development, maturity, and decline to physiological death. Few complete the normal cycle, but an analysis of the causes of death in those who do not will reveal in almost every case some avoidable cause; either exposure, improper food, improper mode of life, including mental strain, insufficient sleep, etc., or else accident. It has been said that there never was an accident which might not have been prevented by foresight and prudence. The same may be said of diseases.

I will not burden you with a mass of statistics. Most of our statistics concerning longevity are based upon census figures which, Prinzing says, are very untrustworthy. More trustworthy are figures dealing with the causes of death, though wrong diagnoses and improper classification where complications existed leave a wide margin for error.<sup>1</sup> Better methods of treating diphtheria, tuberculosis, and other diseases of the period of development, and a better knowledge of sanitation have reduced the death rate up to the age of thirty, forty-seven per cent, between 1880 and 1910. The enormous increase in deaths due to diseases of the heart, kidneys, and circulatory system and industrial diseases, during the period of maturity, has almost wiped out the advantages gained during the

period of development. According to the 1910 report of the field secretary of the Provident Life Assurance Society of England, the death rate from diseases of the heart, kidneys, and circulatory system, including apoplexy, has increased 105 per cent. in the United States since 1880, while in England the increase in deaths from these diseases during this period was only three per cent.

That this enormous increase in deaths from diseases of the heart, kidneys, and circulatory system is due to what is usually called the strenuous life, is unquestioned. In a paper on *The Strenuous Life*, which appeared in the *Medical Record* in October, 1911, I endeavored to show that, as a result of this intense and excessive activity, the individual is deteriorating mentally and physically and his mode of life tends to shorten his years. Prinzing has shown that in Germany industrial activity and city life have an unfavorable influence upon the duration of life, notwithstanding the more sanitary conditions in the cities, and the same will probably hold good for the United States. According to H. Josse Johnson,<sup>2</sup> the factors that tend to longevity are: 1. Heredity, 2, climate, 3, surroundings, as occupation, housing, education, etc., 4, average height and weight, 5, chest development and capacity, 6, proportion, i. e., distribution of weight. The last three factors may be omitted from further consideration, as they are not universally applicable. The extremes of height and weight are rarely found, the chest development can be increased; yet Johnson doubts the advantage of the military chest from an insurance standpoint, and improper distribution of weight is itself pathological. His conclusions concerning climate, that the increase of mortality is greater as the heat increases, and, consequently, less conducive to longevity, is not borne out by statistics, for in Europe Bulgaria has the largest proportion of persons over eighty-five, while Germany and Finland have the smallest proportion.

Heredity is undoubtedly the determining factor in longevity, but I cannot endorse the statement often made that there is a racial tendency toward longevity. In support of this statement the longevity of the Jews is often pointed out. This holds good only so long as they adhere to their religious-sanitary laws. When they depart from these laws they are subject to diseases which rarely attack the strict adherent to the Mosaic sanitary code. One of the most important of these laws is that relating to kosher meat. The meat must be used within three days after the animal is slaughtered, the hind quarters are rejected, the bloodvessels are taken out, and if any carcass is found diseased it cannot be used. There are numerous other laws of a similar nature which have for their purpose the prevention of the introduction of food in process of decomposition. There is probably no one factor more potent in causing early arteriosclerosis, and consequent precocious senility, than the introduction of food which rapidly decomposes in the stomach and intestines, as cold storage foods do. The Jew who departs from the strict kosher dietary may still possess the inherited influence of hereditary longevity, but one or two generations will suffice to

<sup>1</sup>I desire to express my thanks to the statistical bureau of the Metropolitan Life Insurance Company for statistics and other matters furnished me for the preparation of this paper.

<sup>2</sup>See *Transactions of the Life Insurance Medical Officers' Association*, London, 1910.

destroy this influence under the more immediate influence of improper food and improper living. We must remember that good heredity implies healthy parents, and healthy parents will beget healthy children. Such parents do not transmit any special quality to produce longevity. As I said before, the tendency to complete the normal cycle of life is inherent in every living creature. This tendency is weakened by inherited disease or predisposition to disease. Environment, including mode of life, is the immediate factor in determining the length of life of the individual, yet persons have grown old under most insanitary conditions, having evidently acquired a tolerance to such conditions. When the crusade for fresh air and open bedroom windows began, many persons who were accustomed to sleep in close, windowless bedrooms became afflicted with laryngeal and bronchial troubles when they first attempted to sleep with open windows. A change in diet, sleeping hours, even in dress, may have unfavorable results, though such change be in itself more healthful. There is no law applicable to idiosyncrasy, and what will injure one may be harmless or beneficial to another; and we must be content with a few generalities regarding the effect of environment upon longevity. More women reach old age than men, but this is probably due to their more protected lives and less exposure to the stress, strains, and casualties of industrial life. Where women are exposed to these to the same extent as men, as happens in Servia and Bulgaria, fewer women reach old age. In a recent article in the *Medical Record*, A. H. Stewart ascribes their greater tenacity of life in the United States to a constitutional difference. Most persons who have reached old age were sparse eaters and led outdoor lives. Most old men were smokers and drank alcoholic liquors. Most old persons came from agricultural districts and were married, and nearly all were actively engaged in their labors until shortly before death. On the other hand, those who retire from active business early soon go into rapid decline. Insufficient sleep prevents complete repair and hastens degenerative changes, and the same applies to irregular hours, irregular meals, and irregular means of livelihood. Mental stimulus in work and recreation prevents mental depression, with consequent inaction and slowed circulation. This slowed circulation causes impaired nutrition of the organs and their degeneration.

Numerous theories have been advanced to account for the process of senescence. While there is undoubtedly a determining cause, it is probable that many factors are involved and that most of the supposed causes which form the basis of the theories advanced are incidental or essential aids to the determining cause. Which of the many causes is the determining one is uncertain; possibly there are several which must act together, or different causes may act in different cases. I will mention briefly some of the theories. The old *mechanical theory* of wear and tear has been discarded, as organs and tissues undergo the same senile changes whether excessively or rarely employed. This is seen in the brains of the idiot and the sage and in the uterus of the

virgin and the multigravid woman. Thoma's *histomechanical theory*. Owing to the unceasing activity of the bloodvessels, the constant stretching and relaxation of the muscular fibres of the media cause a loss of their tonicity and dilatation of the walls of the vessels, with consequent slowing of the current.<sup>4</sup> Demange's *histopathological theory*. Owing to the ceaseless activity of the vasa vasorum they become irritated and finally inflamed, their calibre is diminished, and an insufficient blood supply is furnished to the larger vessels. Durand Fardel's *vital theory*. The purpose of the organism is to reproduce its kind, and it has an opportunity to do so during the period of sexual virility. When that period has expired, further metabolic activity is in the direction of destruction of tissue. Naunyn's *deficient heat regulation theory*. That the heat regulating centres become weakened, muscle activity is lessened, less blood is required to repair the diminished waste, the circulation is weakened, and organs and tissues do not receive sufficient blood for their nutrition. Metchnikoff's *toxine theory*. That the products of intestinal decomposition are absorbed, and carried in the blood they act as irritants to the lining membrane of the vessels, causing endarteritis and subsequent arteriosclerosis. Horsley's *thyroid gland theory*. That the thyroid gland becomes weakened in its functional activity and metabolism is disturbed. Lorrain's *glandular theory* is similar to Horsley's theory, but he includes the thyroid, suprarenal, and pituitary glands. He ascribes ageing to a slowing of the processes of oxidation, defective activity of organs which should destroy and eliminate waste, and consequent autointoxication from such toxic material, and hyperplasia of connective tissue. Canstatt's *cell theory*. That the cells of the body have a limited duration and when they die the tissue dies. Minot's *cell theory*. That there is a gradual increase in the protoplasm of the cell, its activity being thereby altered. *Tissue cell evolution theory*. This has been mentioned in the course of this paper. *Pneumokoniosis theory*. That the constant inhalation of dust diminishes the aerating surface of the lungs, causes impaired aeration of the blood, diminishing its capacity for carrying nutrition to tissues and carrying away waste material. *Defective metabolism theory*. It holds that with advancing age there is instability in the character of the blood with gradually increasing amounts of urea and calcium and diminution in other salts, due to disturbed metabolism and elimination. This theory accounts for the increased viscosity of the blood, and the consequent impairment of the circulation, causing deficient nutrition of the tissues. The excessive calcium is deposited in abnormal situations, in bone, causing calcification with the greater tendency to fracture, in cartilage, aiding in ossification, in arteries, causing arteriosclerosis, in joints, causing tophi, etc.

This theory would bear out the theory of tissue cell evolution if it could be shown that the late cells

<sup>4</sup>The progress of the senile changes following slowed current and dilated relaxed vessels can be readily understood. There is a compensatory fibrosis in the vessel, increased activity of the heart to compensate for the diminished elasticity of the vessel, diminished blood supply beyond the seat of the arteriofibrosis, and consequent impaired nutrition of the tissues resulting in their degeneration.



have a greater affinity for lime than earlier cells. The retention of lime in excess is the first step in senescence. If we examine carefully the causes upon which these theories are based we will find that most of them can be controlled to some extent. Autointoxication, upon which Metchnikoff's theory is based, is partly controlled by the measures he has advocated, proper food and the lactic acid bacilli. Any cause which produces increased heart action and consequent hypertrophy will increase vascular activity, with more rapid loss of tonicity of the muscular fibres of the vessels. Any disease associated with toxemia, such as syphilis, diabetes, gout, rheumatism, alcoholism, will cause endarteritis, with consequent degeneration of the vessels. The glandular theories of Horsley and Lorand do not explain the cause of the initial change in the glands, and the only rational explanation for the initial change is a change in the nutrition, caused by some alteration in the blood. It is possible that the administration of the extracts of these glands will improve metabolic activity in the aged.

There are many factors which are recognized as contributing to the production of early ageing, through causing arteriosclerosis or other tissue degeneration. It is hardly necessary to mention improper living, improper food, excessive food, insufficient sleep, mental strain, etc. Factors not generally recognized, having a deleterious effect upon the organism, are, the fine, rapid vibrations of motor driven vehicles causing irritability and neurasthenia;<sup>5</sup> rapidly moving elevators causing cerebral anemia when going up and hyperemia when descending, the eyestrain produced by the flickering of moving picture machines, the earstrain and mental strain caused by listening to the telephone, ignoring at the same time surrounding noises, the many little shocks and momentary frights when crossing streets where there are many moving vehicles, and when avoiding other dangers, the startling city noises, etc. These all affect the nervous system, hastening its breakdown and degeneration.

Taking up rejuvenescence, we must consider two kinds of impossibilities, the absolute, which from their nature can never be possible, and the temporary, which are impossible at present because our present means are inadequate or our present measures are faulty. Rejuvenescence in the sense of restoring youth to old age is an absolute impossibility. But there is nothing inherently impossible in the idea that we can stimulate the functions of senile tissues, increase metabolic activity, control some of the factors that contribute to senescence, and improve the mentality and physical appearance of the aged. Some of these have been done, though not for the specific purpose of rejuvenescence. I have on several occasions spoken of the beneficial psychic influence of flattery, the stimulation of the sense of pride, especially pride in appearance, sexual relations with young mates, and social intercourse with the young generally. I will only refer to the marked change in personality of the old man who goes a courting or who takes a young wife. Social intercourse with the young

exerts a powerful rejuvenating effect, and this has been recognized in parts of Switzerland, where dependent aged persons are sent to board with families in which there are young persons. The Nestor of our profession once said his association with the young tended to make him feel young. The improvements in the general appearance has a profound psychic influence, not only directly through the stimulation of the sense of pride in appearance, but indirectly through the flattering comments which it arouses. This important measure is generally neglected by men, yet aside from the beneficial psychic influence, for esthetic reasons alone the old man should endeavor to make himself appear as attractive as possible. This does not mean that he should resort to the artificial devices that middle aged and elderly women employ to enhance their charms. It does mean that the old man should stimulate the surface circulation by means of baths and massage, remove wrinkles and folds by inunction with animal fats, try to stimulate the growth of hair on the head and remove hair from abnormal situations as the ears, use a cane and wear braces to overcome the tendency to stoop, employ harmless cosmetic measures to improve his appearance, and, above all, observe a sense of neatness in dress. Instead of decrying such a course as vanity, it should be encouraged as a laudable effort to maintain a youthful spirit. Many of the factors that contribute to senescence can be controlled in a measure through change in the mode of living, in food, in occupation, means of transportation, and environment. Pneumokoniosis cannot be entirely prevented, but it can be retarded by living in a dust free atmosphere, as on the sea shore. A comparison between the lungs of an old sailor and an old resident of a city in which soft coal is used—the former light gray, the latter black—will show the disastrous effect of the constant inhalation of dust and smoke.

Besides the hygienic measures, there are some medical measures which retard the senile changes and stimulate the functions of senile organs. The skin can be kept soft and moist through the occasional use of an animal fat containing a small amount of water. The fats most suitable are hydrous woolfat and sweet butter, both of which will take up a small quantity of water. Vegetable oils are not so readily absorbed, yet they are frequently used. The virtue of almond meal, which is extolled for this purpose, lies in its oil content. The most important medical indication for improving the general condition of the aged individual is the increased elimination of calcium or the restriction of its introduction. As the lime is derived from the food, a lime free diet has been advocated; but there are few foods free from lime, and the artificial abstraction of the lime diminishes or destroys the nutritive value. The iodides have been recommended, but they have no influence upon the total amount or the elimination of the calcium salts. Truncceek's serum has been used upon the theory that by increasing the quantity of the other salts, the proportionate relationship between the various salts will be reestablished and the damage done when one is in excess, will be overcome. Weil has shown that in arteriosclerosis there is a deficiency of salts in the blood, the lime having been de-

<sup>5</sup>A guard on the elevated railroad informed me that when he was obliged to remain most of the day on the car containing the motor he felt mentally and physically exhausted. He did not feel the same effect when stationed on one of the other cars.

posited in abnormal locations, the other salts being eliminated. Trunczek's serum has been found to relieve symptoms in some cases of arteriosclerosis while it was used, but it did not increase the lime elimination, while the elimination of other salts is increased. A few years ago I began to use the red, amorphous phosphorus<sup>6</sup> as a substitute for the ordinary yellow phosphorus, and in a paper on Senile Debility, published in the *Medical Record* in January, 1911, I stated that in grain doses it had no appreciable effect. I found, however, that it was eliminated in the form of amorphous phosphate of lime, and by giving larger doses, larger amounts of this salt were eliminated. In four senile cases which I was able to follow closely, in which this substance was given for a period of several months, there was a lowering of the blood pressure and relief from the distressing symptoms of arteriosclerosis. In three of these cases vertigo was a prominent symptom, and this was relieved, while in one case there has been no recurrence of vertigo in eight months. In all four cases there was a general improvement in the physical condition. Time does not permit me to go into detail in these cases, and I must content myself with this general statement. Amorphous phosphorus, besides its constitutional effects, will increase the elimination of calcium through its combination with the lime and its own elimination. Amorphous phosphorus will not rejuvenate the aged in the sense that it will make an old person young. It will improve the physical condition and by employing, at the same time, a rational hygiene and those measures that will improve the mentality and the appearance of the aged individual it may be possible to make the old person look younger than he is and feel younger than he looks.

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## WOUNDS.

BY SAMUEL LLOYD, M. D.,  
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Heisler, in his *General System of Surgery*, published in Nuremberg in 1718, says in his opening paragraph:

The principal end of physic is to prevent or relieve the disorders of the human body. This, the first physicians endeavored to effect by three means, either by food, medicines, or the application of the hand, or by all together, if the case required it; which method, reason and experience teach us, is absolutely necessary at this time: And of these three branches of this salutary profession, they called the first, diet or dietical, the second, pharmaceutical, and the third, chirurgical. For since the end of physic could by no means be always obtained by diet and medicine alone (though they are of very great service in preserving and restoring the health of mankind), but manual operation is also found sometimes to be absolutely necessary, it is plain, therefore, that this branch of physic, which is called surgery, is very necessary to mankind; more especially as it appears that by this means many grievous disorders are relieved, as wounds, fractures, luxations, and several others, where diet and medicine would afford very little and sometimes no help at all. But that the excellence and necessity of this art may appear more clearly, it may be necessary to observe that

other arts only conduce to the convenience of life, but the art of surgery is frequently necessary for the preservation of life and the continuance of health, the most valuable treasure we can be possessed of. This necessity appears more particularly in dangerous wounds received in war, skirmishes, or sieges, where many brave men must necessarily perish from loss of blood and other causes unless they are restored and snatched, as it were, from the jaws of death by the skill of their surgeons. And no doubt the better opinion the soldiers conceive of their surgeons, the more spirit they have for the combat; having good confidence that the wounds they receive shall be properly treated and their lives preserved.

This was illustrated in the career of that great surgeon of the sixteenth century, Ambrose Paré. During the siege of Metz, in 1552, which was defended by the Duke de Guise, two hospitals had been established, but the mortality was so great, and the incompetence of the surgeons so evident, that the soldiers became convinced that the sick and wounded were being poisoned, and lost heart. The Duke then sent to Charles V., saying that he could hold out for ten months, but needed medicine. Paré was sent for, supplied with money, and medicines, and finally succeeded in gaining entrance to the beleaguered city. He entered Metz at midnight of the 8th of December. Sixteen years as a military surgeon had made him known to most of the officers and many of the common soldiers, and when he was presented on the bulwarks the next morning he was received with shouts of: "We shall not die, even though wounded; Paré is among us!" and it is generally believed that it was to the presence and the influence of this single man, a noncombatant at that, that the city owed its salvation. So, too, it is related of Baron Larrey, surgeon in chief to the Grand Army, and whom Napoleon I. called the most virtuous of men, that during the Russian campaigns, when the flight of the French army was arrested by an almost impassable stream, he was seized by the soldiers and carried across to the other side, that he might be able to minister to their wounded.

Aetius (500-550 A. D.) quotes Leonidas of the first century in describing the surgical treatment of cancer of the breast, as follows:

In the treatment of those cancers that arise upon the breast I rely entirely upon surgery, which is done thus: I make the patient lie upon the back, then I cut upon the sound part of the breast above the cancer, and burn in the incision with a red-hot iron until a crust is formed, sufficient to arrest the flow of blood; I immediately incise again and dissect up from the deepest part of the mamma, and again burn the incised part; and after this I repeat the cutting, following it with a red-hot iron sufficient to arrest the hemorrhage. The first burning is for the arrest of the hemorrhage, but afterward the burning is for the removal of every vestige of the diseased tissue. But often, also, when the undurated cancerous tumor is situated less deep in the breast, the entire operation is performed without the cautery, for in such cases it is sufficient to amputate to the sound parts, as there is no danger from hemorrhage.

This statement is interesting at the present time for two reasons: First, it illustrates that the cautery was in use then, as now, for the control not only of the hemorrhage but for the destruction of the malignant tissue. At present, not only is actual cauterization employed, but fulguration and electrical application is being actively exploited to achieve the same results. Second, it illustrates the incomplete method of removal of the cancerous breast which was in vogue for so many centuries and even up to the time when the present speaker

<sup>6</sup>The amorphous phosphorus of commerce contains impurities, including yellow phosphorus.

<sup>\*</sup>An address delivered under the auspices of the Public Health Education Committee of the Medical Society of the County of New York, at the New York Academy of Medicine, February 5, 1913.

was a student of medicine, and which led the late Doctor Gross, of Philadelphia, at that time the master of American surgery, to say that he had never cured a case of cancer of the breast and that he only operated to alleviate the pain and relieve the anxiety of the patient. How different are conditions now, when surgeons the world over recognize the precancerous stage, and save by operative means from sixty to seventy per cent. of the patients who seek treatment early enough.

This method of treating hemorrhage continued up to the time of Paré. The introduction of the ligature by this surgeon may be considered as the first epoch of the modern treatment of wounds. At the time of Paré the method of treating hemorrhage was by means of a redhot iron, and this was the only method described by him in his work published in 1552—just a thousand years after the work of Aetius. But in 1564 he had adopted the ligature, and then he speaks of the cauterization of wounds as "a thing very horrible and too crude to mention," while he says of his previous employment of this method: "Whereof I am ashamed and aggrieved. In conclusion, I counsel the young surgeon to abandon this miserable way of burning and roasting."

At this time wounds were treated by filling them with and pouring over them boiling hot oil, and Paré had for years followed his predecessors in this respect. In his *Voyage to Thurian*, in 1536, he says:

I took courage to doe as they did. At last I wanted oyle, and was constrained instead thereof to apply a digestive of yolkes of egges, oyle of roses, and turpentine. In the night I could not sleepe in quiet, fearing some default in not cauterizing; that I made me rise very early to visit them, where beyond my expectation I found those to whom I had applied my digestive medicine to feeble little paine, and their wounds without inflammation or tumor, having rested reasonable well in the night, the others to whom was used the sayde burning oyle, I found them feverish, with greate paine and tumors about the edges of their wounds, and then I resolved with myselfe never so cruelly to burne poore men, wounded with gunshot. Being at Thurian, I found a chirurgian who had the fame above all others for the curing of wounds of gunshot, into whose favor I found meane to insinuate myselfe, to have the receipt of his balme, as he called it, wherewith he dressed wounds of that kind; and hee held me off the space of two yeares before I could draw the receipt from him. In the end, by gifts and presents, he gave it me, which was this: he boyled young whelpes, new pupped, in oyle of lillies, prepared with earthwormes, with turpentine of Venice. Then was I joyfull, and my heart made glad, that I had understood his remedy, which was like to that I had obtained by great chance. See, then, how I learned to dresse wounds made with gunshot, not by bookes."

Thirty or forty years later there flourished in England William Close, a naval surgeon, and one of her Majesty's Chirurgians, who published in 1591 a book under the title, *A Proved Practice for all Young Chirurgians Concerning Burnings with Gunpowder and Woundes, made with Gunshot, Sword, Halverd, Pike, Lance, or such Other*, in which he speaks of "the manner and order of taking off a mortified and corrupt leg or arm, which cometh oftentimes by reason of wounds made with gunshot, etc." In one place, he says:

Then, as I have said, that oftentimes it happeneth that by reason of the evill accidents which follow wounds made with gunshot, etc., that the whole member cometh to gangrene, sideratio, or sphacelus, so that we are many times constrained forthwith to make a speedy dispatch to

cut off the member which shall be done as Gale and others very skillfully appointed in the whole and sound parts. These things being observed, then, through the assistance of Almighty God, you shall luckilie accomplish this worke by your industrie and diligence . . . and after that his body is well prepared and purged (a precaution taken even at the present time) then the same morning you doe attempt to cut off the member, be it leg or arme. Let him have, some two hours before, some good comfortable caudell or other broths, according to the discretion of the physician or chirurgian, only to corroborate and strengthen his stomach; and in any wise omit not but that hee or shee have ministered unto them some good exhortation concerning patience in adversity, to be made by the minister or preacher. (An admonition not entirely neglected to-day.) And you shall likewise advertise the friends of the patient that the work which you go about is great and not without danger of death, for that many accidents and evill symptoms doe happen which in such cases many do admit no cure. All which being considered, then ordaine the night before some good defensive, and let it be applied two or three times about the member (our present practice).

After giving full directions for the amputation and the formula for his restrictive powder, he says:

Take of this powder as much as will serve your turne, and mixe with the said powder the hair of a hare and the white of egg, of each as much as is necessary; let your hare's haire be the whitest and the softest that is taken from under the belly of the hare and cut so fine as possible may be, and with the same powder let all be mixed together and so be brought to a reasonable thickness. And note that before yee cut off the member, let there be in like manner made for the purpose three or foure small bolsters or buttons, fashioned in the upper part like a dove's egge or as a sugar loafe button, flat in the bottom to the compasse of a French crown, and round upwards, as aforesaid, and these yee shall make of a very fine tow, according to art, wrought up in water and vinegar; whereupon you shall apply some part of the restrictive, being mixed, as I have before declared. But yee shall further note that . . . a famous chirurgian in France, with other very learned and skillful men, counselleth thus, to drawe out the veins and arteries with an instrument called a raven's bill, and then they tie those vessels with a double strong ligature or thread, and so safely staye the bleeding. But for that, I never practiced this order by stitching the veins and arteries. I will leave it as before said, and proceed with mine own approved practice. Place upon the veins the round ends of the small buttons, and upon them presently lay on a round, thicke bed of tow, made up in water and vinegar, so that it may be fit as near as you can guess it to the compasse of the stumpe or member, that is taken off, and thereon place the restrictive; etc.

We have selected these quotations because they illustrate the treatment of wounds at the period of the first epoch, and show where some of the present popular method of treatment of wounds originated. It is interesting to note that Shakespeare was cognizant of some of the methods handed down by tradition, and still employed. Thus, in "Midsummer Night's Dream," Act III, Scene i, Bottom exclaims: "I shall desire of you more acquaintance, good master Cobwebb: if I cut my finger, I shall make bold with you"; and, again, the Second Servant in King Lear, Act III, Scene vii, says: "Go thou, I'll fetch some flax and whites of eggs, to apply to his bleeding face. Now, Heaven help him."

Even Homer, in the Ninth Century, B. C., wrote of surgeons and of wounds and their treatment. Thus in the *Iliad* we find him speaking of the sons of Æsculapius:

"Of two great surgeons, good Podallirius stands,  
This hour, surrounded by the Trojan bands,  
And great Machaon, wounded in his tent,  
Now wants the succor which so oft he lent."



"And then with the removal of 'deadly darts and stinging arrows' he sings:

"Patroclus, cut the forky steel away  
And in his hand a bitter root he pressed,  
The wound he washed, and styptic juice infused,  
The closing flesh that instant ceased to glow,  
The wound, to torture, and the blood to flow."

While Nestor exclaimed:

"A wise physician's skill, our wounds to heal,  
Is more than armies to the public weal."

The second great epoch in the treatment of wounds came with the discovery of anesthesia. England and the United States divide the honor. In the former, chloroform was discovered, and still remains the favorite method of obtaining insensibility to the surgeon's touch; while the United States gave us ether, the safer of the two, and now almost universally employed in this country. These boons to humanity, discovered by Simpson in England and Morton in the United States, have made modern surgery possible, and robbed it of most of its terrors. Instead of a frightened, screaming, struggling victim, strapped to a table or held down by brute force, with a surgeon hurrying every motion to shorten the agony, we have now the peacefully sleeping patient and the surgeon, serene, calm, collected, with every faculty devoted to doing in a quiet and deliberative way what is best suited to each individual patient. Instead of the piercing shrieks of the anguished victim, the operating room is quiet, suited to painstaking, scientific work.

Hardly had the world become accustomed to anesthesia with all its benefits to mankind, than there appeared a poor chemist in Paris, the son of one of Napoleon's soldiers, a tanner by trade, who had developed to a high degree the deductive method of reasoning. Aided by the recently perfected microscope, he began to study the subject of putrefaction and fermentation. It was not long before he was able to prove that the change of wine to vinegar was due to the presence of a microscopic microbe which floated in the air. A cork of sterilized cotton sufficed to prevent its entrance into the bottle, and the wine did not change to vinegar. These conclusions were reached only after long study and acrimonious debate. On the other side of the Channel was a Scotchman, whose father had long been a patient and intelligent worker with the microscope, who brought to the study of medicine not only a trained mind, but a desire to delve into the cause of things. Studying with his microscope, and at the same time working his wards in the surgical division of a hospital at Edinburgh, he wondered from time to time what produced the suppuration and all the other diseases of wounds that infested every hospital the world over. He had for a long time been convinced that wound inflammation and its consequences, erysipelas, pyemia, septicemia, hospital gangrene, etc., were due to the chemical changes which occurred in the putrefaction of blood and blood serum; but it was not until, by chance, perhaps, he happened to read of Pasteur's experiments, in 1860, and the following few years, as published in the *Comptes rendus*, that he began to realize that there might be agencies extraneous to the human body that would set all these diseases in motion. This was the third great epoch in sur-

gical history; the revolution was on. At this time the state of surgery can best be described in the words of our own Keen, who, in the *Medical and Surgical History of the War of the Rebellion*, says:

The surgeon approached the operation with the clean hands of a gentleman; he usually wore an old coat covered with the dried blood spots from previous service. His finger nails very likely were long, and no special attention was given to them. The instruments were taken out of a velvet lined case, and were as clean as ordinary table knives would be. The operation was done without any preliminary cleansing of the skin other than to remove any visible dirt. If the knife happened to fall on the floor, it was picked up, rinsed in a basin of ordinary water, and used as it was. The marine sponges then always used, were washed clean in ordinary water, and used over and over again, even after being saturated with foul pus. The bloodvessels were tied with ordinary silk; one end was cut short, the other end hung out of the wound. After the amputation of a fleshy thigh I have often seen twenty-five or thirty such ligatures gathered into two bundles, one at each end of the wound. The flaps were then sewed together with an ordinary needle and thread, and the stump dressed first with an old rag or scraped lint spread with some simple grease. Over that would be placed some other rags, lint, cotton, or other dressing, and finally, a bandage. During the Civil War these greasy dressings gave place to simple cold water dressings. By the second day the patient would begin to have considerable fever. By the third or fourth, the temperature would rise to what we now know (for medical thermometers were not in general use in that early day) to about 103°, 104°, or 105° F. Then we would poultice the wound. Every few hours the patient would be disturbed—a new poultice put on to replace the old one, now cold, foul, and ill smelling; and by this time bathed with pus. I have often seen the pus escaping by the tablesoopful, and the wounds alive with squirming maggots, resembling chestnut worms. By this time also it was hoped that the silk ligatures with which the arteries had been tied, had literally rotted loose, and each of them was gently pulled on, to the discomfort of the patient. Care was taken that the ligatures with knots tied on them (in order to distinguish those which secured the large bloodvessels) should not be pulled on severely until probably the tenth or twelfth day. Meantime, the patient was tossing about the bed with pain, with thirst, without appetite, without sleep except such as morphine would secure. This, at the same time, dried up all the secretions, producing constipation and other evils. By about the tenth to the fourteenth day, suppuration having been fully established and quantities of pus pouring from the wound, the fever would subside and the wound begin slowly to heal. Of course the healing could not be complete so long as the silk ligatures were still protruding from the wound. Sometimes they did not become detached for even months or years, but more commonly all of them would rot loose in from ten days to three weeks. When the silk ligatures on the large bloodvessels came away, if the healing process had formed in the large bloodvessels a firm clot which had become adherent, and, so to speak, corked it up—all went well. But, as very frequently happened, when the ligature and the rotten end of the artery were pulled off, and there was no clot to act as a stopper, secondary hemorrhage followed. This often came on after the patient's wound had been dressed, and the surgeon had left, and if so, very likely the first notice that the nurse had that anything was wrong would either be the gasping for breath of the patient, or his moans and cries, or sometimes by the blood, which had not only saturated the mattress, but had even appeared in a pool on the floor. How fatal were such hemorrhages may be seen from the fact that in 2,235 cases of hemorrhage in the Civil War, 61.7 per cent. of the patients died. A large majority of the wounds were followed by erysipelas, lockjaw, pyemia, septicemia, or hospital gangrene.

The latter at times was so common and caused such ravages that, as Keen says, "it became a veritable plague." To-day, I doubt if there are any surgeons who have entered practice since 1880 who have ever seen a case. This disease has been prac-

tically wiped out of existence. In 2,503 cases of gangrene during the Civil War, 1,142 died. There were 505 cases of tetanus, with 451 deaths; pyæmia claimed 2,818 cases, of which 2,747 died; of 2,382 wounds of the knee joint where amputation was performed, 1,212 of the patients died; while out of 973 similar wounds, where amputation was not performed, 591 succumbed. Compound fractures were exceedingly serious, two out of three dying from some form of infection. Lister's discovery of the animal ligature, thus enabling us to close our wounds completely, added the needed finish to Paré's great discovery. Perhaps it is not right to say discovery, for the ligature had been employed before Paré, and had fallen into disuse; but he made it popular, and by the force of his example compelled its adoption. Our Civil War was but just over when Lister published his first paper, which appeared in the London *Lancet* of the 16th of March, 1867. In this he said: "We find that a flood of light has been thrown upon this most important subject by the philosophical writings of Monsieur Pasteur, who has demonstrated by thoroughly convincing evidence that it is not to oxygen or any of its gaseous constituents that the air owes this property, but to minute particles suspended in it, which are the germs of various forms of life long since revealed by the microscope, and regarded as merely accidental concomitants of putrescence, but now shown by Pasteur to be its essential cause, resolving the complex organic compounds into substances of simpler chemical constitution, just as the yeast plant converts sugar into alcohol and carbonic acid.

The treatment of wounds, therefore, at the present day, is no longer the simple matter that it was in the olden times. The wound must be carefully cleansed and the surgeon's hands prepared by careful scrubbing and protected by sterilized gloves to prevent any possible infection from that source. All instruments must be boiled for twenty minutes, and all dressings sterilized by steam under pressure. If pus appears to-day, we know it is due to a specific germ, and the surgeon seeks, not only to find the organism, but to ascertain if possible what error of technic allowed its entrance into the wound. Sometimes the germ is already present in the patient himself, and only makes known its presence when the injury provides the proper soil for it to grow and develop. In these cases, often, in spite of all that can be done, a general blood poisoning develops, but nowadays the surgeon most successfully meets this serious calamity by means of his serum or vaccine, one of the beneficent results of experiments on animals.

The first consideration in the treatment of wounds is the arrest of hemorrhage. In small and comparatively superficial wounds this may be done by simple pressure, but in more extensive and deeper cases it is often necessary to enlarge the incision and secure the bleeding vessels. It is fair to assume that all accidental wounds are infected, and therefore a question of primary importance is the proper cleansing of the whole involved area. The greatest mistake usually made by people in handling cuts or incisions is by sticking them together by means of a piece of sticking plaster or sealing them up so that the natural serum thrown out by nature

cannot escape, and any infection that might be carried out by that exudation is sealed up in the wound. It is very important that the wound be put in proper condition for healing at the primary dressing, if possible. It is also important to determine whether nerves, arteries, tendons, or other important structures have been injured, and if so, to remedy the defect at once. It is also important to take into consideration what kind of infection is likely to occur. As it has been demonstrated in recent years that wounds from the toy pistols and from firecrackers, etc., are apt to produce tetanus or lockjaw, and the greatest care must be taken in these cases not only to provide for the proper dressing of the wound, but to watch carefully for the development of symptoms that would indicate the presence of the germ of this disease. In many cases it is better to give a dose of antitetanic serum at the time the patient is first seen.

The dressing of a wound is equally important. These dressings must be sterile and absorbent, and they must be fixed in place so that they cannot be torn off or displaced by the motions of the patient. They should be abundant and comfortable. Rest is exceedingly important, and if the wound occurs over a joint, or where an internal organ may be injured, rest is absolutely essential. An incised wound is one in which there is a clean cut made by a sharp instrument. If nothing but the skin and superficial tissues are involved, the only thing necessary is to stop the hemorrhage and apply a proper dressing. In many instances the margins of these wounds fall together and unite very quickly. If it is extensive or gaping, it is necessary to sew the margins together. Contused wounds are open wounds in which the edges are bruised. They are usually produced by blunt objects, such as stones, clubs, etc. In most of these cases it is necessary to put a sterile dressing into the opening of the wound, and then apply a copious dressing. A lacerated wound is one in which there is tearing or crushing of the tissue, making the margins irregular and ragged. Most of these cases have to be treated as open wounds. Stab wounds must always be considered as serious, for while the point of entrance may be very small, the injury to internal organs may be very great. Internal hemorrhage or puncture of the intestine, of the lung, or even of the heart, may occur, and must always be taken into consideration. Wounds of this kind should always be treated by a surgeon. An infected wound is the most serious condition that we have to deal with. The infection may be carried into the wound by the instrument producing it, by probing, if it is improperly done, or by the lack of surgical cleanliness in the dressing. When constitutional symptoms, that is, fever, chills, pain, and redness, appear in the case of a wound, it is certain that an infection has occurred, and then it is important that the case be referred to a competent surgeon, who will determine the type of infection and adopt the best means to control its progress. Neglect of an infected wound often leads to general blood poisoning.

Many diseases, formerly very common, resulting from slight wounds, have, since the days of Lister's discovery, been almost, if not completely, banished. Erysipelas, once so common, now is rarely seen:

and so with the different types of blood poisoning, pyemia, septicemia, etc. Few of the men of the present day have seen a case of hospital gangrene, and yet a few years ago a compound fracture, which is simply a broken bone with a wound in the soft parts which communicates with the outside air, was one of the most serious conditions that we had to deal with, and was almost invariably infected. After all, it is proper treatment of the minor injuries that prevents these severe conditions, and one cannot emphasize too strongly the necessity of the most scrupulous cleanliness in the management of any external wound or injury.

12 WEST FIFTIETH STREET.

## THE RELATION OF INDUSTRY TO DISEASES OF THE HEART AND LUNGS.\*

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There are certain essential conditions that must be present in order that animal life may be developed and maintained on the earth. Among these essential conditions may be mentioned a proper supply of air, the important element of which is oxygen; a proper amount of water; the presence of a proper food supply; and a certain degree of atmospheric temperature. In addition to these four essential elements, it is necessary that the living animal shall have alternating periods of rest and exercise. In order that human life may be developed and maintained on the earth these essential requisites for the maintenance and development of animal life in general are also requisite.

In particular relation to human physiology, it is necessary that the air furnished human beings shall be fresh and clean. That is to say, the air supplied to people assembled in houses, work shops, and places of amusement, must be renewed sufficiently to prevent the accumulation of poisonous materials passed into the air by these same human beings, and, in addition, it must be uncontaminated with dust, which may be injurious on account of its mechanical properties or which may contain micro-organisms capable of producing disease. The water which is furnished for drinking purposes must be pure and uncontaminated with bacteria. The food supply must be nutritious and devoid of adulteration. Among the lower classes of animal's the amount of exercise taken and its relation to rest is regulated entirely by the instinct of the animal. In the human race, on the other hand, the amount of exercise taken and the relation that it bears to rest is regulated in some purposeful manner. Among the inferior races of mankind the purpose of the exercise taken is to supply the bodily needs of the individual and to afford amusement. As we ascend in the scale of civilization the purpose of muscular activity becomes more than that required for furnishing simply the bodily wants of the individual and for his amusement, and the efforts of members of the race, in one way or another, are directed to-

ward producing objects of art, improved articles of clothing, better food materials in larger quantities, etc. Thus has developed, in the course of many centuries, the industrial enterprises that have now reached the highest development in the history of mankind.

In the last twenty-five years it has appeared that many of the individuals who are engaged in the production of the various products developed or perfected by modern industrial processes have become subject to serious diseases; and a great many of the more humanitarian members of the State, at the present time, have been seriously disturbed about this phase of our modern life. It must be remembered, however, that exercise, and hence industry, is a necessary element in the maintenance of life, and if industry is carried on under proper conditions it ought not to be productive of disease. Indeed, a recent writer in the *American Journal of Public Health*, has said: "Industrial disease is a misleading term, used for convenience only, or through ignorance, to indicate certain pathological states, the result of insanitation in industry. Industry itself is never necessarily unwholesome. Industrial processes, it is true, are objectionable and crude, oftentimes, but bad industrial conditions are always remediable."

In European countries a great deal of careful investigation has been made concerning the influence of certain industries upon the health of those engaged in them, and during this investigation it has been developed that certain occupations are dangerous occupations. Such, for instance, are occupations connected with the manufacture of lead and products containing lead; the manufacture of arsenic and materials containing arsenic; the production of mercury and articles in which mercury is used; and certain industries that are productive of dust of various kinds. We know that sometimes men employed in heavy labor, such as stevedores, porters, etc., will acquire serious heart disease from muscular effort. Clarinet players get emphysema of the lungs, coal miners get what is known as miner's asthma and bronchitis; stone cutters sometimes acquire a pulmonary disease which is known as fibrosis of the lungs, etc.; but the number of cases of such diseases is probably not great. When we study the incidence of disease which can in one way or another be connected with industry, our information concerning the number of cases and the class of cases which occur is very incomplete. In fact, in 1910, at a meeting of the First National Conference on Industrial Disease, the following resolution was unanimously adopted: "Resolved, that a special committee of five, who shall have power to add to their number, be herewith appointed by the president of the American Association for Labor Legislation, to call upon the President of the United States and present to him at an early date a carefully prepared memorial of facts and conclusions, emphasizing the urgent necessity and practical expediency of a national expert inquiry into the whole subject of industrial or occupational diseases; their relative degree of frequency in various trades and occupations, the causes responsible for their occurrence; the methods desirable and practicable for their prevention or diminu-

\* A public lecture given under the auspices of the Committee on Public Health Education of the Medical Society of the County of Monroe.



tion, and all other matters having relation thereto, including methods of amelioration and relief."

We must be very careful in our discussion of the effects of industry upon the lives of those engaged in it, that we do not convey the idea that we believe human beings ought not to have to work. Work is a necessary element in the life of man, and conditions in the world would be vastly more harmful to the human race if everybody could be idle than if everybody had to work. We can approach the subject of the effects of industry on the health of the worker from two points of view. First, in how far is the employer to blame for the cases of sickness among his employees; and, second, in how far are the employees themselves to blame for them. Let me refer for a moment to the elements that are necessary to life: Air, water, food, warmth. It is the employer's duty to furnish to his employees a place in which to work which is warm, which is well lighted, which is free from unnecessary dust, which is provided with the necessary toilet requisites, and which is furnished with an abundant supply of good drinking water. If the work comes under the head of dangerous occupations, the employer must see that all possible safeguards are provided to prevent the inhalation of dust and noxious vapors. He must see that his employees have an opportunity to wash their hands and faces before leaving the factory for their homes. It ought not to be necessary to enact a law to compel an employer to furnish reasonable protection to the men and women that work for him, nor should it be necessary to call his attention to the fact that certain processes of work in his factory may be injurious to the health of his employees.

On the other hand, the employee is responsible for his own health. He ought to know when he starts to work that he is well. He ought not to start to work with beginning disease in his lungs. If he does, and that disease develops, he ought not to say that it developed because he had to work. A man ought not to go to work with a compensated heart defect and then when his heart becomes decompensated, lay that to his work. Furthermore the worker should regulate his life in such a way that he shall remain well. If a man who has been doing a day's work takes a stimulant at its close, when he needs food, he will get sick. Such illness is not, however, due to his work. A girl who has been working all day and who spends her evenings in exciting and hilarious amusements, when she needs rest, cannot blame her occupation for any heart disease or lung trouble that may follow.

It is perhaps not necessary to say anything specifically relating to tuberculosis. Those who are engaged more particularly in discussing the treatment of tuberculosis have published much information available to the public concerning the methods by which that disease is disseminated. The one great source of tuberculous infection is dry human sputum. This sputum need not be very large in amount to infect a fellow employee or to give a factory a bad name among workers. I believe that it is legitimate for an employer to insist that every person who works in his factory shall be examined before he is given employment. On the other hand, I believe that employees have the right to insist that one of their number who has a chronic cough shall

be examined for evidence of pulmonary disease, if they are to continue to work with him.

I presume that the healthiest body of workers in the United States is to be found in the army and the navy. When a man applies for enlistment in either of these services he is first subjected to a careful physical examination; not with part of his clothing on, but with all his clothing removed. Work in the army and the navy, so far as the development of disease is concerned, is no more dangerous than work in a steel plant, a brass foundry, or many another industrial plant.

In a discussion on industrial disease held jointly by the American Association for Labor Legislation and the American Medical Association, in Atlantic City, in 1912, the surgeon general of the navy said: "We have been looking after occupational diseases in the navy; but entirely on the basis of military efficiency. There is no humanitarian factor in it." Why should not a manufacturer look after the health of his employees entirely on the basis of industrial efficiency? His work would be done better and his employees would lead healthier, happier lives.

I should like to suggest that some corporation, interested in the health of its employees, require a certificate of health, based on a careful physical examination, from each individual on its payroll. Then the subsequent medical history of the employees might be studied and the occurrence of diseases among them could be recorded and investigated as to their relation to the work and to the habits of the employees when not working. Some one will want to know what provision will be made under such a scheme for the employment of those men who present certain physical defects when they apply for work. In such a system, it seems to me, patients with heart and lung disease can be given suitable employment, and not set to work at tasks too great for them, as is now very frequently the case. Such an inquiry would be productive of much valuable information concerning the effects of industry on the health of the workers. It would require, however, for the best results, that the physician in charge of such a department should be a man of sound judgment, capable of undertaking original investigation.

457 PARK AVENUE

## DIABETES MELLITUS.

*Treatment with Bacillus Bulgaricus Cultures.*

By J. WALLACE BEVERIDGE, M. D.,  
New York.

In presenting a new therapeutic measure for the treatment of diabetes, great caution should be maintained toward an optimistic viewpoint until a sufficient number of positive recoveries are noted, which would warrant an assertion that such a procedure as that herein recorded is of true value. The results in the 176 cases cited, and observations made by Dr. George F. Klemann and myself in this preliminary report, should in no way be considered as final.

It is necessary to portray a brief outline of the

main etiological factors in this disease, so that we may be enabled to indicate how the conditions causing functional glycosuria are overcome. The pancreas is the gland whose secretion is known to have the most power in breaking down the carbohydrate group, which is readily divided into the polysaccharides, starch, and cellulose, the dysaccharides, maltose, lactose, and saccharose, and the monosaccharides, dextrose, levulose, and galactose. The most important carbohydrate, as a food, is starch, but, as such, is valueless, though easily broken down by the digestive enzymes. The saliva and pancreatic juice contain a diastatic ferment capable of changing the molecular cohesion of starch into maltose as an end product, and in some of the herbivora an enzyme capable of attacking cellulose, which has not been definitely isolated in the human being, has been demonstrated. During digestion the activity of the pancreatic secretion depends mostly upon the acidity in the duodenum and small intestine, this acidity causing a peripheral, local stimulating reflex action on the ganglionic cells scattered throughout the pancreas, while the reflexes of central origin remain inert.

Popielski, Wertheimer, and Le Page demonstrated that when an acid was introduced into the duodenum, pancreatic secretion was excited, and they were able to prove that pancreatic secretion could be induced by the injection of acid into the small intestine, the effect diminishing as the acid neared the lower end of the intestine. The name of the product formed inducing pancreatic activity is known as "secretin." Bayliss and Starling confirmed the results given above and justify the statement that "when the acid gastric juice of digestion reaches the duodenum, the prosecretin manufactured by the epithelial cells is converted into secretin, which is immediately absorbed into the blood stream, then carried to the cells of the pancreas which at once are stimulated to secretory activity." This process, showing the power exerted through the stimulation of acid digestion in producing secretin, so necessary to the normal functioning of the pancreas, has never until now been brought forward as a factor in glycosuria. Hence, one can readily perceive that when chronic conditions arise to change the acidity of the gastric contents, a corresponding response will be noted in the production of secretin. According as an increased acidity or lowered acidity of the gastric chyle is apparent while passing through the duodenum and upper portion of secretion. According as an increased acidity manufactured is either increased or diminished, and, reflexly, the pancreatic secretions will also be increased or diminished. Should this abnormal chemical reaction continue, whereby the pancreas receives inadequate stimulation during digestion, serious chemical and metabolic changes will in time manifest themselves, which may eventually combine and prevent complete carbohydrate metabolism.

The other causes interfering with a normal production of secretin are intestinal putrefaction, ulcer of the duodenum or pylorus, and any lesion involving the mucosa of the duodenum and upper portion of the small intestine.

The liver, next to the pancreas, furnishes the most important etiological factor, but in this paper

a complete exposition of its action in digestion is impossible. Only a very brief indication of a few cardinal points will be undertaken. The power of the liver cell to change ammonia into urea is vital. When any abnormal cellular change manifests itself the urea content found in the daily urine is lessened and the ammonia output increased. This fact is observed in all severe cases of diabetes, in anemias, in some types of intestinal nephritis, in toxemias, in hypertrophic and atrophic cirrhosis of the liver, in chronic inflammations of the gall duct, and in malignancy. A continued low urea output is an unfavorable sign in diabetes. Generally, we find that when the liver is unable to normally change ammonia into urea the secretion of the bile is affected, the production is lessened, and the bactericidal action diminished.

The intestinal tract also plays a most important part in carbohydrate metabolism. In more than

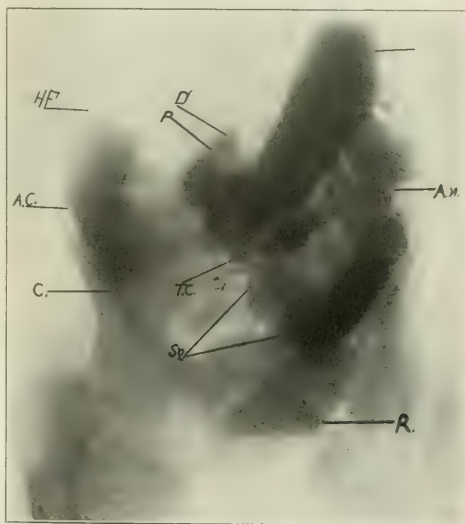


FIG. 1.—Transverse colon is adherent to the cecum as result of chronic appendicitis. A.C.-C.T.C. resulting in acute angulation of hepatic flexure with stasis; stomach is distended.

ninety per cent. of the cases under observation there was intestinal putrefaction, usually traced to chronic constipation, intestinal stasis, or lack of proper bodily care. The normal action of digestion is dependent upon the daily intestinal elimination and nonabsorption of the waste products; otherwise interference with oxidation, as a result of auto-intoxication, will coordinately affect the entire internal secreting glandular system, and, should such a chronic state ensue, cellular changes in the thyroid, pituitary, and pancreas, oftentimes begin. Of course, constipation is the main cause of all intestinal disturbances, and to-day we can be reasonably certain whether a chemical or mechanical derangement is paramount.

The chemical faults may be ascribed primarily to improper food, such as food of poor quality, food badly prepared, or unbalanced food consisting



FIG. 2.—Gastric spasm, *S* indicating probable ulcer; adhesions between stomach and splenic flexure, *SF* propped and dilated cecum; patulous ileocecal valve.

either of carbohydrates or proteids in excess; interference with the chemical activating agents of peristalsis, i. e., bile, etc., and the noxious chemical products of intestinal putrefaction, come under this heading. The mechanical faults are demonstrated by the radiograph, briefly indicated from observations made by Dr. A. J. Quimby, professor of radiography at the New York Polyclinic Medical School, on some 350 patients and upon cases submitted by me, in which the patient's stomach and intestines have been radiographed following a test meal of bismuth. In this series the mechanical defects portrayed were frequently marked, and the data obtained through this accurate determination of the stomach and intestines, have proved most valuable, especially in the prognosis and treatment. The radiographic plates of the stomach, as a rule, show mechanical changes indicating dilatation or perhaps stenosis of the pylorus or duodenum, while in the ascending and transverse colon frequent sharp angulations are seen, probably due to adhesions, and should the accentuation of the hepatic or splenic flexures be well defined, caused by adhesions of sufficient density to deflect the relative position of the intestine, considerable delay in the passage of the semisolid bowel contents will result.

In all conditions of intestinal stasis the sigmoid deserves special study. In infancy the sigmoid is much longer proportionally than in adult life, and Jacobi has frequently pointed this out as one of the dominant mechanical factors in producing constipation. In adults, if the functions of the sigmoid are interfered with by direct pressure or by ad-

hesions, and forced into acute angulations, a condition of stasis ensues, followed by stasis in the entire colon. The waste products of digestion accumulate, and then the increased weight of the overloaded colon places undue tension upon the mesentery and, through pressure, interferes with the blood supply to the muscular coats of the intestines, which in time will, by the development of a passive hyperemia, hinder active peristalsis. Radiographically, the sigmoid can be divided into two sections, the iliac and pelvic. The dividing line occurs at the brim and is conspicuous by a point at which the angulations and constrictions are manifested when the patient is placed in a position which brings the two sections of the sigmoid into the abdomen. The iliac portion of the sigmoid is found close to the posterior abdominal wall, and the pelvic portion is invariably greatly dilated; in fact, it may extend to about the level of the umbilicus. When the patient is placed in the upright position, the sigmoid, unless retained by adhesions, will drop into the bottom of the abdomen, resting partly in the true pelvis and partly just above the brim. These pictures just portrayed indicate some of the mechanical defects present in the intestinal tract that will establish a chronic constipation and maintain the colon in a state of distention accompanied by all the phenomena resulting from autointoxication and its complications.

The preceding facts readily demonstrate why glycosuria often follows a grave cellular change in the pancreas, liver, or small intestine; so that we now know that a chemical fault or a mechanical

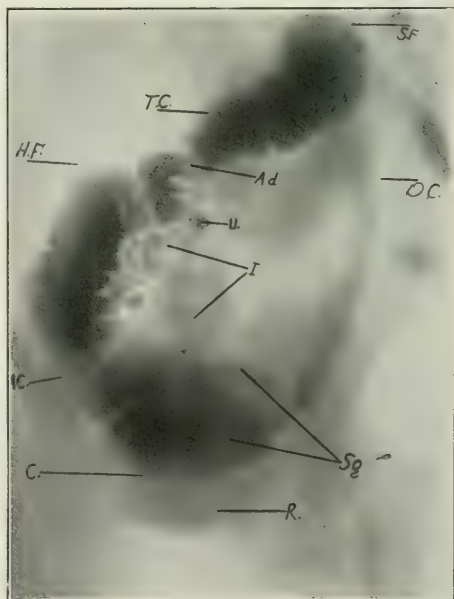


FIG. 3.—Adhesions of transverse colon, *Ad*, colonic peristalsis begins at *Ad* instead of at *C*, resulting in stasis of cecum and ascending colon.



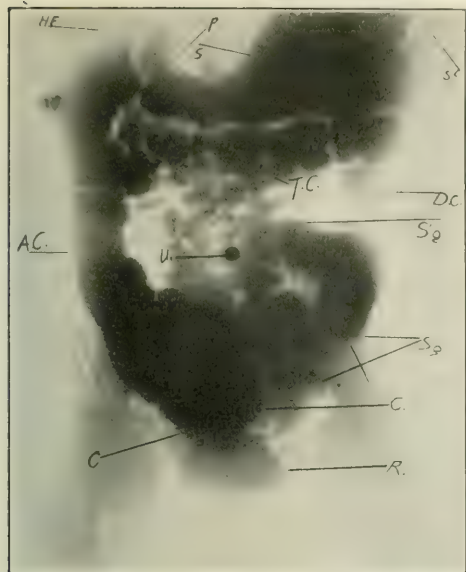


FIG. 4.—Marked ptosis and dilatation of cecum, C; redundant sigmoid, Sg.

one, or both combined, is always necessary for a diabetic state to manifest itself.

#### THE BACILLUS BULGARICUS.

Much controversy has arisen, since the international employment of the *Bacillus bulgaricus* culture for intestinal putrefaction, as to whom the credit should belong for first isolating this organism. It seems that Professor Kern, in 1881, first published an article describing the microorganisms found in Russian kefir. At this early period the bacteriological technic was perhaps untrustworthy for accurate information, and judgment should therefore be withheld on the question whether the true *Bacillus bulgaricus* of to-day was isolated at that time. Beijerinck unquestionably was the first to positively demonstrate the isolation of the *Bacillus caucasicus*, which belongs to the bulgaricus group. Two distinct classes of this organism have been demonstrated, and the first investigators to prove this fact were Rist and Khowsy. A true bacillus isolated from the Bulgarian yoghurt by Grigoroff, a member of Professor Massol's laboratory staff, and first described by him as the *Bacillus bulgaricus*, is the organism now used as a therapeutic agent. A further point of interest is the report by Heinemann and Hefferan that they were able to isolate this bacillus from many sources, asserting they found a bacillus identical to that of the bulgaricus in the human feces, in the feces of cows and horses, also in a great variety of sour and aromatic foods, in the human saliva, in the normal gastric juice, and in the gastric juice when hydrochloric acid is absent in the fermented milk and ordinary sweet milk. Cohendy devised the present media for active growth.

#### MORPHOLOGY.

The characteristics are similar in all strains. Length, two to fifty; breadth approximately, one. All viable bacilli are Gram positive and are regular in shape, the appearance is that of a straight line with rounded ends; no granules or vacuoles observed. Two strains noted are, A and B. Their culture in whey (Class A) indicates a tendency toward degeneration and involution. In the beginning of incubation, at 37.5° C., the bacilli are uniform in size. In outline all are markedly Gram positive, while in the succeeding stages the irregular, vacuolated, inflated, and ruptured forms of disintegration predominate.

*Class B Cultures.*—No stemmed nodules are present, small spherical bodies are seen attached to the cell wall. In the case of the stemmed nodule a single bacillus rarely, if ever, extrudes more than one bud, while in the latter instance the bacterium may have a number of these small spheres adherent. Strains of Class A culture grow in the form of a short bacilli arranged in chains. Strains of Class B culture develop to a greater length and exist almost exclusively as single isolated forms. Examined in a hanging drop, no motility is observed. Milk is the natural habitat of the *Bacillus bulgaricus* and the morphological features which the bacilli manifest in this media should constitute a standard. Early growths show a variable length, the width alone remaining stable. When grown with the addition of yeast and more trivial ferments, the length of this bacillus is inhibited. Very little degeneracy occurs from the bacillus grown in milk media; no vacuoles or nodules observed. No spores were observed. The fact that these bacteria when young

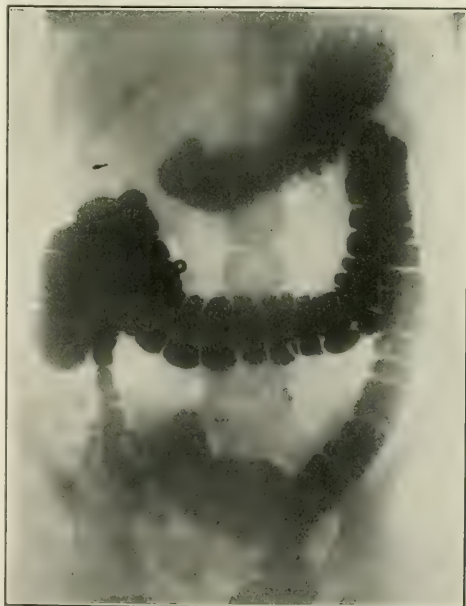


FIG. 5.—Adhesions of gastric omentum, gastric stasis due to angulation of duodenum, the stasis.

and most active exhibit a low degree of vitality would argue against the possibility of spore formation. Nothing to suggest the presence or formation of capsules was noted. All strains readily stained by the usual anilines.

**Other Media.**—When freshly isolated from their natural symbiotic environment no growth is obtainable on ordinary media. After a year's solitary cultivation in milk, these bacteria show an increased vitality and adaptation to foreign environment. A feeble growth was obtained on nutrient agar from strain A. The same agar with two per cent. lactose added was barren of growth, while with dextrose a strong collection of healthy colonies began to grow. In lactose bile enriched with peptone a feeble, though constant, growth ensues; proving that the inhibitory action of the bile on the *Bacillus bulgaricus* in the small intestine is absent. No gas is formed while the bacillus is grown in this bile medium. No difference as to growth was seen under aerobic or anaerobic conditions. Gregoroff states that the *Bacillus bulgaricus* attacks mannite, saccharose, maltose, and lactose, but not rhamnose, dulcitol, or sorbitol. Cohendy observed the active fermentation of lactose, maltose, saccharose, levulose and particularly dextrose. Bertrand and Duchacek state that the "carbohydrates" fermented by the *Bacillus bulgaricus* are dextrose, mannose, galactose, saccharose, levulose, and lactose, while arabinose, xylose, and sorbitol are not changed.

**Enzymes.**—The addition of calcium carbonate, calcium chloride and zinc chloride in excess of the

with an acid activity of from one to 3.6 per cent. in twenty-four hours upon sweet milk.

In the preceding description of the *Bacillus bulgaricus* its action upon sugar, with the formation of lactic acid, is indicated. In diabetes the carbohydrate radicle is attacked in the intestinal tract by this bacillus and converted into lactic acid. The necessity for starch as a food is well known, and if digestion is unable to break down the molecules of starch, in glycosurias it is harmful. But by this action of the *Bacillus bulgaricus* this much needed carbohydrate may be taken with little, if any, excess of sugar appearing in the urine. This chemical reaction is of great importance when the normal combustion of sugar in the alimentary tract is at fault, and if we are able to continue the use of an active culture aid is given the pancreas and liver to complete the carbohydrate digestion. When the pancreas receives weak stimulation by the lack of a normal quantity of secretin forming, as a result of a low gastric acidity, the potency of this bacillus to make lactic acid is of value in further stimulating the duodenum and upper portion of the small intestine. The antiseptic and corrective power of the bacillus, by overcoming autointoxication and all conditions of intestinal putrefaction is very marked. Its distinct action in attacking the hosts of intestinal flora and the chemical action of the lactic acid upon the waste products such as indol, skatol, zanthin, and hyperzanthin, may possess, according to Professor Belonowsky, a still greater cleansing influence by an active product created

#### URINE ANALYSES.<sup>1</sup>

1912.	Sp. Gr.	Reaction.	Indican.	Diabetic acid.	Acetone.	Albumin.	Urea.	Sugar.	Renal Casts.
August 10 . . . . .	1.037	overacid	normal	none	none	none	1.5%	4.5%	none
August 23 . . . . .	1.036	acid, normal	small amount	none	none	none	1.1%	5.2%	none
August 31 . . . . .	1.031	overacid	normal	none	none	none	1.2%	3.9%	none
November 20 . . . . .	1.046	overacid	normal	none	none	none	1.6%	8.2%	none
December 3 . . . . .	1.034	overacid	small amount	none	none	none	2.4%	2.6%	none
December 11 . . . . .	1.037	overacid	normal	none	none	trace	1.4%	4.9%	none
December 20 . . . . .	1.036	acid, normal	normal	none	none	trace	2.1%	3.6%	none
1913.									
January 3 . . . . .	1.027	acid, normal	normal	none	none	none	1.4%	2.8%	none
February 17 . . . . .	1.024	overacid	normal	none	none	none	2.0%	1.7%	none
March 18 . . . . .	1.038	overacid	normal	none	none	none	1%	2.4%	none

<sup>1</sup>Last three urine analyses made at French Hospital; sugar in each report, trace only.

amount required to neutralize the acid production, to prevent the coagulation of milk, failed. This might argue for the presence of an enzyme.

**Acids Produced.**—From a five day culture Bertrand and Weissweiler isolated lactic acid by means of the zinc salts and conclude that the acid formed was a mixture of the levo and dextro modifications, with a predominance of the latter. Besides lactic acid, acetic, formic and succinic acids have been demonstrated by Bertrand, Weissweiler and Duchacek. Heinemann finds that the volatile acids constitute 5.8 per cent. to 6.1 per cent. of the total acidity.

**Pathogenicity.**—The *Bacillus bulgaricus* is non-pathogenic to man or the usual laboratory animals. No untoward effects have been observed following the ingestion of large amounts of this culture.

The cultures of the *Bacillus bulgaricus* employed by men are grown upon a modified Cohendy medium, which from time to time I have had examined in reference to the purity and viability of the organism by the Gram positive method, the average count being 285,000,000 ± positive per cubic centimetre.

during the proliferation of the bacillus. He positively asserts that this substance continues exercising a protective influence against reabsorption. The action of this culture is never manifested unless the microorganisms are viable when administered.

#### REPORT OF CASES.

CASE I. Mrs. A. M., Portland, aged forty years, married, five children. Thin, weight 120 pounds, slightly neurotic; mentality low. Slept poorly; arose from five to seven times to void urine. Appetite poor. Severe chronic constipation. Polyuria; painful menses; slight vaginal discharge; pruritus. Heart, normal; liver readily palpable; stomach, no dilatation. Complained of severe shooting pains in legs, burning and itching of vulva, headache, excessive thirst, and constant desire to micturate; eyesight impaired; loss of appetite and inability to sleep. **Treatment:** Patient difficult to control, going back home during September and October; then returned with 8+ per cent. sugar. Improved somewhat symptomatically, but a severe uncontrollable pruritus developed. Finally, took her to the French Hospital and kept her under close observation. A trace of sugar present upon her discharge. Weight 125½ pounds. Modified diet; from four to six tubes of culture used daily. Sodium bicarbonate, pancreatic ferments, and salol. Prognosis, excellent; no pruritus. Discharged April 15th, without symptoms.

CASE II. Mr. A. W. K., contractor, aged twenty-nine years, married. Stout, weight 167½ pounds; very neurotic; mentality medium. Slept well; appetite good; constipated chronically. Urine amount, from seventy to eighty ounces; arose once at night. Habits moderate.

mm. Hg. Complained of drowsiness, loss of vision, cramps in the legs, and severe thirst. Constant headaches with polyuria. *Treatment:* Modified diet; four tubes daily *Bacillus bulgaricus*. Last seen August 30th; condition greatly improved; weighed 188½ pounds; amount of urine

## URINE ANALYSES.

1912.	Sp. Gr.	Reaction.	Indican.	Diabetic acid.	Acetone.	Albumin.	Urea.	Sugar.	Renal casts.
July 7	1.022	acid	none	none	none	trace	1.1%	0.12%	none
September 27	1.021	acid, normal	small amount	none	none	none	1.1%	1.2%	none
October 11	1.017	acid	none	none	none	trace	1.1%	1.2%	none
October 14	1.017	acid, normal	normal	none	none	none	1.1%	1.2%	none
October 28	1.017	acid	small amount	none	none	none	1.1%	1.2%	none
November 13	1.012	acid	normal	none	none	none	1.1%	1.2%	none
November 18	1.023	acid, normal	small amount	none	none	none	2.4%	none	none
December 19	1.027	overacid	small amount	none	none	none	2.8%	none	none
1913.									
January 13	1.012	alkaline	normal	none	none	none	1.1%	none	none
February 20	1.017	acid	normal	none	none	none	1.6%	none	none
February 22	1.021	acid, normal	small amount	none	none	none	2.2%	none	none

Family history; mother had diabetes; report as to father negative. Previous history; diseases of childhood; diabetic state one year and a half. Heart, normal; liver, not enlarged; stomach, slightly dilated. Pulse 90, blood pressure 165. October 20th. Pulse 90, blood pressure 148 mm. Hg.; complained of severe headaches; constipation, malaise; considerable loss of weight, from 215 pounds to 167½ pounds; indigestion. Physical condition good; pa-

voided in twenty-four hours, forty-two ounces; no pains noted. On normal diet; discharged.

CASE IV. Dr. F. P. K., Brooklyn, aged forty-nine years, married. First seen September 13, 1912. Stout, pendulous abdomen, weight 179½ pounds; slightly neurotic; mentality high. Slept poorly; arose from three to four times each night to void urine; polyuria, 105 ounces daily. Appetite good; markedly constipated; habits moderate; ar-

## URINE ANALYSES.

1912.	Sp. Gr.	Reaction.	Indican.	Diabetic acid.	Acetone.	Albumin.	Urea.	Sugar.	Renal casts.
July 12	1.046	acid, normal	small amount	none	absent	none	1.1%	7.4%	none
July 25	1.031	overacid	small amount	none	absent	none	2.4%	1.2%	none
July 29	1.046	acid, normal	normal	none	absent	trace	2.4%	0.1%	hyaline
August 8	1.022	acid, normal	normal	none	absent	none	2.4%	none	none
August 18	1.031	acid, normal	large amount	none	absent	none	2.9%	none	few
August 30	1.026	overacid	normal	none	absent	none	2.7%	none	none

tient inclined to overeat; nutrition excellent. *Treatment:* Three tubes of culture daily; pancreatic ferments; sodium bicarbonate; modified diet. To-day, regular diet, one tube every other day. No symptoms; weighed 176¼ pounds. Prognosis, positive recovery; discharged.

CASE III. Mr. H. B., aged thirty-eight years, married. First seen July 17, 1912. Stout, pendulous abdomen; men-

teries hard. Family history negative. Previous history; rheumatic attacks, sore throat, occasional periods of indigestion; otherwise negative. First noticed diabetic condition in February, 1912. Heart, faint presystolic murmur, on percussion somewhat enlarged; liver, easily palpable; stomach, lower border of greater curvature found just above umbilicus. General condition good; skin moist;

## URINE ANALYSES.

1912.	Sp. Gr.	Reaction.	Indican.	Diabetic acid.	Acetone.	Albumin.	Urea.	Sugar.	Renal casts.
September 14	1.032	acid, normal	small amount	none	absent	trace	0.4%	4.9%	none
September 24	1.031	acid, normal	normal	none	absent	trace	1.2%	4.4%	none
October 3	1.034	acid, normal	normal	none	absent	none	0.5%	5.1%	none
October 10	1.031	acid, normal	normal	none	absent	trace	0.5%	4.6%	none
October 25	1.036	acid	small amount	none	absent	trace	0.6%	4.1%	none
November 11	1.033	acid, normal	normal	none	absent	trace	1.0%	5.6%	none
November 16	1.034	acid, normal	small amount	none	absent	trace	1.6%	5.0%	none
November 23	1.032	acid	normal	none	absent	trace	1.2%	1.9%	none
December 3	1.034	acid, normal	small amount	none	absent	trace	1.8%	2.5%	none
December 11	1.031	overacid	small amount	none	absent	trace	1.1%	2.9%	none
December 18	1.036	acid, normal	large amount	none	absent	trace	1.8%	3.7%	none
December 27	1.036	acid, normal	normal	none	absent	trace	1.7%	4.7%	none
1913.									
January 6	1.028	acid, normal	normal	none	absent	present	1.2%	3.8%	none
January 15	1.029	acid, normal	small amount	none	absent	trace	1.1%	2.9%	none
January 20	1.036	acid, normal	small amount	none	absent	trace	1.1%	2.1%	none
February 11	1.027	acid, normal	normal	none	absent	trace	1.1%	2.1%	none
February 19	1.027	acid, normal	small amount	none	absent	trace	1.2%	1.9%	none
March 5	1.028	acid, normal	normal	none	absent	trace	1.1%	1.9%	none
April 17	1.025	acid, normal	normal	none	absent	trace	1.0%	1.1%	none

tality high; slept too much; appetite good; constipated; weight 179 pounds. Urine increased in amount; during twenty-four hours, 126 ounces. Family history negative. Rheumatic attack four years previous. Inclined to indigestion from over eating; heart normal; stomach dilated; liver slightly hypertrophied. Pulse 81, blood pressure 140

mm. Hg. bodily nutrition excellent; tongue heavily coated. Pulse 91, blood pressure 165. Complaints of severe thirst, considerable loss of weight, polyuria, excessive micturition, drowsiness, loss of ambition, disinclination to work, cramps in calves of legs, and great weakness. *Treatment:* Modified diet; from four to six tubes culture daily; so-

## URINE ANALYSES.

1912.	Sp. Gr.	Reaction.	Indican.	Diabetic acid.	Acetone.	Albumin.	Urea.	Sugar.	Renal casts.
July 23	1.046	overacid	large amount	none	absent	none	1.1%	7.4%	none
August 5	1.044	acid, normal	normal	none	absent	none	0.8%	7.4%	none
August 20	1.044	acid, feebly	small amount	none	absent	none	0.8%	7.4%	none
August 21	1.043	acid, feebly	small amount	none	absent	none	0.8%	6.9%	none
September 5	1.041	acid, normal	normal	none	absent	trace	2.3%	5.7%	none
September 25	1.049	acid, normal	normal	present	present	none	2.3%	5.7%	none
October 28	1.046	overacid	normal	none	absent	trace	1.2%	4.2%	none
December 6	1.042	acid	small amount	none	absent	none	1.1%	7.9%	none
December 21	1.042	acid, normal	normal	trace	present	none	1.2%	6.5%	none
1913.									
January 20	1.019	feebly alkaline	large amount	none	absent	trace	2.4%	1.6%	none



dium bicarbonate, five grains every three hours. Pancreatic ferments. This had been continued with slight variation; instead of sodium bicarbonate, calcium chloride was occasionally administered. To-day patient's condition is practically normal. Diet regular; no symptoms are present, sleeps all night; voids only from forty-five to fifty-five ounces of urine daily; bowels regular; weight 188¼ pounds; is able to attend to all his professional duties without any inconvenience. Result, brilliant. Prognosis unquestioned toward recovery.

CASE V. Mr. F. N., aged forty-four years, married. Weight 166½ pounds; stout; slightly neurotic; mentality high; slept poorly; appetite good; chronic constipation; some polyuria; habits moderate. Heart, presystolic murmur at apex, size normal; liver, greatly hypertrophied; stomach, dilated; lungs, chronic bronchitis; involvement of right apex; sputum examined; tubercle bacilli present. Pulse 92, blood pressure 140. Family history; mother died from chronic nephritis, acute exacerbation; father's history negative. Rheumatic attacks during last five years; first noticed present condition three years ago. Complained of excessive thirst, great weakness, cramps in legs, frequent micturition, severe headaches, and indigestion. *Treatment:* Patient inclined every few weeks to drink to excess. Acidosis present; day following given from four to six tubes culture daily, with ferments and sodium bicarbonate. Glycosuria much improved and diabetic symptoms absent upon last examination, but tuberculous process in lung necessitated sending patient away; final outcome in doubt. Prognosis poor; weight 157 pounds.

(To be concluded.)

## FURTHER NOTES ON PROSTITUTION IN JAPAN.

*Abolition of the Slavery System; Early History of the Yoshiwara; Illicit Prostitution; Medical Inspection and Statistics; Jurisprudence.*

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### I.

The abolition of the absolute slavery of prostitutes in Japan took place in 1872, and was due more to chance than to any conscious demand on the part of the people. In fact, the indirect effect of foreign influence was the most potent factor. A ship loaded with slaves bought in China stopped at Yokohama harbor on account of a storm at sea, and while it was at anchor one of the slaves jumped overboard and swam to an English warship which was lying close at hand. The captain of the warship reported the matter to the authorities and requested that the slaves be released, as the dealing in human flesh was contrary to the standards and principles of civilized countries. As at the time the Japanese government considered it most essential to maintain cordial relations with the civilized nations, the ship was detained and the captain was ordered to release the cargo of slaves. The captain, however, filed a protest, and when the matter came up for decision before a special court, he presented a copy of a contract or bill of sale of a girl then serving as a prostitute in the city of Yokohama. He claimed that he could not be interfered with because the sale of human beings was permitted by the Japanese authorities themselves. The court was much perplexed by this development and postponed the case. When the matter came up for final hearing the court ruled that traffic in human beings was not legal in Japan, and that the reason such a traffic existed was because no one had appealed to

the courts to prohibit it. In the case in point the law had been invoked, and the court maintained that it had the power to order the release of the slave cargo. The order was issued and executed, and the enslaved Chinese were sent back to China. Soon after, an order emanated from what then corresponded to the Department of Home Affairs, emancipating all women held under contract for immoral purposes. An order from the Judicial Department followed, protecting the released women by enjoining the courts from entertaining suits against them for debts due their masters.<sup>1</sup>

The actions already described abolished the legal status of the practical enslavement of prostitutes. The present system was established, the term for licensed houses being changed to *kashizashiki* or "parlor renting." Persons desiring to conduct brothels were required to locate in the section designated by the authorities, and on receiving the necessary permit, they were expected to rent their rooms to women licensed by the police to ply their trade as prostitutes. Actually, however, the system has worked out far differently, and the original plan is adhered to only nominally. By making an advance payment or loan the keepers of the houses executed contracts with the prostitutes securing their services for a specified term. At first this latter was generally set as three years. By this means most of the former inmates of the houses were released.

### II.

In a previous article<sup>2</sup> I have referred to the petition of 1612 of the brothel keepers of Yeddo (which was the old name for Tokyo) for the establishment of a special segregated quarter. The reasons given in this petition<sup>3</sup> are of considerable interest in tracing the history of the *yoshiwara*. After calling attention to the fact that such quarters already existed in other localities, it goes on to state that "houses of ill fame abound in every part of the city, being scattered hither and thither in all directions. This, for numerous reasons, is detrimental to public welfare and morality." The reasons given are as follows:

1. As matters stand at present when a person visits a brothel, he may hire and disport himself with *yujo* to his heart's content, and give himself up to pleasure and licentiousness to the extent of being unable to discriminate as to his position and means and the neglect of his occupation or business. He may frequent a brothel for days, giving himself up to lust and revel, but so long as his money holds out the keeper of the house will continue to entertain him as a guest. As a natural consequence, this leads to the neglect of duty toward masters, defalcations, theft, etc.; even then the keepers of the brothels will allow the guilty guests to remain in their houses as long as their money lasts. If brothels were all collected into one place a check would be put to these evils, as, by

<sup>1</sup>For the record of this incident I am indebted to a small book entitled *The Social Evil in Japan*, by U. G. Murphy. This was issued from Nagoya, Japan, and is practically unavailable in this country. The material, however, is unique and of very considerable interest in throwing light on some phases of prostitution in the island empire.

<sup>2</sup>Douglas C. McMurtree, *Prostitution in Japan*. New York: *Medical Journal*, 1913, xcvi, p. 278-81.

<sup>3</sup>S. C. Martin, Jr., *Prostitution in Japan*. *American Journal of Dermatology and Genito-Urinary Diseases*, St. Louis, 1903, vii, p. 192.

means of investigation and inquiry, a longer stay than twenty-four hours could be prohibited and such prohibition enforced.

2. Although it is forbidden by law to kidnap children, yet, even in this city the practice of kidnapping female children and enticing girls away from their homes under false pretenses, is being resorted to by certain vicious and unprincipled rascals. It is a positive fact that some evil minded persons make it a regular profession to take in the daughters of poor people under the pretext of adopting them as their own children, but when the girls grow up they are sent out to service as concubines or prostitutes, and in this manner the individuals who have adopted them reap a golden harvest. Perhaps it is this class of abandoned rascals that even dare to kidnap other people's children. It is said to be a fact that there are brothel keepers who engage women, knowing perfectly well that they are the adopted children of the parties who wish to sell the girls into prostitution. If the prostitute houses were all collected into one place, strict inquiries would be made as to the matter of kidnapping and as to the engagement of adopted children, and should any cases occur in which such reprehensible acts were attempted, information would be immediately given to the authorities.

3. Although the condition of the country is peaceful, yet it is not long since the subjugation of Mino province was accomplished, and consequently it may be that there are many *ronin* prowling about seeking for an opportunity to work mischief. These ruffians have, of course, no fixed place of abode and simply drift hither and thither; so it is impossible to ascertain their whereabouts in the absence of properly instituted inquiries, even although they may be staying in houses of ill fame for a considerable number of days. If the authorities grant this petition and permit the concentration of the existing brothels in one regular place, the brothel keepers will pay special attention to this matter and will cause searching inquiries to be made about persons who may be found loafing in the prostitute quarters, and should they discover any suspicious characters they will not fail to report the same to the authorities forthwith.

It will be deemed a great favor if the august authorities will grant this petition in the fullness of their magnanimous mercy. Another factor bearing on the segregation system was the attitude of the army authorities who favored it. It is related by Maget<sup>4</sup> that, about 1815, Yorimoto organized the first imperial standing army, and the divisions were stationed at various points, notable at Kamakura, Osaka, Kyoto, and Nagasaki. In order to protect the public from annoyance, Yorimoto segregated and regulated prostitution in the vicinity of the garrisons.

The inmates of the Japanese houses are known<sup>5</sup> by various terms: *Orian*, or wife for an hour, is the least derogatory; *shogi*, or prostitute, the common appellation; *joro*, or harlot, implying the shame of her calling; and *yujo*, or daughter of

joy, corresponding to the French idiom *filles de joie*. In addition to the citations already made it may be mentioned that general descriptions of the *yoshiwara* and its history have been given by Hintze<sup>6</sup> and Matignon.<sup>7</sup>

### III.

Legalizing prostitution in Japan has not settled the question, and there has always been a large amount of clandestine or illicit prostitution. In Tokyo in 1722 the latter had grown to such considerable proportions that a proclamation<sup>8</sup> was issued by the governor of the city. The text of this was as follows:

Whereas secret prostitution has been prohibited in the wards of this city, and whereas it appears that the practice has been carried on in an audacious manner, it is hereby ordered that henceforth secret prostitutes shall be treated as follows:

1. The person harboring secret prostitutes will be ordered to yield up to the government his ground lot, furniture, house, and *godown*, and the woman offending shall herself have her furniture seized, and for the space of 100 days shall be manacled with irons and committed into the custody of the responsible parties of her ward, an officer being detailed off to visit the house every other day to inspect the seal on her manacles.

2. The owner of grounds and houses in which secret prostitution takes place shall be held in the same penalties, even although he is not living on the premises, but only represented by a caretaker. The caretaker shall have all his furniture seized, and shall be manacled for a period of 100 days, during which period he will be committed into the custody of the responsible parties in his ward, and every other day the bonds shall be examined and the seals inspected.

Three days after this date the appointed officials and *yoshiwara* authorities will proceed to search for persons carrying on illicit prostitution, and if those persons are apprehended they will be dealt with as stated above.

Persons harboring offenders may be punished with banishment or death, and, moreover, the members of the ward who are responsible for the parties may be likewise punished, in accordance with the foregoing. Now, therefore, take notice, and let this be published throughout the city.

An additional order was issued in 1876, as follows:

Persons practising secret prostitution and the keepers of secret houses used for that purpose shall be punished as follows: Principal or accessory: First offense—Fine not exceeding ten yen or two and one half months' imprisonment. Second offense—Fine not exceeding twenty yen or five months' imprisonment. Keeper of the house: First offense—Fine not exceeding fifteen yen or three months' imprisonment. Second offense—Fine not exceeding thirty yen or six months' imprisonment.

### IV.

Segregation of prostitution was of early origin in Japan, but medical inspection was not inaugurated until later. Its establishment was largely the result of European influence. A memorial<sup>9</sup> asking for the abolition of licensed prostitution tells of the English Contagious Diseases Acts, and then goes on to say that with the view of protecting the soldiers and sailors then in Japan or going there, a hospital for the treatment and examination of pros-

<sup>4</sup>G. Maget, *La Prostitution au Japon*. Annales d'hygiène, Paris, 1878, I (1878, second series), pp. 515.

<sup>5</sup>See Fr. S. Krauss, *Das Geschlechtsleben in Glauben, Sitte, und Brauch der Japaner*, Leipzig, 1907. Also Albert S. Ashmead, *Prostitution in Japan*. American Journal of Dermatology and Genito-Urinary Diseases, St. Louis, 1903, vii, p. 167.

<sup>6</sup>R. Hintze, *Yoshiwara, die Regelung der Prostitution in Japan*. Zeitschrift für Bekämpfung der Geschlechtskrankheiten, 1907, xi, p. 189-228.

<sup>7</sup>J. J. Matignon, *La prostitution au Japon; le quartier du Yoshiwara de Tokio*. Archives d'anthropologie criminelle, Lyons and Paris, 1906, xxi, p. 602-715.

<sup>8</sup>S. C. Martin, Jr., *Prostitution in Japan*. American Journal of Dermatology and Genito-Urinary Diseases, St. Louis, 1903, vii, p. 168.

<sup>9</sup>The Kyoto Memorial for Abolition of Licensed Prostitution in Japan; addressed to both members of the Imperial Diet through their presidents, Kyoto, December, 1890. *Sei-Kwai Medical Journal*, Tokyo, 1891, x, p. 9-14.

titutes was established in Yokohama in 1867. This was at the suggestion of naval surgeon Doctor Newton. In 1872, under the supervision of an English army surgeon, Doctor Hill, the system was extended to Tokyo and also to the open ports of Kobe and Nagasaki. Later, in 1876, the government established the system in nearly all the cities and prefectures of the empire.

The regulations of the central government require that all prostitutes must be registered and examined periodically. The details of management are, however, left to the prefectural offices. The local police departments of a prefecture prescribed a code which is approved by the governor and put into force by his order. There is also another set of regulations made by the keepers of the houses for their own guidance and protection. Such regulations must be submitted to the police authorities, and when approved by them are binding on both keepers and inmates.

When a prefecture desires to license prostitution the governor makes application to the Department of Home Affairs. Upon the granting of permission by this authority the prefectural assembly must appropriate the funds necessary for the system of regulation. The prefectural regulations must be consistent with the general code promulgated by the Department of Home Affairs. This code came into force in 1900, previous to that time the Tokyo city regulations being taken as a guide.

A translation of the code of regulations issued by the Department of Home Affairs in 1900 is here given:

Regulations for the Control of Prostitutes. Department of Home Affairs Order No. 44. Issued October 2, 1900.

I. Women under eighteen years of age shall not be allowed to become prostitutes.

II. Only those registered as prostitutes shall be allowed to carry on the business of prostitution. Prostitutes' registers shall be kept in the police stations that have charge of the districts in which prostitutes reside. Those registered shall be subject to police supervision.

III. Those who wish to become prostitutes shall make application in person to the police station and shall present the following items in writing: 1. Reasons for becoming a prostitute. 2. Age. 3. Written consent of nearest relative in applicant's home. Where there is no near relative, consent of the head of the family in which the applicant is domiciled; where there is no one to give consent, explain reason. 4. In the case of minors, in addition to the foregoing, written consent of real father, consent of mother; where there is neither father nor mother, consent of real grandfather; where there is no grandfather, consent of real grandmother. 5. Place of business. 6. Domicile after being registered. 7. Present trade. In case of being supported by others, give particulars. 8. Whether applicant has ever served as a prostitute before. If so, give date of beginning and cessation of business, place of business while a prostitute and reason for cessation of business. 9. In addition, give all particulars required by prefectural regulations. Application must be accompanied by a copy of the family registry, and attested consent of persons mentioned in Articles 3 and 4.

All applicants must pass a physical examination before being enrolled.

IV. Prostitutes who have been ordered to cease business shall be dropped from the prostitutes' register. In all other cases erasure from the official register shall take place only upon the application of prostitutes in person; provided that in the case of minors the persons named in Section III, Articles 3 and 4, may make the application for erasure.

V. Requests for erasure from the prostitutes' register may be either written or oral. Such requests shall not be entertained by the police unless made in person at the

police station. Exceptions shall be made, however, in the case of requests sent by mail or messenger when the police believe there are reasons that the applicant cannot appear in person. As soon as requests for erasure have been accepted by the police the name of the prostitute making the request must be stricken from the register.

VI. No person whatsoever shall be allowed to interfere with a request for erasure from the official register.

VII. Prostitutes shall not reside outside of the districts determined by prefectural regulations. They shall not go out of the brothels except by police permission, unless it is in obedience to official order or to visit the police station, provided, however, that exceptions shall be made where prefectural regulations specify certain limits within which they may go out.

VIII. Prostitution shall be carried on only in brothels which have official permits.

IX. Prostitutes shall submit to the physical inspection provided for in the prefectural regulations.

X. When the physicians or hospital authorities appointed by the police decide that a prostitute is suffering from contagious diseases or from any complaint that renders her unfit to receive guests, she shall cease business and not be permitted to resume until she has recovered and passed a physical examination.

XI. The police authorities may refuse to register applicants for prostitution. The prefectural authorities may suspend or prohibit prostitutes' business.

XII. No person whatsoever shall obstruct the liberty of prostitutes in regard to correspondence, privilege of meeting people, reading literature, purchase and possession of necessary articles, or in any way interfere with their liberties.

XIII. Persons committing the following named offenses shall be liable to a fine of twenty-five yen or imprisonment for twenty-five days: 1. Making false statements to secure the registry of prostitutes. 2. Violating Sections VI, VII, IX, and XII. 3. Violating Section VIII and causing prostitutes to ply their trade outside of licensed brothels. 4. Violating Section X and compelling diseased prostitutes to resume work before passing official inspection. 5. Violating suspension order of Section XI and compelling prostitutes who have had their business suspended to ply their trade. 6. Causing the registry or erasure of registry of prostitutes against their will.

XIV. In addition to these regulations such other matters as may be deemed necessary shall be determined by prefectural regulations.

XV. Prostitutes who are already serving when these regulations go into effect shall be regarded as having been officially enrolled.

The physical inspection referred to in Section IX is performed by designated physicians and occurs on the average of once every week.<sup>10</sup> A special police officer enforces the examination when necessary. The inspection whenever possible is arranged for a day following the weekly holiday. Such prostitutes as are found to be suffering from venereal disease are sent to a special segregated hospital. In places where the number of prostitutes is small the examination is conducted by some physician under police permit, and the girls are detained in a part of some local hospital. Cases of ordinary illness may be treated either at the home of the keeper or in ordinary hospitals, but in each case police permission must be secured.<sup>11</sup> The length of detention in the segregated hospital varies with the nature of the complaint and the strictness of the physician in charge.

In 1899 the chief medical officer of the Japanese navy, Dr. Tsururabo Yabé, alarmed at the increase of venereal disease, issued a plea for more stringent supervision and inspection of prostitution in the

<sup>10</sup>Albert S. Ashmead. Prostitution in Japan. *American Journal of Dermatology and Genito-Urinary Diseases*, St. Louis, 1903, vii, p. 167-168.

<sup>11</sup>G. Murphy. *The Social Evil in Japan*. Nagoya, 1906, p. 8.



seaports. He presented<sup>12</sup> facts as follows: In 1890 in the whole country there were 43,570 registered prostitutes, and the number of medical examinations made during the year was 2,030,267. There were detected 8,856 cases of syphilis and 61,004 cases of gonorrhea. Of course, a great number of the latter were relapses or reinfections. In Tokyo the number of cases of venereal disease in proportion to the total examinations made was seven in 100. These figures, according to Doctor Yabé, show the necessity for rigid sanitary supervision. That venereal disease is more prevalent among sailors than among landmen is, he states, due in part to the frequency of clandestine prostitution in seaport towns and in part to the special character of a sailor's life. In the Japanese navy a sailor suffering from venereal disease is forbidden shore leave, so that he cannot transmit infection to others.

In 1896, during the year, 157.5 men in 1,000 in the navy contracted venereal disease. The total days of disability from all causes in the year was 196,825, and of these 85,867, or over forty per cent. of the total, were due to venereal causes.

In Japan the system of prostitution is entrenched more firmly than in almost any other country. An anonymous English author quoted by Buschan<sup>13</sup> places the number of houses of prostitution throughout the empire at 20,000 and the number of women employed in them at between 400,000 and 500,000. Buschan also notes with surprise that the houses are often the handsomest in a city, that they are located in proximity to temples, and that they have almost the status of public institutions.

The figures just named are probably exaggerated to a large extent. The official figures for the year 1896 show<sup>14</sup> the average number of prostitutes in Japan to have been 43,570, but this was only the number who were registered and subject to actual medical inspection. The actual number of women engaged in prostitution was, of course, much larger. Murphy<sup>15</sup> quotes figures gathered by him from the various prefectural offices. The number in 1896 (39,068) is but slightly lower than the one just given, and this difference might be expected. The other figures obtained by the same method are as follows:

Prostitutes <sup>a</sup>	Geishas <sup>a</sup>	Women arrested for illicit prostitution <sup>a</sup>	Cases of syphilis detected among prostitutes <sup>c</sup>	Total population of the Empire <sup>b</sup>
1887.....27,559	10,326	.....	.....	39,069,691
1896.....39,068	.....	.....	.....	43,288,863
1897.....47,053	26,532	6,856	28,048	.....
1898.....50,553	27,386	6,720	28,817	.....
1899.....52,410	29,129	8,130	25,568	.....
1901.....40,195	30,019	3,430	21,076	.....
1902.....38,676	28,130	4,755	.....	.....
1904.....42,502	36,026	1,049	37,611	.....
1906.....44,542	29,552	7,200	.....	48,533,000

<sup>a</sup>This classification includes 'only registered and licensed prostitutes.

<sup>b</sup>This class is given to immoral practices to a considerable extent and must be considered.

<sup>c</sup>These figures are very incomplete and are only given to indicate what a large degree of prostitution must go on outside the limits set by the license system. The returns for 1897 are from thirty-two prefectures only; for 1898, thirty-two; for 1899, thirty-eight; for 1901, thirty-three; for 1902, forty-one; for 1904, twenty-four; and for 1906, forty-five.

<sup>d</sup>These figures must also be qualified in consequence of incompleteness. The returns for 1897 are from thirty prefectures only; for 1898, twenty-nine; for 1899, twenty-three; for 1901, twenty-six; for 1904, twenty; and for 1906, fifteen.

<sup>e</sup>The figures for 1897 and 1897 are taken from the statistical report of the Cabinet. Those for 1906 were furnished by the secretary of the Statistical Bureau of the Cabinet.

In addition to the articles already referred to there have been other medical studies by Japanese physicians. Among the latter may be mentioned Kurimoto,<sup>16</sup> Matsui,<sup>17</sup> and Tanaka.<sup>18</sup>

V.  
Japanese jurisprudence has, following the example set by other countries, taken as little notice of prostitution as possible. Earlier in the present article has been described the incident which led to the prohibition of the absolute slavery of prostitutes. But through various devices the system lapsed back almost into its former state, and the status of the prostitutes as far as freedom was concerned. Girls who ran away from the brothels were searched for diligently by the police and if found were punished and returned to their keepers. It thus became practically impossible for a girl to abandon an immoral life, even should she so desire. In view of this state of affairs, some American missionaries took an interest in the situation and endeavored, though unsuccessfully, to induce the crown procurator, or attorney general, to take the part of such women as wished to get away from a life of shame. Failing in this, an effort was made to get a test case before the courts. This proved impossible, however, owing to the fact that police rules are issued by the executive authorities, and their validity is not subject to review by the courts. The only way to secure the appeal of a regulation is to petition the department which has issued it. This was manifestly not possible. The law provided that prostitutes could cease their business provided they made a report to this effect signed by the keeper of the brothel. Naturally, as long as the girl was of value this signature was impossible to obtain. The missionaries then sought to secure the freedom of a prostitute desiring to cease her trade on the following grounds: 1. The contracts that bind prostitutes against their will must be declared null and void, because of the immoral purpose involved; 2, even though the financial part of the contract be considered as binding, still a person cannot be deprived of liberty because of debt, for that would constitute slavery; 3, the girl having attained adult age, could not be bound by a contract made by her father while she was a minor, especially when such a contract had the effect of depriving her of her liberty. This case and several subsequent ones were delayed and hampered in every possible way. The courts and police were in constant conflict, though no one seemed to be much disturbed by the situation. For several years various cases dragged along in the courts and injunctions which were issued from time to time were impossible of enforcement. It was not until public opinion was aroused, largely through the

<sup>12</sup>Tatsurabô Yabé, *Nécessité d'une surveillance sanitaire sur la prostitution dans les ports. Sei-Kwai Medical Journal*, Tokyo, 1899, xviii, No. 11, p. 6-12.

<sup>13</sup>Buschan, *Das Sexuelle in der Völkerkunde*. In *Moll: Handbuch der Sexualwissenschaft*. Leipzig, 1912, p. 277-280. The third section of this article is on the Prostitution in der Völkerkunde and has several references to conditions in Japan.

<sup>14</sup>Tatsurabô Yabé, *Nécessité d'une surveillance sanitaire sur la prostitution dans les ports. Sei-Kwai Medical Journal*, Tokyo, 1899, xviii, No. 11, p. 6-12.

<sup>15</sup>G. Murphy, *The Social Evil in Japan*. (Nagoya) 1906, p. 165.

<sup>16</sup>Kurimoto, [The regulation of brothels] *Kokka Igaku Kwai Zasshi*, Tokyo, 1905, p. 769-789.

<sup>17</sup>M. Matsui, [The marriage of prostitutes] *Kokka Igaku Kwai Zasshi*, Tokyo, 1904, p. 805-217.

<sup>18</sup>Tanaka, [Discussion on prostitution] *Iji Kwai Ho Ogata Hyō-in*, etc., Osaka, 1900, No. 98, 4.

agency of the daily press, that any effective action could be taken, and when it was finally arranged that a girl could be free to cease her occupation a new set of regulations were issued by the Home Department. These, which have been quoted earlier in the present article, effectually abolished the situation which had existed. It is interesting to note, however, that in the meantime the courts and police have consistently avoided any legal decisions on the questions involved.

298 METROPOLITAN TOWER.

## EXOPHTHALMIC GOITRE.

### *Report of a Case.*

By S. J. ESSENSON, M. D.,  
New York.

Every physician has seen cases of exophthalmic goitre, but the symptoms are so numerous and complicated that each and every case is a study by itself. The excuse for reporting my case is the interest of the course of the disease and the various predominating symptoms due to thyroidism:

Mr. W. W., about forty-six years of age, born in Russia; had been in this country about sixteen years, a farmer by occupation. He was married to a blood relative and two children were born from the union. The older one was a girl, mentally defective and having heart disease; the younger, a boy, had chronic bronchitis. The previous and family history of the patient was of no interest; there was no lues, no tuberculosis, nor any nervous affection of organic type, but the members of the family I know were all neurasthenics, and their nervous trouble of a functional character. He had never been addicted to alcoholic beverages, but, like most Russians, was a great tea and coffee drinker. His goitre affection appeared fourteen years ago; for the last two years at least had been almost constantly under medical care. For several months in succession he was an inmate of a downtown hospital. About six weeks ago his wife brought him home, where I saw him the first time. He was very weak; complained of pain in chest and abdomen; coughed much and the expectoration was bloody; suffered with headache and dryness of the mouth. He had no desire for food and had a diarrhoea; any food, milk, or medicine was vomited about half an hour after ingestion. He voided very little urine; the first twenty-four hours of my acquaintance with the patient, he passed about eighteen ounces. Urinalysis disclosed only a trace of albumin and some phosphates. On physical examination I found the following condition:

On inspection, extreme emaciation; very marked exophthalmus; the lids did not cover the eyes when closed, especially the upper lids, but vision was apparently unimpaired, even though there was a moderate conjunctival inflammation. The thyroid gland was symmetrically bilaterally enlarged, but the swelling was not very prominent. The tongue was coated. The apex beat of the heart could be seen at the seventh interspace, rather to the right of the sternum. The respiration had a dyspneic character; rate about fifty-six a minute. The temperature fluctuated between 100° and 103° F., morning and evening respectively.

On palpation, the radial pulse was feeble and frequent, between 116 and 120. The artery was hardened and somewhat incompressible. Arrhythmia was very marked, as nine beats could be counted, then it stopped, and was followed by *pulsus bigeminus*. The first one stronger, but lacking the character of the arterial wave. On examination of the lungs I found an increase of vocal fremitus in the superior scapular region. On percussion, the heart dullness was increased vertically on the left side. In the pulmonary region there was dullness at the apex of the scapular on both sides, and scattered areas of dullness between the scapulae. The abdomen was tympanitic. On auscultation, the most striking feature was the marked intermission of the heart beats, the sudden pause followed by two beats,

the first one of a tinkling quality. The apex beat was most distinct to the right of the sternum in the seventh interspace. A systolic bruit could be heard, its maximum intensity at the apex beat. The pulmonic second sound could not be made out with clearness, and the aortic sound was not heard, but a systolic murmur could be made out at the ensiform appendix. In the pulmonary region the respiratory murmur was very feeble, and bronchovesicular in quality at the superior and inferior scapular regions. Crackling râles were heard on both sides with inspiration, resembling crepitant râles. The interne of the hospital from which he was brought (where he had been an inmate for several months) told me that such attacks of pulmonary congestion with threatening edema had before I noticed several times. It had been the custom before I took charge to allow him to sit up or walk around as he pleased; he had no restriction in diet and took great quantities of fluid. Under proper care and precautions, restricted diet, perfect rest, and some medication, the patient improved. In about ten days his cough and expectoration ceased; he had no pain, no tympanitis; his temperature fell to 99° F., the pulse to 75-82, and he breathed more easily. His urine increased to fifty-five ounces in twenty-four hours. In a general way, he looked like a man on the road to recovery. The medical treatment consisted of tincture of digitalis, in drachm doses, small doses of codeine, and occasional intramuscular injections of epinephrin. But the rejoicing of the family over his improvement did not last long, as in about two weeks he had a relapse to his former condition, which I ascribed to an error in attendance, as they allowed him to get out of bed. In addition he had an altercation over family affairs with some of his relatives. I found him one morning very weak and his pulse as intermittent as before. There was also constant vomiting, so that he could not retain any medicine or milk. I had to resort to rectal feeding, and gave him caffeine sodium benzoate, fifteen per cent., hypodermically, as well as morphine and atropine to keep him quiet; but his vomiting ceased only when he was given small doses of cocaine hydrochloride, grain 1/24 to 1/12 every two or three hours. In three days he was able to retain fermented milk and in about a week his condition was again satisfactory. On the advice of his former physician, who had known him for the last fourteen years I gave him small doses of an antithyroid preparation, and then the pulse fell to 60, and was of a better quality than before. The nurse reported to me once that his pulse during the night was 30. I then stopped the digitalis for a time, but the intermittency became worse than ever. I noticed that he would grow weak suddenly, and his pulse fall to 50 or 40 and become very feeble. This was clearly a sign of dissociation of the auriculoventricular junction, either through the hyperthyroidism affecting the bundle of His, the vagus or the breast muscle itself, and I warned the family that the end might be expected at any time. In a few days, however, he regained some strength. The last time I saw him alive he was cheerful and the family hopeful. They did not believe my prognosis correct; but he died during the night, probably in consequence of a heart block.

The greatest interest in this case attaches to the condition of the heart, which was produced in all probability by the oversecretion of the enlarged thyroid. The latter did not effect the nervous system very much. The question in such a case is, If the thyroid had been removed by operation or ligation of the thyroid artery been performed, could the patient have been saved?

20 WEST 119TH STREET.

**Treatment of Blepharitis.**—Wecker, in *Paris médical* for January 25, 1913, is credited with the following ointment for use in these cases:

R Hydrargyri oxidi rubri...gr. vii ss. (0.5 gramme);  
Liquoris plumbi subacetatis...gr. lxxv (5 grammes);  
Olei amygdalæ expressi, .....℥iiss (10 grammes);  
Petrolati, .....℥i (30 grammes);  
M. ft. unguentum.

Sig.: Rub gently on the lid margins, once daily.

# ANTERIOR POLIOMYELITIS; INFANTILE SPINAL PARALYSIS; POLIOENCEPHALOMYELITIS; ACUTE CENTRAL INFECTIOUS PARALYSIS.\*

## *Physical Therapeutics.*

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A disease causing deformity and death, occurring sporadically and in epidemics, having an acute stage, but mostly known by its paralytic after-effects; the result of a specific infection; localized chiefly in the central nervous system, although other organs are involved. The toxemia affects parenchyma of heart, liver, kidneys, spleen, and lymphoid tissues (Robertson and Chesley). Infectious material is not found in liver, kidneys, spleen, bone marrow (Flexner). Bronchopneumonic areas occur (Sachs). The statement made above is not a definition, but calls attention to prominent features of the subject.

The names given as a heading are attempts to cover the pathological and symptomatic range of the disease. Anterior poliomyelitis is the term which will probably be retained, as it points out the chief, but not all the pathology (destruction of cells in anterior spinal gray matter) of the average case. The second name is faulty because infantile patients are few in proportion, the bulk of cases including ages up to twelve or thirteen years, and patients being sometimes far advanced, one sixty-six years old (almost old enough for second childhood). The third name is wider in its range, recognizing that the pathology extends "from the cortex to the sacrum." In fact, since the nasal mucous membrane is proved to be the chief atrium of the disease and this communicates, by means of the lymphatic channels which accompany the short olfactory nerves, with the cerebrospinal fluid at that end of the nerve axis, it is difficult to understand how any part of the central nervous system can escape infection. Variations of this name occur. Holt proposed to call it epidemic myeloencephalitis. The last name, acute central infectious paralysis, is a conglomeration which perhaps covers the most ground and is sufficiently definite. We may add that the extent of the central involvement is shown by many cases reported, such as those by Medin from Norway and Sweden, of cerebral spastic paralysis due to encephalitis with destruction of cortical cells. Clarke reports epilepsy resulting in another case. It is likely, indeed, that we see patients with similar conditions more often than is suspected. We ought also, since the posterior cord is affected, to expect, besides motor symptoms, pain, hyperesthesia and ataxia. In fact, such a disturbance of the sensory part of the reflex arc should be important in its effect upon tone, nutrition, and function. Degenerate cells have been noted also in Clarke's column (Strauss). Other results, not usually observed, but easily understood from the widespread pathology, are spinal accessory par-

alysis, atrophic paralysis of the head and trunk muscles, throat, face, and eyes (Starr), larynx (Tetra), and deglutition, edema of the floor of fourth ventricle and Sylvian aqueduct, and death resulting usually from respiratory paralysis (as occurred in one of my cases).

The varieties of the disease may be considered both from the locality of the lesion and from the symptoms. Four years ago Wickman proposed to distinguish them as follows:

1. Spinal paralysis (anterior poliomyelitis).
2. Progressive paralysis, usually ascending, Landry's.
3. Pontine polioencephalitis.
4. Acute encephalitis, giving spastic monoplegia or hemiplegia.
5. Ataxic form.
6. Polyneuritic, or multiple neuritic.
7. Meningitic.
8. Abortive (with no paralysis resulting).

Other terms suggested are bulbar poliomyelitis (same as pontine encephalitis), the classical, or gastrointestinal type (sixty-seven per cent. of all cases in California) (Gundrum); cerebral and unclassified are suggested by McClanahan, who has chronicled the Nebraska epidemic. Cerebral is the same as encephalitis; there would be some doubt about a special ataxic form, and a question whether the polyneuritic exists at all, the pain and tenderness in these cases being due to posterior cord involvement.

The stages of the disease may be roughly outlined, although no agreement as to their exact division has been arrived at. Incubation in inoculated animals is from two days to five weeks (Flexner) and in the human two weeks (McClanahan; another statement from the Nebraska epidemic is from five to thirteen days). Laborde divides the further progress of the disease into initial (acute) stage, not over one week; stationary, from one to four weeks; regressive, from one to six months; chronic, after spontaneous recovery has ceased.

The question of the infectious period is important; and while this has been considered to be about the same as the acute period, it is better to hold this *sub judice* from the standpoint of prophylaxis and treatment. The virus is associated externally chiefly with nose and pharynx, and the secretion of these parts may be scattered as spray or dust (virulence not destroyed by drying or ordinary temperatures), or swallowed and pass through the digestive canal, or carried on the feet of the domestic fly, or transmitted by the bite of the stable fly or the bed bug (no other insect being under suspicion). We should therefore quarantine the patient from the moment of exposure to, at earliest, sometime after the fever has left. Also, Landsteiner and Popper have proved that there are human passive carriers, and we must regard anyone with suspicion who has come in contact with the disease.

The etiology of this disease embraces climate only so far as wetness or dryness, cold or heat, may influence the vitality of the individual, or lead to infection from overcrowding and bad air in cold weather. Overwork and fatigue in some cases is a factor. A neuropathic heredity is distinctly causative. The early age of most patients may be explained by accompanying weakness, although, be-

\*Read before the Richmond Academy of Medicine, March 11, 1913.





tion of muscles will be important. Results of thirty-nine cases in the regressive and chronic stages, treated during the last two years in my clinic, have demonstrated the value of the methods outlined above.

#### CONCLUSIONS.

Treatment of this disease and its results should embrace:

1. Prophylaxis; mouth and throat hygiene, toothbrush, nonirritating douche and gargle, menthol preparations.
2. Rest, in acute stage, and prevention of fatigue at all stages.
3. As aftertreatment; prosthetic appliances, passive motion, massage, electricity, hydrotherapy, mechanical vibration, exercise.
4. Prevention of crooked spine and keeping up function and growth in damaged members; reeducation of nerve and muscle.
5. Preparation for suitable surgical measures; continuance of treatment after surgery.

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## NEOSALVARSAN.

### *Intramuscular or Intravenous?*

BY ROBERT ORMSBY, M. D.,  
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"Under which king, Benzonian; speak or die." Though things may not be altogether as bad as that yet, I must admit that I never gave an intravenous injection of salvarsan without to a certain and a very appreciable extent feeling disturbed. It certainly always appeared to me that I was playing with edged tools, and, from my point of view, if any disaster occurred to my patient I would feel morally responsible if not actually so. I am now speaking of the injection of salvarsan (in contradistinction to neosalvarsan), but since the introduction of the latter I have abandoned the use of salvarsan altogether, either intramuscularly or intravenously. I used salvarsan intramuscularly only a few times, and when I saw the direful effects which were produced I quickly abandoned that method in favor of the intravenous route. As I said before, I never performed the operation intravenously without some trepidation, yet I was willing to undergo the anxiety and worry incident to that operation rather than run the risk incurred by injecting salvarsan intramuscularly.

With the discovery and introduction of neosalvarsan the whole aspect of affairs was changed—neosalvarsan, introduced either intravenously or intramuscularly, became more or less a matter of daily routine, and on account of its safety became a safe and sane remedy, with none of the gruesome characters of salvarsan. When we remember the amount of detail and care necessarily expended in prepar-

ing for the intramuscular administration of salvarsan and the undoubted element of risk which always accompanied the operation, it was no wonder the operation hung fire and many worthy and conscientious doctors adhered to the use of mercury intramuscularly altogether. These preliminary details bring us to the beginning of the article, intramuscular or intravenous. By which route shall we introduce neosalvarsan? We have, I think, eliminated salvarsan as a remedy; therefore we can dismiss it from consideration. Of course, there will be many opinions, and opinions will be pretty fairly divided, but the more often I use neosalvarsan, the more inclined I become to the intramuscular method. While we had nothing but salvarsan we had no option but to use the intravenous route, because any other method was beset by so many difficulties and dangers, but now we are in a new position, and we find the use of neosalvarsan intramuscularly attended by no danger.

If a six inch quadrilateral of the upper and outer border of the glutei muscles is selected as the site of infection there is very little pain. To further prevent pain I inject with an ordinary hypodermic syringe an ampoule of urea and quinine hydrochloride into the site selected and leave the needle *in situ* for twenty minutes or more. It is the same needle I use for the subsequent injection of the neosalvarsan solution; so I save the patient needless pain by leaving the needle *in situ* while I prepare the solution of neosalvarsan. This employs me for the twenty minutes required for the absorption of the urea and quinine hydrochloride, and if it requires longer than twenty minutes so much the better, because to produce anesthesia in this way it requires at least twenty minutes. It is, of course, absolutely imperative that the instruments used should be scrupulously clean. The ampoules and the files should be left in alcohol, and distilled water be freshly boiled for the occasion. Ten centigrammes of this freshly boiled water, without salt, is to be used for dissolving the neosalvarsan and is amply sufficient. The syringe which is to be used for the injection of the neosalvarsan, and which should be graduated for centimetres, is now charged with the solution and screwed on the needle which has been left *in situ*, and slowly the solution is injected into the same situation occupied by the urea and quinine solution, and the needle withdrawn and the aperture treated *secundum artem*. If these directions are carried out strictly there will, I think, be no doubt as to which method is the best, and you can go to bed at night and, like Macbeth, "tell pale hearted fear it lies, and sleep in spite of thunder."

Martin, of Hot Springs, Arkansas, recommends using larger doses: I recommend giving smaller ones. The only difference is that I demand more frequent injections. Nine decigrammes is most frequently used, but I think this amount excessive, and almost bound to cause reaction and disturbance. Five decigrammes for men and four for women is amply sufficient. Give this dose once a week for four weeks certainly, and then more, if required, and you will have every satisfaction both to patient and physician. A five decigramme injection with the precautions already laid down will

cause no reaction whatever, and there need be no dread of any ill effects. I myself have used nine decigrammes, but prefer the smaller dose frequently repeated. I will leave to others the maintenance of the opposite view, a preference for the intravenous method.

I will close with telling what occurred once in my office. I told a man I was going to use neosalvarsan. I said, in answer to his inquiry, that I was going to insert it into a vein. His eyes at this information became a little larger than good sized saucers. The fright and agitation of this individual were so extreme that I thought that perhaps these were largely responsible at times for the shock and disturbance attending this operation; and then, I think, began my own disinclination to use this method of medication. It is needless to say that I chose the intramuscular method for this gentleman, and he bore it without flinching.

368 LEXINGTON AVENUE.

## INTERPRETATION OF PAIN IN SURGICAL EMERGENCIES.\*

BY LILIAN K. P. FARRAR, M.D.,

New York.

The surgeon of to-day has many aids in diagnosing the acute surgical conditions and arriving at a decision when or when not to operate in a given case. Medical teachings, his general knowledge of surgical diseases, his own experience in operative cases, or the experience of his colleagues, together with the history of the patient and course of the disease, of attacks past and present; the patient's general condition, his facial expression, temperature, pulse, and respiration; blood pressure, blood count, either absolute, relative, or differential; uranalysis and condition of the digestive tract, or menstrual history, are all of importance in making the diagnosis. But the patient has little or no knowledge of surgical diseases; at most it is limited to the experience of some friend or relative with somewhat similar condition. Often he does not know whether he has fever or not, certainly does not know the condition of his pulse or respiration, whether his white cells are increased or diminished, or their relative value; but one factor he has, and when he has it he usually knows it—and that is pain. It is pain that oftenest brings the patient to the surgeon, and it is on the patient's estimate of his pain that the surgeon must rely in making his diagnosis, for no instrument has as yet been devised to measure the amount of nerve irritation produced in any pathological condition. Consequently the surgeon, even after he has had the assistance of the thermometer, the microscope, and the sphygmomanometer and laboratory technic, must often base his judgment of the gravity of the condition on the amount and kind of pain the patient has as it is related to him by the patient, or as he can himself estimate it by the patient's expression. It is from the patient's point of view that I wish to consider to-night a few of the

surgical emergencies that we most frequently encounter—the importance of pain, its occurrence in these emergencies, and what value the patient can give to it as a symptom. As it is the only one constant symptom the patient knows, I shall not consider any other in following the course of a disease, except in its relation to this.

Surgical emergencies: By this we mean surgical cases in which it is considered necessary to operate on, or shortly after, the admission of the patient to the hospital in order to preserve the patient's life. In the last yearly report of Bellevue and Allied Hospitals (Gouverneur, Harlem, and Fordham) there were 6,842 operations, of which 576 were obstetric operations, leaving 6,266 total surgical operations. No record is kept of actual surgical emergencies, but 2,304 laparotomies (or opening of the abdominal cavity), including hernia, were performed. That is, more than one third of all surgical operations in Bellevue and Allied Hospitals for that year were done for abdominal conditions, or what we call major work. If we now consider in this number of 2,304 abdominal cases the three types of cases in which operation was most frequently performed, we find:

	No.	2,304 abdominal cases	758 abdominal gynecological	6,266 all operations
I. Appendicitis—				
Acute .....	416	1 in 54	.....	1 in 15
Chronic .....	68	.....	.....	.....
II. Ectopic gestation...	58	1 in 39	1 in 13	1 in 108
III. Hernia—				
Strangulated .....	54	1 in 42	.....	1 in 116
Chronic .....	567	.....	.....	.....

This does not include all of the acute surgical conditions, nor is it to be considered as a record of surgical emergencies, which would require a more intimate knowledge of the histories of the cases that is neither possible nor to the purpose of this paper; but what I do wish to bring out by these figures is that the three acute surgical conditions for which the greatest number of laparotomies were performed in this year are characterized by pain, and as pain is the chief symptom the patient has by which he may judge of the seriousness of his illness, it is important to have some knowledge of the most common surgical diseases, their course, and possible termination, in order to understand how best to interpret this symptom.

I. Appendicitis. 416 cases, 1 in 54 of 2,304 abdominal cases, 1 in 15 of 6,266 operations.

On the right side of the body, on an imaginary line from the umbilicus or navel, to a bony point on the right hip, called the anterior superior spinous process of the ileum, and two inches from this process, is McBurney's point, first described in 1886 by Dr. Charles McBurney, of this city, as the place where lies the famous narrow "round part of the intestine," as Gray, the anatomist, calls the appendix. The appendix of the cecum, as it is called from its attachment to that part of the intestine known as the cecum, or the wormiform appendix, from its wormlike appearance, is in its normal condition about three and one quarter inches long (its extremes being from one to nine inches), and from five to six millimetres in diameter, resembling in appearance the garden worm boys dig for bait. One end opens directly into the cecum, the other is closed at the tip, and lies free and normally unattached in the abdomen. It is sometimes found

\*An address delivered under the auspices of the Public Health Education Committee of the Medical Society of the County of New York, at the New York Academy of Medicine, February 5, 1913.



pointing inward, at other times upward, or lying behind the cecum and then turned upward, again downward and inward, or directly downward into the true pelvis. It consists of two layers of muscle covered with peritoneum, which is the mucous membrane lining the abdominal cavity and covering over the intestines, and it is also lined with mucous membrane, which is continuous with that lining the cavity of the cecum.

Clinical varieties of appendicitis: There is no arbitrary way of dividing appendicitis into classes until the appendix reaches the pathologist, but the general surgeon classes the inflammation under one of five or six divisions, according to the severity of the symptoms.

1. Colic of the appendix: Characterized by sharp attacks of pain in the region of the appendix, occurring in patients who have an appendix bound down by adhesions, with the tip often bent upon itself and attached to some neighboring portion of the intestine, or to the tube or ovary, with resulting permanent kinks in the appendix. Often colic is due to strictures or narrowing of the lumen of the appendix, as the result of obstruction following such an adhesion or kinking. Often atrophic retrograde changes in the appendix are the cause of severe intestinal colic. If the organ is removed at this stage, there is usually no inflammatory change found microscopically in its tissue. This attack may be the first and last suffered by the patient, or there may be an interval varying from years to a few days or usually weeks, and then a second similar attack, or series of attacks, occurs. In the interval the patient may be entirely free from pain, or experience a slight soreness or a bruised feeling in this region. If constipation occurs, this soreness may be increased. Often women notice the occurrence of pain only during the menstrual period, and the pain passes for dysmenorrhea, or painful menstruation, while the real source of pain is the appendix, which becomes more painful at the time when the pelvic organs are normally congested.

2. Catarrhal appendicitis: This may be a later stage of the first condition, or the initial stage. The mucous membrane lining the cavity is congested, showing a mild degree of inflammation. Pain is less acute than in colic of the appendix, but the symptoms are of longer duration and greater soreness follows. Subsequent attacks may occur at long or frequent intervals, with pain perhaps entirely absent, or present in but slight degree, during the interval.

3. Ulcerative appendicitis: (a). Without abscess. This is an acute suppurative condition, the wall being invaded by bacteria, with resulting localized peritonitis. In the wall of the appendix is an ulcerated spot, usually at the site of an old constriction, or where a concretion is enclosed in the appendix. The wall is thinned at this ulcerated area, and easily perforated if early operation is not performed. Pain is severe and constant in this type. During the interval of acute attacks a sore, tender area is usually present at or about McBurney's point. The patient naturally protects that side instinctively warding off a possible blow or injury. sits or walks with greater caution, and is subject to sharp, knifelike pains directly through the body. Palpation of this region evinces acute pain, the

muscles becoming rigid to guard the sensitive organ.

(b). With abscess: Infection progresses sufficiently slowly for Nature to form a limiting barrier or membrane, and wall off the infection at this ulcerated spot from the general abdominal cavity; and an abscess forms about the appendix which may be now in its ulcerated condition or, in severe cases, have become gangrenous and sloughed off from the intestine. This abscess wall, if not opened by the surgeon, may burst and infect the general abdominal cavity, with general peritonitis or pyemia resulting. If recovery follows, other attacks are liable to occur, until the diseased appendix is removed.

4. Acute perforation of the appendix: This occurs in appendices where there are old ulcerations or strictures. The onslaught is so sudden that Nature does not have time to wall off the intestine with an inflammatory membrane, and so limit the infection to the region of the appendix. The infectious material is poured out from the perforation in the appendix into the general abdominal cavity, and general peritonitis follows. This form of appendicitis is characterized by sudden onset, the most intense pain, with symptoms of collapse. The course may be either recovery or peritoneal septicemia with symptoms of profound toxic poisoning, without much pain or tenderness in its terminal stages.

Conclusion: Fortunately Nature usually gives ample warning. There is rarely an overwhelming fulminating infection where there has not been a history of previous attack, or several attacks, and sufficient time for operative measures. The colicky or sharp pain of the early invasion, and even the soreness, pass off, and, with each successive illness lived through, the hope and expectation grow that each attack will be the same as the others—even though the guide, pain, is more acute, more persistent, with each recurrence.

II. Ectopic gestation: 58 cases; 1 in 39 of 2,304 abdominal cases; 1 in 13 of 758 gynecological abdominal cases; 1 in 108 of 6,266 operations.

The term, ectopic gestation, derived from the Greek *ἐκ* (out of) and *τόπος* (place), is used to describe gestation which occurs anywhere but in the uterus or womb, i. e., out of its normal place. We speak of an interstitial pregnancy, or pregnancy in the wall of the uterus or in one horn of a malformed uterus; of tubal gestation, as gestation in the tube attached to the uterus; ovarian, if in the ovary; or abdominal, if development has gone on in the abdomen. The terms "false conception" or "missed conception" were commonly used before the nature of this condition was known. Gestation is neither false nor missed, it is simply ectopic, or out of place. The pelvic organs in women consist of the uterus and two ovaries, one on either side, attached to the upper portion of the uterus, and between each ovary and uterus on either side is a narrow hollow tube of about three inches in length, and from eight to fifteen mm. in diameter (or the size of a lead pencil) composed of muscle lined with mucous membrane and covered with peritoneum, resembling somewhat the appendix in appearance. One end opens directly into the uterus; the other end is patent, and into this the ova are conveyed

from the ovary to the uterus. The ovum is commonly impregnated in the outer one third of the tube, and passes then into the cavity of the uterus. If now, for any reason, the impregnated ovum, which is to become the fetus or child, is prevented by a constriction or kinking of the inner portion of the tube from entering the uterus, as it normally should, development of the ovum then goes on in the tube, which is not constructed to receive it. The wall of the tube is thinned and stretched by the growth of the ovum, and, except in rare instances, rupture of the tube or expulsion of the ovum through the abdominal end of the tube occurs with severe shock and internal hemorrhage. If the condition is not recognized and an operation performed, death may result from the internal hemorrhage. In early cases the blood may clot and check the flow, especially if only a small bloodvessel has been opened. If the ovum has been destroyed, in an early case, there may be an absorption of tissue, but usually the patient goes on to a second hemorrhage, or repeated hemorrhages, with greatest danger of a fatal termination—or, if recovery, peritonitis, possibly later suppuration and ulceration through other tissues, or may persist indefinitely as a sac containing the fetus.

Conclusion: The symptoms to give warning of this condition are rarely absent. Usually a menstrual period is overdue, or one of two periods even have been missed, with intermittent flow and attacks of sharp, lancinating, tearing pain in one side or toward the back. A persistent aching, sore feeling is left after the bright blood or the brownish discharge has ceased. The patient often considers she has had a threatening or completed miscarriage, and neglects the symptom of pain—the indication that gestation is still going on.

III. Strangulated hernia: 54 cases; 1 in 42 of 2,304 abdominal cases; 1 in 116 of 6,266 operations.

Hernia is the condition commonly known as rupture. The word is derived from *ἔρπον*, a "sprout," and in the surgical use of the word means a tumor formed by a portion of an organ (hence the term "sprout") or an entire organ which has escaped from the cavity in which it is usually contained, either by forcing its way through a natural opening or by making for itself a new opening, until it comes to lie outside the body cavity or within some other cavity. The most common form of hernia, and the one we shall consider to-night, is abdominal hernia, of which there are several varieties, according to the abdominal opening through which the organ has escaped, 1, inguinal; 2, femoral; 3, umbilical. These three openings are normal for the passage of 1, the cord or round ligament; 2, the bloodvessels and nerves; and 3, for the umbilical cord in fetal life, but they should not be open sufficiently far for the passage of any other organ or portion of an organ. If for any reason there is a weakness at any one of these openings, and undue pressure occurs, as in heavy lifting or straining, a portion of the bowel or omentum (even appendix, bladder, tube, ovary, and, in rare instances, uterus) may enter into one of these openings, carrying ahead of it a fold of peritoneum, and, thus forcing its way between the muscles, passes through the abdominal wall until it lies outside the body just under the skin. This pouch of peritoneum which the omen-

tum or intestines has pushed out of the body cavity, and within which it lies, is called the "sac" of the hernia, and its narrow part, where it passes through the opening in the abdomen, is the "neck" of the hernia. If this tumor can be pushed back again into the abdomen, we say the hernia is "reducible"; if it cannot be pushed back it is "irreducible." If there are symptoms of intestinal obstruction, (i. e., the contents of the bowel cannot pass through the loop of prolapsed intestine), the hernia is "obstructed" or "incarcerated." If now the constriction in the neck of the sac is so great as to interfere with the circulation, the hernia is "strangulated," and as its blood supply is cut off, the destruction of this portion of bowel soon begins and gangrene quickly follows, with resulting sloughing of the strangulated loop.

1. Reducible hernia: In this type of hernia pain is only a slight or negative factor. As the bowel enters the sac, or is pushed back into the abdominal cavity, there may be a momentary feeling of pain or discomfort, but on palpating the mass it is insensitive and examination gives no increase of pain, as in tumors in the same region.

2. Irreducible hernia: As long as there is no obstruction to the passage of the contents of the bowel there may be no feeling of pain, or only slight discomfort or a dragging sensation. On examination, the mass is insensitive, and only attempted reduction causes pain. Many cases go on for years with no further symptoms, but if at any time the adherent bowel becomes clogged, and the passage of the contents arrested, or if the omentum which is in the sac has its blood supply cut off, the third type occurs.

3. Obstructed or incarcerated hernia: The tumor is now increased in size and markedly painful, pain being severe even if the patient is at rest, and no palpation of the hernia attempted. If the obstruction is not soon relieved, either by the contents of the bowel passing on through the intestine, or by the surgeon's opening the hernial sac and allowing them to make their escape, or the circulation of the omentum or other organ to be restored to normal, the fourth type results.

4. Strangulated hernia: The condition is now most serious, the patient suffering intense pain, and immediate relief for the imprisoned loop is necessary, if it is to be saved, or, even if amputated, if the patient's life is to be saved. If help is not given, gangrene follows, and with its occurrence there is a cessation of pain: the feeling of relief is often now so great that the patient hopes the condition has improved for the better, but collapse and death soon follow.

Conclusion: Pain is, therefore, in hernia, an index of the inflammatory process going on in the tumor. While the passage of the fetal contents is undisturbed, and the circulation not interfered with, pain is light, if present at all; but with disturbance of contents or blood supply, the pain increases in proportion to the disturbance until actual death of tissue results.

Final conclusions: In following the course of three of the most common acute surgical conditions I have endeavored to show that the inflammatory process going on in acute surgical diseases is accompanied by characteristic pain—that pain

definite in character has a definite cause. Nature does not permit any severe injury to the body tissues without sending a message of protest. The nerves of the body are the wires of transmission, and lie quiescent if the tissues are in a normal state. But if the tissues have received insult or injury, the nerves take up their work of transmission. By the report of pain the surgeon is able to locate the organ affected, to judge the degree of injury, and to give a prognosis of the result, whether he can see the inflammatory process in the organ affected or not, for the process is the same in whatever part of the body it is found. The hernia one can see enlarge and redden as it becomes obstructed is no more dangerous to life than the ulcer eating its way through the wall of the appendix to pour its infection into the unprotected abdomen, or the ectopic gestation opening up bloodvessels preparatory to a fatal internal hemorrhage, but it is much easier to convince a patient of the urgent need of an operation in an obstructed hernia than in an acute appendicitis or ectopic gestation. Consider 416 cases of acute appendicitis, 68 cases of chronic appendicitis, in comparison with 54 cases of strangulated hernia and 567 cases of chronic hernia. Unlike the experience of our childhood, when the things we could see were not half as fearful as the things hidden in the dark, pain plus the sight of a tumor undoubtedly influences to operation far oftener than pain hidden in the abdominal cavity, even though that pain may be of a much more severe type; but the suppurative process goes on equally inside or out and Nature's messenger records the pain, as a guide to him who will read her well.

40 WEST NINETY-SIXTH STREET.

### Prize Essays.

There are no questions in this department are answered in "Prize Essays." So far as the prize has been awarded upon the following questions are as follows:

CXXXVI.—How do you treat burns? (Answers due not later than July 15th.)  
CXXXVII.—How do you treat threatened abortion? (Answers due not later than August 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Any answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to question CXXXVII has been awarded to Dr. John H. Shaw, of Philadelphia, whose article appeared on page 38.

### PRIZE QUESTION CXXXIV.

#### THE TREATMENT OF MUSCULAR RHEUMATISM.

(Concluded from page 33.)

Dr. Meyer A. Rabinowitz, of Brooklyn, N. Y., says:

Muscular rheumatism is a dangerous diagnosis for a conscientious physician to make. The correct diagnosis may be either aortic aneurism, cancer of the pleura, tabs, osteomyelitis, spondylitis deform-

ans, bone tuberculosis, syphilitic periostitis, lead poisoning, morphine habit, alcoholic neuritis, trichinosis, gonorrheal sepsis, onset of an acute infection (typhoid, influenza, variola, anterior poliomyelitis, meningitis), intestinal autointoxication, sacroiliac joint relaxation, local disease of muscle, hematoma due to trauma, hematoma following vascular change (as in typhoid, sepsis, jaundice), muscular cicatrices following fibrous myositis, atheroma of arteries in muscle (as in intermittent claudication), muscle abscess, infarct, gumma, echinococcus cyst, or new growth.

Treatment begins with diagnosis, and the diagnosis of muscular rheumatism must be made by exclusion. It is usually of acute onset following exposure and fatigue and the muscles affected—usually neck, back, or chest—are painful on movement and tender on pressure.

During the acute stage, within the first twenty-four hours, the following will cut short the disease:

1. Hot mustard foot bath; then to bed.
2. Plenty of blankets about body and hot bottles to feet.
3. Dover's powder, one dose of ten grains for adult and plenty of fluids.
4. A brisk saline cathartic; restricted fluid diet.
5. Internally if necessary to relieve pain and temperature, and induce perspiration, full doses of sodium salicylate.
6. A hypodermic injection of one fourth grain of morphine sulphate over site of pain, if very violent and acute.
7. Locally, over site of pain, dry cupping or a few leeches.

In the subacute stage:

1. Diet. Reduce proteids, increase fluids, vegetables and cereals.
2. Drugs:
  - (a) Add potassium iodide, five grains, three times a day to the sodium salicylate.
  - (b) Acetphenetidin, three grains every three or four hours if an analgesic is needed
  - (c) No codeine, morphine, opium, for the drug habit if fastened upon the patient is much worse than the original pain.
3. Locally, the following are of decided value:
  - (a) Massage, especially following hydrotherapy, and using a liniment as a lubricant.
  - (b) Liniments—usually combinations in various proportions of tincture aconite, turpentine, chloroform, ether, and alcohol.
  - (c) Belladonna plaster may be left on for several days.
  - (d) Mustard pastes.
  - (e) Electricity.

(f) The actual cautery is an excellent counter-irritant. Use a smooth broad platinum point at white heat, applied with rapid strokes, broadly and superficially, only for an instant. This is especially applicable in muscular rheumatism of the back.

(g) Injections of physiological saline to the amount of from five to ten cubic centimetres, at most painful points in muscles are of decided and rapid benefit.

(h) Hydrotherapy is placed last, but is not least in value. Hot pack—electric or hot air—locally until perspiration is excited. Circular douche 95° F. follows for one minute; then Scotch douche lo-



cally at 110° and 70° F. for one or two minutes, ending with massage, striking and kneading the muscles for twenty minutes.

*Dr. Lionel C. Charbonneau, of Brooklyn, N. Y., remarks:*

The word rheumatism is employed indiscriminately by the profession to cover conditions bearing no relation to the etiology of muscular rheumatism.

When will physicians become specific in their nomenclature, more deliberate in their physical examinations and erudite in diagnosis? A little more painstaking, a little less hurry—and many perplexing situations would be avoided. Frequent uranalysis, constant use of the sphygmomanometer, systematic application of the stethoscope and paying particular attention to detail would strengthen the medical man in his profession—enlarge his clientele. There would be less cry against hospital and dispensary abuses. The poor we always have and hospitals, dispensaries, and contract work must ensue. Another word before coming to my subject. Our institutions of medicine are responsible for the pitiable lack of psychic, mental, organic, and physical therapeutical knowledge possessed by graduates in medicine. If our professors in therapeutics did less unreasonable questionings and listened more to the smothered inner voice of conscience, left their preconceived ideas in the background, showed less prejudice, the mental growth of our graduates would not be stunted in physical, organic, and mental therapy.

Given a case of acute muscular rheumatism, with some fever and rapid pulse, the patient is put to bed, small doses of calomel are prescribed, followed by a saline. Sodium salicylate and double the quantity of sodium bicarbonate are given every two or three hours in one half a glass of vichy. The patient remains in bed for from one to four days. The diet consists of milk, fruit, and gruel. If pain or soreness continues after the fever is under control a mild and moderate massage is given, followed by the use of an ointment of

R Methyl salicylate, .....	5ii.
Menthol, .....	5i.
Tincture of capsicum, .....	℥xx.
Ointment of rose water, q. s. ad. ....	3ii.
M. S. To be smeared over painful areas.	

Patients with acute or chronic muscular rheumatism without constitutional disturbances, if possible, are treated at the office. At times a lumbago is so severe that the patient cannot be moved. Large doses, from ten to twenty grains, of sodium salicylate, in one half glass of vichy is given each hour until relieved, then if the least soreness remains the patient is sent to the office for further attention.

The most frequent varieties of muscular rheumatism are lumbago, torticollis, pleurodynia, and rheumatism involving the muscles of the scalp. Uranalysis invariably shows that the waste and nitrogenous products are freely absorbed, there is intestinal indigestion, and in acute cases history of exposure to excessive cold or heat and draft. In acute cases the diet is limited to fruit, vegetables,

soups, bread, and butter, and plenty of vichy and exercise in the open air is strongly urged.

In lumbago the 500 candle power lamp is applied to painful area for fifteen minutes, followed by the static wave current for twenty minutes and concluding the treatment by giving long sharp sparks from the brass ball electrode from one to two minutes. Acute lumbago is frequently cured with one such treatment; chronic cases require from one to four weeks.

In torticollis, the high frequency current with the vacuum tube, emitting a one half to one inch spark, continued in light contact with the skin from ten to fifteen minutes, given each day until cured. The same technic holds good for pleurodynia or the muscles of the upper or lower extremity. The treatment for muscular rheumatism of the scalp, if there is an abundance of hair, is different in technic. Place the patient upon the static platform, shoes off. The static wave is given, with the multiple pronged electrode in the operator's hand, sweeping the electrode over the scalp, the treatment lasting from ten to fifteen minutes.

All chronic cases of muscular rheumatism are given autocondensation from twelve to twenty minutes, 400 to 800 milliamperes administered. Solution of nuclein, five minims, or desiccated thyroid gland, one grain three times a day. The following capsule at bedtime:

R Phenolphthalein, .....	5i.
Acid sodium oleate, .....	gr. xl.
Menthol, .....	gr. xx.
Salicylic acid, .....	gr. xxv.
Magnesium carbonate, .....	3iss.
M. Divide in capsules, No. xl.	

Meat and eggs cut down and sometimes discontinued while under treatment.

In two cases of chronic muscular rheumatism of years' duration the patients failed to obtain absolute relief under medicinal, dietetic, physical, or vaccine treatment, hypodermic injections of a twenty-five per cent. solution of magnesium sulphate, twenty minims, three times a week, cured the one in four weeks, the other in six weeks. These were treated and discharged cured in 1911 and have remained free from stiff or sore muscles since. Physicians not in a position to treat with electrical modalities will often obtain brilliant results by giving mild and moderate massage over painful areas—the process is slow, but satisfactory.

### Therapeutic Notes.

**Treatment of Anemia in Children.**—H. Lowenburg, in the *American Journal of Diseases of Children* for September, 1912, advises the administration of intramuscular injections of the following preparation in severe cases of anemia in children:

R Ferri citratis, .....	gr. 3/10 (0.018 gramme);
Sodii cacodylatis, .....	gr. 1/2 (0.03 gramme);
Sodii glycerophosphatis, }	aa gr. 1/2 (0.03 gramme);
Aque destillatæ sterilisatæ, ..	℥ xx (1.25 gramme).
M. ft. solutio.	

Weekly or biweekly injections should be given. The site and especially the manner of injection are

important. The needle should be thrust deeply into the muscles on the posterior and outer aspect of the arm, and its direction should be at right angles to the skin surface. A slight stinging sensation should alone result. A rapid increase in the hemoglobin and erythrocytic count results from the injections.

**Treatment of Hepatic Abscess in Amebic Dysentery.**—Chautifard, in *Bulletin de l'Académie de médecine* for February 25, 1913, reports a case of hepatic abscess with bronchial fistula of five months' standing, due to amebic dysentery, in which subcutaneous injections of emetine (hydrochloride probably, though the salt used is not mentioned), as recently recommended by Rogers, gave most excellent results. The patient had been expectorating bloody material to the amount of from one half to one pint daily, was feverish, and had two or three loose bowel movements daily. Though the case was about to be operated on, it was decided to try emetine first. Six injections of 0.04 gramme (two-third grain) each were given in the course of five successive days, two being administered on the third day.

On the second day the patient already felt distinctly better. Although even on the first day the amount of expectoration was somewhat lessened, on the third day it was reduced to two ounces and on the fourth to one and one-half ounce, while on the fifth the patient expectorated but three times in the entire twenty-four hours, this being, in fact, the last sputum obtained from the case. The temperature fell to normal on the second day and remained normal subsequently. The blood examination showed corresponding improvement, an ulcer previously observed in the rectum promptly healed, radiography showed a return of the lower pulmonary area and diaphragmatic vault to normal, and the patient gained in weight. The results were so prompt that no other explanation seems to the author admissible than that of a direct *therapia sterilisans*. Six weeks after the treatment had been discontinued there was no sign of recurrence.

The injections caused but little pain and no local induration, no anorexia, nausea, malaise, change in the pulse rate or significant fall in the blood pressure were noted.

**A Substitute for Kuhn's Aspiration Mask.**—T. W. Williams, in the *Journal of the American Medical Association* for March, 8, 1913, states that all the benefits from Kuhn's mask can be obtained in a simple manner by breathing through a section of a small catheter (about No. 16 French), or a straw or quill. As with the mask, the result is a gradual, deep inspiration; the air is then held a few seconds and suddenly expired. Negative compression of the lungs is thus produced, and blood sucked from the right chamber of the heart into the lungs. When the heart is weakened and tired by overexertion for instance, and there is pain from overdistention of the right chamber, if the patient will lie down for five minutes and breathe in the manner described through a quill toothpick or even through his teeth, immediate and remarkable relief will be experienced. The procedure is also often efficacious in nervous excitement and insomnia, and it is the author's custom to instruct anemic and nervous pa-

tients to carry it out for five or ten minutes upon lying down at night.

**Prevention and Treatment of Cutaneous Affections in the Insane.**—To A. Luther (*Journal of Mental Science*, January, 1913) is credited a discussion of the skin affections occurring in the insane as secondary results of treatment by prolonged baths and the wet pack. In furunculosis, this author paints each commencing furuncle and the adjacent parts with five or ten per cent. salicylic acid collodion. If this treatment is employed early enough the furuncle in most instances dries up; in other cases, where it has gone on to softening, it remains small and only a little thin pus forms. Painful tension is speedily removed, and there is a high degree of probability that further infection will be prevented. When painted with tincture of iodine, furuncles will often shrivel; in adopting this plan the use of water must be absolutely avoided.

Where eczema occurs, no course is open but to discontinue the baths; powders and a desiccating paste will then bring about a speedy cure.

In ringworm, Luther has found a five to ten per cent. chrysarobin collodion very useful; in recent cases one daily painting generally suffices. Tincture of iodine yields far less certain results.

A measure useful in the prevention of these diseases and which permits of the continuance, in part at least, of hydrotherapy in the form of the wet pack, is to substitute for water partial or complete packings with a three per cent. boric acid solution. If the cloths are allowed to dry on the patient the acid becomes deposited on the body in the form of a fine powder, which acts subsequently as a certain protective against infection. If an excessive loss of heat in decrepit patients is apprehended the solution can, of course, be applied warm. Equally as satisfactory results can be obtained in the case of the prolonged baths in adding boric acid to the water; in this connection, however, expense is an objection. Bath eczemas are, as a rule, readily cured by the boric acid pack treatment, and the latter does not contraindicate painting with salicylic or chrysarobin collodion if sufficient time is given for drying.

**Value of Atropine in Gastric Affections.**—Pletnev, in *Semaine médicale* for March 26, 1913, is credited with the statement that while atropine can at best only constitute a symptomatic measure in the treatment of stomach disorders, it deserves to be much more widely employed than has hitherto been the case. Where gastric acidity is increased, atropine will reduce it indirectly, viz., by diminishing the amount of gastric juice secreted, so that a greater proportion of it will be neutralized by the alkaline mucus present. In pyloric spasm atropine also gives relief, probably in part by reducing acidity, but also by a direct "antispasmodic" action, as is indicated by the fact that hourglass contracture of functional origin is similarly removed. In cases of overacidity or gastric ulcer pain is favorably influenced by atropine, which is preferable for this purpose to morphine because the latter, after temporarily reducing the secretion of gastric juice, excites glandular activity.

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SUMMER DIARRHEA AND ITS TREAT-  
MENT.

In our last issue Doctor Lederle, president of the New York Board of Health, gave an outline of the efforts of the board in recent years to reduce infant mortality. That these efforts have been attended with good results—a large share of which is of course to be credited to the progressive work of pediatricians and hygienists—is graphically shown by the fact that while the death rate from diarrheal diseases for 1,000 children under one year was 44.28 per cent. in 1902, in 1912 this proportion had been reduced to 26.39 per cent. Encouraging as these figures are, however, there is ground for the belief that they could be materially improved if modern methods in the treatment of the diarrheal diseases which are familiar to specialists were resorted to more generally—methods which have given death rates, for the number of cases treated, below those usually obtained.

Limiting ourselves to those measures which have won the sanction of many careful observers, and also to the form of infantile diarrhea which by far causes the greatest number of deaths—that due to the toxins of pathogenic bacteria—we will describe those which are often neglected in the general field.

That the time honored dose of castor oil, to clear

the intestinal tract of its pathogenic contents, is increasingly being replaced by calomel, owing to its antitoxic and bactericidal virtues, is familiar to every practitioner; but the trend of modern thought is to adjust the use of this agent to the *status presens* of the patient. Thus, as taught by Lesage, patients who have high fever, foul smelling though not abundant stools, and considerable tympanites, will do best if given one grain (for infants under one year, and two grains for those over that age) at one dose, while patients with low fever and copious diarrhea, although the abdomen is soft, show better results when from 1/10 to 1/15 grain is given every half hour or hour until ten or twelve doses have been taken.

A second feature too often overlooked is that milk favors the multiplication of intestinal pathogenic bacteria, unless the infant be breast fed; the milk under the latter conditions being antitoxic—the opposite of cow's milk after it has left the udder several hours. Hence the fact that artificially fed infants do best, when suffering from bacterial diarrhea, when nothing but water is allowed until the symptoms of intoxication subside. This should not, however, be allowed to weaken unduly the infant or cause material emaciation. When feeding can be resumed, white of egg, which, as is well known, is a nutritious and readily assimilated proteid, is to be preferred as soon as the stools lose their offensive odor. Finkelstein's *Eiweis Milch* (casein albumen milk) is preferred by some, however, when there is marked weakness or emaciation. It is prepared as follows: A tablespoonful of essence of rennet is added to a quart of milk, which is then placed in a water bath at 108° F. for one half hour. It is then filtered slowly through cheese cloth. The coagulum is washed twice in a pint of water through a fine sieve, and forced through by beating with a wooden club. Then one pint of buttermilk is added. This is given in quantities corresponding to the usual feeding mixture indicated at a corresponding age.

Less complicated and probably quite as efficient is buttermilk, which is increasingly gaining advocates. Swarming as it is in its raw state with lactic acid bacteria, which have an inhibitory action on the development of other germs, it is especially efficient when the intestinal pathogenic organisms persist after the preliminary purgation and water diet. Besides, it is very nutritious and inexpensive. The infant will often refuse it, owing to its taste, but as recommended by Blackader, this may be obviated by adding cereal gruel and five grains (0.3 gramme) of cane sugar to the ounce of buttermilk. The latter may or may not be pasteurized. Morse obtained excellent results from pasteurized butter-



milk, and prefers it to all other milk foods. We are inclined to look upon pasteurization as a drawback, since it tends to impair the activity of the lactic acid bacteria.

It is perhaps unnecessary to emphasize the fact that cases differ and that the best results are obtained where a careful diagnosis has been made. Prophylactic and hygienic measures are also potent auxiliaries, but most potent of all in the prevention of infantile diarrhea is breast feeding, breast milk itself being a powerful antitoxic.

### THE COLLEGE OF SURGEONS.

The College of Surgeons presents something new as an American medical society. Its object is not only "to elevate the standard of surgery" in common with all other surgical associations, but also "to provide a method of granting fellowships in the organization, and to formulate a plan which will indicate to the public and the profession that the surgeon possessing such a fellowship is especially qualified to practice surgery as a specialty." Its members are to be known as Fellows, and they are urged to append the letters F. C. S. to their names on professional cards and elsewhere to indicate their membership.

Few of our readers will be inclined to deny that both the profession and the public need some means by which to determine whether a would be practitioner in a surgical specialty deserves their support or not; so we welcome the college as an attempt to fill this need. The plan is to list the names of all practitioners who are competent to act as specialists in general surgery, or any of the surgical specialties, to give them a title by which they can be recognized as such, and to formulate requirements to be met by future candidates for admission which are proposed to be sufficiently exacting to render the F. C. S. equivalent to a special degree in surgery. The fact that it seems to have been taken bodily from the custom of our British brethren should not weigh for or against it, but we believe that if the college is to succeed it must win the support and the confidence of the profession at large, which seems to be noncommittal at present. To do this it must make clear the benefits to be derived by the general practitioner from the organization.

We do not believe that the founders have any intention to create a monopoly of surgical practice, yet it is not difficult to read such a purpose into the report of the proceedings at their meeting, which contains nothing definitely protective of the rights of the general practitioner. We feel sure that they do not wish to debar any surgeon from the practice of such surgery as he is competent to perform, and

that they would be the first to condemn risking life in an emergency by delay in order to secure the presence of a more skillful surgeon. In almost every small community of physicians one of their number has proved to be a better surgeon than the rest, and furnishes valuable services as such, although his opportunities are too few to enable him to compare favorably in skill with the city specialist, and we do not believe that the college wishes to stop him in his good work. If we appreciate the intention rightly it is to provide for the recognition of certain specially trained men as specialists and to prevent untrained men from posing for what they are not, so it would seem wise if the statement were made in positive terms that no wish exists to arrogate to the Fellows the exclusive practice of surgery.

A very serious objection to the plan presented is that it affords an opportunity for a certain set of men to brand as incompetent, by refusing them admission, others as competent as themselves. We would not be understood to intimate that the gentlemen who are at present entrusted with the passing on the merits of candidates for admission to the college would do this knowingly or willfully, but they have the power to do so, and history tells us that such power has been abused in the past. It is possible for fifteen men to form a clique which will control the actions of so large a body as this in a manner highly detrimental to the best interests of the profession, and to render the possession of the titular letters more a matter of favor than of merit. This seems to us to be a source of serious danger that needs to be guarded against. It is another matter that these gentlemen cannot be personally acquainted with the merits or demerits of all candidates, and may be misled; so far as this is concerned mistakes are to be expected in every human undertaking.

Finally, the information conveyed by the letters F. C. S. is inadequate and may be misleading. The college includes not only general surgeons, but also ophthalmologists, otologists, and others who pretend to no special skill outside of one limited branch of surgery. Incompetent self-styled specialists in various surgical specialties abound and rely for success mainly on their social qualities as "good mixers." The public has no means of distinguishing them; the profession a very imperfect one, through consideration of hospital appointments and society memberships. A certificate of study for six weeks or more, or an appointment on the staff of a hospital, is an invaluable asset for such a man, for the certificate is seldom read in full, and the appointment, though only that of a clinical assistant, carries the prestige of the hospital to support his as-

sumption of skill. At the school, or in the hospital, he may be considered an ignoramus and never allowed to do the most trivial operation without careful supervision, yet, outside, his pretensions are accepted, he performs serious operations, and it often takes years to disabuse the minds of his confrères and of the community as to his merits. We need a means of distinguishing the competent from the incompetent ophthalmologist, or otologist, quite as much as of marking the specially trained general surgeon, but here the plan of the college fails; it groups all competent specialists, as well as general surgeons, under the one title F. C. S. If it is wise for us to depart from our traditions, and to have specialists append certain letters to their names, we should be sure that those letters cannot be misunderstood. It would be better that the college should follow the spirit of the founders of the Royal College, rather than the letter of their proceedings, and mark each Fellow for what he is as a specialist. The F. C. S. could be given a Fellow who is a general surgeon, other letters to Fellows in the various specialties; then the profession would receive some real help from this organization.

#### THE DEATH RATE AMONG THE FEEBLE MINDED.

Basing their results upon the mortality of four thousand cases of idiots and feeble minded observed by them, L. Pierce Clark and W. L. Stowell reached the conclusion (see our issue of February 22d) that the feeble minded of all classes are shorter lived than those of normal intelligence. They divided the patients into two groups, those whom they called idiots and those of a higher grade whom they called simply the feeble minded. Among the former the death rate for a period of nine years was 19.6 per cent. Among the latter for the same period it was 6.5 per cent. During the same time and at the same place nearly eight thousand children of normal mentality were treated. The mortality among these was 3.38 per cent. This was an excellent control and makes the conclusions of these writers as to the comparative death rate of normal and feeble minded of great value, for under the same management and service, and during the same period, the comparison of the death rates is pre-eminently fair. Thus it appears to be unquestionable that the death rate of the feeble minded is double that of normal children.

A closer analysis of the figures which these observers furnish brings out the interesting fact that if the feeble minded succeed in passing the age of twenty their expectation of life is better than that of normal individuals. This is probably because

institutional life serves to protect them against the infections, accidents, and acquired ailments to which the general adult population is exposed. The greatest divergence occurs in early childhood. At the age of three the feeble minded are six times more likely to die than are normal children. The disparity keeps up in a lessened degree until the "teens" are reached, when there is very little difference between the defectives and the normals. The lower the grade of mentality the higher the death rate. Thus, idiots have much less chance of reaching adult life than have morons and high grade imbeciles. The causes of death are exceedingly varied. Sudden death, or death after a very short illness, is exceedingly common. Idiots of the Mongolian type are especially apt to die young, and they have a habit of dying without warning. Pneumonia is a common cause of death in all types. Tuberculosis is also a frequent occurrence and, according to some observers, causes death in nearly forty per cent. of the cases. In the series reported by Clark and Stowell, tuberculosis was not of such frequent occurrence, this disease having been responsible for only ten per cent. of the total.

As feeble mindedness is without hope so far as cure of the affected individual is concerned, and as the longer the life of the defective individual the greater the danger to society through the reproduction of his own kind, it is hardly a matter of regret that Nature has a tendency to curtail this morbid perpetuation by an early death of the afflicted.

#### FRIEDMANN'S ANTITUBERCULIN VACCINE.

In a letter to the editor, which appears on page 104 of our present issue, Dr. George Gibier Rambaud places before the medical profession the composition of Friedmann's vaccine. He states that the "vaccine is simply a homogeneous emulsion of live avirulent tubercle bacilli in plain sterile distilled water. The germ was isolated several years ago from a turtle, and the culture has been maintained since that time by transplantation on artificial culture media, according to the usual procedure."

#### A MODIFIED WASSERMANN TEST.

Dr. L. O. Thompson describes, in the *Archives of Internal Medicine* for May, a method designed to overcome certain drawbacks of the original Wassermann and Noguchi tests, viz., the chance for error in that the human serum to be tested contains natural antishcep amboceptor, the difficulty of keeping a sheep, and the fact that the small quantity of serum used in the Noguchi test may not contain enough antibodies to cause binding of complement. In Thompson's modifica-

tion antihuman amboceptor, obtained after injection of washed human corpuscles into rabbits, is used. A ten per cent. solution of fresh guinea pig serum is used for complement. From both rabbits and pigs the blood is obtained directly from the heart through a hollow needle, the animals surviving for future tests. The patient's blood is easily obtained, and in sufficient quantity, by withdrawal from a vein at the elbow with a syringe. A suspension of human corpuscles is used. In performing the test, incubation is continued for one hour, during which time the tubes are shaken several times to facilitate hemolysis. An elaborate system of controls, including eight different tubes, makes error impossible.

### THE ETIOLOGY OF RELAPSE IN MALARIAL INFECTIONS.

James, in discussing the malarial fevers in the Canal Zone, in the *Journal of Infectious Diseases*, May, 1913, believes that a large part of the malaria prevalent in that district is due to the occurrence of relapses, and not to reinfections. This is apparently due to the presence, particularly in the bone marrow, of asexual parasitic forms, which when conditions are favorable increase and give rise anew to manifestations of the disease. In many instances it is found that infections treated insufficiently with small doses of quinine will in all probability relapse, as such doses, even in the mildest injections, serve only to render the asexual cycle relatively immune! Also, the older such a cycle, the more resistant to quinine it becomes. As a result of his observations, James believes that primary infections should be very vigorously treated in order to prevent the development of immune parasites. To that end he administers forty-five grains of quinine a day, in fifteen grain doses. By this method recurrent malaria has been practically eradicated from the Americans. When a relapse does occur, some other method than quinine by the mouth should be employed, preferably the intravenous method with high dilutions. This seems to more rapidly free the spleen and bone marrow from parasites than can be accomplished by hypodermic injections.

### News Items.

**The Lane Lectures.**—The fourteenth series of the Lane medical lectures will be given by Sir Edward Schäfer, professor of physiology in the University of Edinburgh, on the evenings of September 3d, 4th, 5th, 8th, and 9th, in Lane Hall of Stanford University Medical Department, San Francisco. The subject of these lectures will be the Function of the Ductless Glands, Especially in Relation to Other Secreting Organs.

**American Society for Physicians' Study Travels.**—In our issue for July 5th we published an item concerning this organization, in which appeared the names of the newly elected officers of the society. We have since learned that we were in error in stating that Dr. William J. Mayo, Dr. Llewellys F. Barker, and Dr. Frank Billings were elected vice-presidents, as the society has no vice-presidents, but four presidents. Dr. James M. Anders, of Philadelphia, is acting president, and the other presidents, in the order of their election, shall, in the absence or disability of the acting president, be required to perform his duties.

**A Merger of Medical Colleges.**—The Atlanta College of Physicians and Surgeons and the Atlanta School of Medicine have been consolidated under the name of the Atlanta Medical College. Dr. W. S. Elkin will be dean of the new institution, and Dr. W. F. Westmoreland, president.

**Manchester, N. H., Medical Society.**—At a meeting of this society, held on the evening of June 20th, the following officers were elected: President, Dr. F. N. Rogers; vice-president, Dr. G. C. Wilkins; secretary and treasurer, Dr. E. A. Jones; censors, Dr. Gustave Lafontaine, Dr. W. H. Lyons, Dr. S. V. Fiske, Dr. G. S. Foster, and Dr. C. O. Coburn.

**Smallpox in Norristown, Pa.**—It is reported that there has been an outbreak of smallpox in Norristown, Pa., four cases having been reported within forty-eight hours. On July 1st thirty-seven physicians were busy all day vaccinating the hundreds who crowded their offices. So many persons have been exposed to infection that the health authorities fear a serious epidemic.

**Massachusetts Medical Society.**—At the one hundred and thirty-second annual meeting of this society, held recently in Boston, the following officers were elected: President, Dr. Walter Bowers, of Clinton; vice-president, Dr. Lyman A. Jones, of North Adams; secretary, Dr. Walter L. Burrage, of Boston; treasurer, Dr. Edward D. Buckingham, of Boston; librarian, Dr. Edwin Brigham, of Brookline.

**Medical Club of Harrisburg, Pa.**—At the regular monthly meeting of this society, held on the evening of June 22d, the following officers were elected: President, Dr. Park A. Deckard; vice-president, Dr. George W. Bauder; secretary-treasurer, Dr. Edward K. Lawson, of Penbrook. The retiring officers are: Dr. Samuel Z. Shope, president; Dr. W. H. West, vice-president; Dr. John Harvey Miller, secretary; Dr. John Adam Sherger, treasurer. The paper of the evening, entitled History and Prevalence of Venereal Diseases, was read by Dr. Edward K. Lawson.

**Death Rate in New York City.**—During the week ending June 28, 1913, there were 1,182 deaths and a rate of 11.48 in 1,000 of population reported, as against 1,233 deaths and a rate of 12.43 during the corresponding week of 1912. This is the lowest weekly death rate that the city has ever experienced, the next lowest being that of November 2, 1912, when the death rate was 11.59. Scarlet fever, typhoid fever, diarrheal diseases under five years of age, and deaths from violence showed a considerably reduced mortality. On the other hand, diphtheria and pulmonary tuberculosis showed an increase in the number of deaths. Deaths from whooping cough, cerebrospinal meningitis, combined heart and kidney diseases, and the pneumonias remained approximately the same as in the corresponding week of last year. Deaths of children under one year of age were 28 less, under five years of age 5 less, between five and sixty-five years 44 less, and above sixty-five years of age 12 greater. The death rate for the first twenty-six weeks of this year was 15.04 in 1,000, as against 15.06 during the corresponding period of 1912.

**Personal.**—Dr. Reid Hunt, chief of the division of pharmacology, United States Public Health Service, Washington, D. C. has accepted the professorship of pharmacology and therapeutics in the Harvard Medical School, succeeding Dr. Franz Pfaff, whose resignation was accepted last January.

Dr. James R. Nydegger, of the United States Public Health Service, has been elected professor of tropical medicine in the University of Maryland.

Dr. Wilfred Hamilton Manwaring, formerly assistant in pathology and bacteriology in the Rockefeller Institute for Medical Research, has been appointed professor of bacteriology and immunity at the Leland Stanford Junior University, San Francisco.

The degree of doctor of public health was conferred upon Surgeon General Rupert Blue, of the United States Public Health Service, by the University of Michigan, at the recent annual commencement of the institution.

Dr. William J. Mayo, of Rochester, Minn., has been elected foreign correspondent of the Academy of Medicine in Paris.

Dr. George Fay Gracey, professor of chemistry and toxicology in the University of Texas, has resigned to enter the practice of medicine in New York.



**Gifts and Bequests to Hospitals.**—A large portion of the estate of the late Francis H. Wyeth is devised to the Jefferson, Episcopal, University, Methodist, Presbyterian and German Hospitals in Philadelphia.

By the will of Karl Hutter, who died in New York on June 15th, the German Hospital of Brooklyn will receive \$10,000, and the German Hospital and Dispensary of Manhattan will receive one fourth of the residuary estate.

St. Luke's Hospital, Detroit, will receive \$50,000 under the terms of the will of Frederick E. Driggs.

Among the bequests contained in the will of the late Mr. D. O. Mills are \$100,000 each to the Home for Incurables, New York, and St. Luke's Hospital, San Francisco, and \$25,000 to the American Red Cross Society.

Yale University will receive \$475,000 from the estate of Dr. Francis Bacon, who died last year. The sum will be available for almost immediate use.

**Instruction in Sanitation by the Board of Health of Hot Springs, Ark.**—The recently appointed board of health of Hot Springs, Ark., is composed of the following members: President, Dr. J. C. Minor; secretary, Dr. William Turner Wootten, Dr. J. W. McClendon, Dr. William O. Forbes, Dr. Gaston A. Hebert, and Mr. Schaelester, president of the State Board of Pharmacy. Dr. T. E. Sanders, city health officer, Dr. John S. Woods, county health officer, and Lee McLaughlin, Esq., city attorney, are ex-officio members of the board. The work of the department has been divided into two parts, instruction and execution, and it is the policy of the board that instruction of the public in sanitation does more good than coercion.

The women's Civic Club has furnished from their membership fifty inspectors deputized by the board of health to inspect butcher shops, bakeries, restaurant and hotel kitchens, milk wagons, etc., and report their sanitation markings, the highest average to receive a prize. It is said that the plan works well.

**Medical Alumni of the University of Vermont Hold Annual Meeting.**—The Alumni Association of the University of Vermont Medical College held its annual meeting and banquet in Burlington, on the evening of June 24th. About sixty-five members were present. Dr. F. K. Jackson, of Burlington, was chairman of the committee of arrangements, and Dr. W. A. Smith, of Springfield, Mass., was toastmaster. The following officers were elected: President, Dr. Albert L. Bingham, '75, of Williston, Vt.; first vice-president, Dr. Mark R. Crain, '79, of Rutland, Vt.; second vice-president, Dr. John Wesley Cram, '88, of Colerain, Mass.; third vice-president, Dr. George G. Marshall, '93, of Rutland, Vt.; fourth vice-president, Dr. Clayton G. Andrews, '97, of Canton, N. Y.; fifth vice-president, Dr. Frederick B. Willard, '00, of Hartford, Conn.; secretary-treasurer, Dr. F. K. Jackson, '99, of Burlington, Vt. Executive committee, Dr. D. A. Shea, '06, Dr. L. B. Morrison, '02, Dr. Robert L. Maynard, '11, and Dr. J. A. Archambault, '01. Obituary committee, Dr. C. M. Ferrin, '65, of Essex Junction; Dr. F. K. Jackson and Dr. George H. Parmenter, '02, of Montpelier.

**New England Alumni Associations of Baltimore Institutions.**—About fifty members, from all parts of New England, attended the eighth annual joint meeting and banquet of the New England alumni associations of Baltimore Medical College and the University of Maryland, held in Boston on the evening of June 10th. Dr. Charles A. Glancy, of Providence, the retiring president, was toastmaster, and the speakers were Dr. Florence A. Sullivan, of Haverhill; Professor David Sweet, of Baltimore Medical College; Professor A. M. Shipley, of the University of Maryland; Dr. L. E. Willard, of Saco, Me.; Dr. E. B. Goodall, of Haverhill; Dr. H. H. Sumner, of Lowell; Dr. F. A. Sprague, of Concord, N. H.; Dr. Roland J. Goss, of Wilder, Vt.; Dr. C. B. O'Rourke, of East Providence, R.I.; Dr. George M. Burroughs, of Danielson, Conn.; and Dr. E. C. Conroy, of Andover. These officers were elected: Dr. E. C. Conroy, president; Dr. Harry W. Wood, of Brookline, vice-president; Dr. Charles S. Gilman, of Boston, secretary; Dr. P. C. Devlin, of Lynn, treasurer. Other vice-presidents elected were: Dr. L. E. Willard, for Maine; Dr. F. A. Sprague, for New Hampshire; Dr. C. C. Waller, of Lydonville, for Vermont; Dr. L. B. LeGro, of Haverhill, for Massachusetts; Dr. C. B. O'Rourke, for Rhode Island; and Dr. George N. Burroughs, for Connecticut.

**National Association for the Study and Education of Exceptional Children.**—At the annual meeting of this association, held in New York recently, a board of directors was appointed, whose membership includes the following honorary vice-presidents of the association: Dr. Philander P. Claxton, United States Commissioner of Education, Dr. Charles W. Eliot, president emeritus of Harvard University, Dr. G. Stanley Hall, president of Clark University, Dr. Abraham Jacobi, of New York, Hon. William H. Taft, ex-President of the United States, and Dr. Ray Lyman Wilbur, of San Francisco, president of the American Academy of Medicine. Dr. Maximilian P. E. Groszmann, of Plainfield, N. J., Dr. Ira S. Wile and Dr. A. Emil Schmitt, of New York, and a number of prominent laymen are also members of the board. It was formally resolved to organize medical, educational, and sociological advisory boards, a general committee, and a women's auxiliary committee. A vigorous campaign is to be started at once to affiliate with the association all organizations which are concerned in some phase of child welfare work. Dr. A. Emil Schmitt, of New York, is president of the association, and Dr. Maximilian P. E. Groszmann is educational director.

**Civil Service Examinations.**—Among the positions for which examinations will be held by the New York State Civil Service Commission on July 26, 1913, is that of medical superintendent of the Montgomery County Tuberculosis Hospital, at Amsterdam, N. Y.; salary \$1,000 to \$1,200 and maintenance. Candidates must be well educated physicians, graduates of legally chartered medical colleges, with an experience of at least six years in the actual practice of medicine, including at least one year's actual experience in a hospital. Subjects of examination and relative weights: Questions relating to hospital management, including the purchase of supplies, 3; questions on general medicine, surgery, and hygiene, and the treatment of tuberculosis, 3; education and experience, 4. In connection with the rating on the last subject, candidates may be summoned for an interview with the examiners. Special credit will be given for actual experience as executive head of a hospital. Open to all citizens of the United States, preference in certification being given to residents of the State of New York. Another position for which an examination will be held on the same day is that of trained nurse to State institutions, which is open to men and women; salary, \$420 to \$600 and maintenance. Candidates must be graduates of a nurses' training school registered by the State Education Department. No application blanks received at the office of the Commission after July 18, 1913, will be accepted.

**Changes in the Faculty of the Harvard Medical School.**—Many changes in the faculty of the Harvard Medical School have been announced, among them the most important being the appointment of Dr. Edward Hall Nichols and Dr. Charles Allen Porter to be associate professors. Dr. Herman Morris Adler becomes an assistant professor of psychiatry. Dr. Hugh Cabot, an assistant professor of genitourinary surgery; Dr. David Cheever, assistant professor of surgical anatomy; Dr. Eugene Anthony Crockett, an assistant professor of otology; Dr. Channing Frothingham, Jr., Dr. Thomas Ordway, Dr. William Henry Smith, instructors in medicine for three years. Dr. Alexander Forbes and Dr. Percy Goldthwait Stiles, instructors in physiology for three years, are promoted. The following have been reappointed: Dr. John Bapst Blake, to be assistant professor of surgery; Dr. Richard Clark Cabot, assistant professor of medicine; Dr. Robert Baty Greenough and Dr. Howard Augustus Lothrop, assistant professors of surgery; Dr. Richard Clarke Cabot, assistant professor of medicine; Dr. Franklin Spilman Newell, assistant professor of obstetrics; Dr. Paul Thorndike, assistant professor of genitourinary surgery; Dr. Ernest Edward Tyzzer, assistant professor of pathology; Dr. John Warren, assistant professor of anatomy; Dr. Malcolm Storer, Dr. Howard Townsend Swain, Dr. Ernest Boyen Young, Dr. Robert Laurent DeNormandie, Dr. Robert Montville Green, Dr. Henry Talbot Hutchins, Dr. Nathaniel Robert Mason, Dr. James Rockwell Torbert, instructors. Dr. Ralph Leavitt Reynolds receives the appointment of alumni assistant in obstetrics and Dr. Richard Goodwin Wadsworth is made a fellow in surgery for next year. All of the appointments go into effect on September 1st.

## Fifty of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT

May 4, 1913.

**Treatment of Epilepsy.**—A. Erlenmeyer, in the drug treatment, employs the inorganic bromides, with hydrated chloral and opium at times as adjuvants. In the diet he allows a limited amount of sodium chloride, as this serves to increase the action of the bromides. In view of the antagonistic reaction of chlorides and bromides, it follows that the absolute withdrawal of sodium chloride results in severe bromism, while by the addition of sodium chloride the bromism quickly disappears. Of the countless remedies formerly used in epilepsy, atropine deserves to be mentioned. It may be given either in pills containing 0.005 gramme, one or two daily, or by subcutaneous injection. Krotalin is a substance derived from the poisonous glands of the copperhead snake, which exerts a double action on the organism. Its contained peptones have a paralyzing effect, while a second constituent, the globulin, decreases the fluidity of the blood. It has been given in epilepsy, but as it is maintained that hemophiles are never epileptics, diminishing, by such an agent, the fluidity of nonbleeders who are epileptics, it would have the effect, to a certain extent, at least, of making hemophiles of them.

May 12, 1913.

**The Corpus Luteum and Pregnancy.**—J. W. Miller states the following: There exists a close relationship between menstruation and ovulation. The rupture of the follicle occurs, on an average, nine days in advance of the bleeding. While the ovum is moving along the tube, the transformation of the membrana granulosa to the corpus luteum is taking place. The epithelial nature of the corpus luteum has been proved, in comparative embryology, by the finding of the colloid substance (produced only by the epithelia) inside the lutein cells. The recent corpus luteum gives no fat reaction, and this is not obtained until the retrogression has begun. The corpus luteum gives almost no fat reaction during the entire term of pregnancy. The corpus albicans results from the fatty degeneration of the lutein cells. A histological differential diagnosis of the gravid corpus luteum is made by the negative fat reaction, by drops of colloid, and by calcareous concretions. The yellow spot is a periodic, self developing gland, with internal secretion. It accomplishes the cyclic transformation of the uterine mucous membrane into decidua. The ovum has no part in this. A trophic centre for the uterus generally protects the new product of conception and prevents the maturation of a new ovum. Menstruation signifies frustrated ovulation and the discharge of a hyperemic uterus. It has no importance as regards the accomplishment of conception, though the menstrual blood may possibly contain nourishment for the ovum. But in animals and menstruation in the human female are developmentally and physiologically different processes. The tenth day before menstruation is the surest time for natural or artificial impregnation. The first ovum after the cessation of menstruation is usually the one which implants itself.

**The Question of Oxalic Acid Formation and Elimination in Man.**—L. Lichtwitz and W. Thörner give the following conclusions: 1. In most patients with icterus the urine contains an increased amount of oxalic acid. 2. As the ductus choledochus grows more permeable the oxalic acid is decreased. 3. The escape of a certain amount of oxalic acid in the bile has been demonstrated by other investigators as well as themselves. 4. The ingestion of from two to five grammes of glycocholl produces no increase of oxalic acid in the urine. 5. Gelatin increases the formation of oxalic acid. 6. The observations of Weggrzynowski prove again the importance of intestinal flora in relation to the formation of oxalic acid. In Fürbringer's patient the action of bacteria (*Aspergillus niger*) in causing its formation in the lungs is distinctly shown. 7. The ingestion of roasted partridge does not lead to an increased output of oxalic acid.

**May Neosalvarsan Be Used for Outpatient Service?**—A. Wolff and P. Mulzer sound a warning against the use of neosalvarsan in ambulatory patients. According to Lesser, some sixteen or eighteen such patients who had been treated with neosalvarsan have fallen unconscious in railroad stations, workrooms, hotels, and other places, and died a short time after. According to the authors' and other investigators' observations, neosalvarsan, even in small doses, produces much more toxic effects than the old salvarsan. The authors have abandoned the use of a remedy which they regard as so dangerous.

**Action of Adrenalin on the Coronary Arteries.**—F. Meyer, from experimenting on animals, finds that the administration of adrenalin produces remarkable acceleration of the coronary circulation, the result of increased blood pressure, from the heightened action of the heart. As shown also by other authors, adrenalin causes an increase in the calibre of the coronary vessels, as well as an increased flow of blood through them.

May 20, 1913.

**The Treatment of Tabetic Manifestations with Arsenical and Bacterial Preparations.**—Döllken's experience has shown that mercury salicylarsenol (enesol) is a valuable remedy in tabes therapy. The lancinating pains diminished or were entirely relieved; there was gain in nutrition and strength; ataxia improved; also the crises were favorably influenced; but pupil and tendon reflexes never returned during treatment. On the other hand, the author also witnessed numerous relapses after from four to six months. Schaffer and Hudovernig have accomplished even better results with enesol. Aside from destructive processes in the spinal cord and posterior roots, there are found, during the entire process of tabes, subchronic, chronic, and other recurrent processes in the peripheral nerves and in other organs. Three kinds of remedies may produce therapeutic results; first, bactericides, if these can be brought into contact with the elements exciting tabes phenomena; second, bacterial products and remedies which have the ability to inhibit the toxins and render them harmless; third, albuminous bodies and the like which force the organism to a powerful reaction under febrile conditions and hyperleucocytosis. The organs themselves may thus be excited to the making

of antibodies, as well as the phagocytic and leucocytic ferments in addition. Wagner has the credit of having first studied the systematic and favorable action of such agents as tuberculin on paralysis.

**Arsenical Paralysis.**—Obermiller concludes from his own observations and those of others that the unfavorable results which have been noted from salvarsan and neosalvarsan are purely symptoms of arsenical poisoning, and that the cerebrospinal accidents which sometimes occur from their use represent only this, and therefore should be avoidable.

#### WIENER KLINISCHE WOCHENSCHRIFT.

May 1, 1913.

**Treatment of Exophthalmic Goitre by Irradiation of the Ovaries with X Rays.**—J. Mannaberg reports ten cases of exophthalmic goitre in which he obtained improvement of all the symptoms except the goitre by irradiating the ovaries with the x rays. He thinks that the ovaries play some part in the clinical picture of this disease, it may be from the formation of some substance in the ovaries which acts upon the thyroid and modifies its functions in such a way that exophthalmic goitre is the result. The x rays dry up the source of this substance in the ovaries, and so allow the thyroid to resume its normal functions. It might be wise to supplement the radiotherapy with a course of thyroid treatment. Eight of the ten patients treated by him gained considerably in weight, in one the exophthalmos disappeared completely, and in half the cases there was more or less improvement. Subjectively, nearly all the patients feel quite well and are able to work. The ages of the women ranged from twenty-one to forty-two years. The number of exposures varied from three to fifteen.

**A Case of Cyclic Paresis of the Oculomotorius.**—Hans Lauber reports a curious case of this rare condition, met with in a six year old boy, in whom it had been noticed since he was six months old. The left eye was normal. The right eye could not be moved voluntarily except a little by the abducens and by the superior oblique, the upper lid hung down in incomplete ptosis, the pupil did not react to light, convergence, psychic, or sensory stimuli. Yet the muscles affected by this paresis of the oculomotorius made certain involuntary contractions, especially during sleep. The upper lid would suddenly rise, the eyeball would be adducted to the middle line, and the diameter of the pupil would change from four m.m. to 1.5 to 2 m.m. This condition would last for from fifteen to thirty seconds, and then, with slight twitches, the lid would sink, the globe return to its abducted position, and the pupil dilate. After an interval of from thirty to ninety seconds the phenomenon would be repeated.

**Arsenical Poisoning.**—Erik Lindstroem tells of his personal experience and that of his son, eleven years old, the result of sleeping in two rooms that had just been painted. He occupied his room four months and then went on a vacation, during which time neuralgic pains developed, which were distressing, but subsided when he lay still. These pains lasted a month, and then subsided during the summer, but returned the next winter with great severity and became so bad that he could not use his right hand. An obstinate conjunctivitis developed in the

boy, who grew pale and thin. Arsenical poisoning was suspected now for the first time, and arsenic was found in his urine, as well as in that of the other members of the family, and arsenic was found in large quantities in the oil paint on the walls of the rooms. It was also found that the poisoning was most severe in the rooms that had received the greatest number of coats of paint.

May 8, 1913.

**Operative or Conservative Treatment of Stab Wounds of the Lungs.**—Ernst von Kutscha reports four cases in which operative treatment was required and eight in which it was unnecessary. He holds that severe hemorrhage and collapse from pneumothorax justify operation. If the thorax is opened the opening should be made large enough to permit the wound in the lung to be readily sutured before any other measures are attempted.

**Cancer of the Lungs.**—Alfred Arnstein reports another case of cancer in the lungs in a miner in the Schneeberg district of Saxony. According to the statement made by Haerting and Hesse in 1878 and 1879, seventy-five per cent. of the deaths among these miners are caused by a lymphosarcoma of the bronchial glands, or an endothelial sarcoma. Arnstein finds that the diagnosis made in one third of all the cases admitted to the hospital from 1907 to 1911 was cancer of the lungs, and that this was given as the cause of death in forty-four per cent. of the death certificates. He was able to examine two cases post mortem, and found chronic pulmonary tuberculosis in one and carcinoma of the lung with metastasis in the other. He is inclined to think that errors of diagnosis have been made, as autopsies are uncommon, and that tuberculosis has been responsible for many of the deaths.

May 15, 1913.

**Anaphylactic Poisoning.**—R. Kraus and P. Kirschbaum declare that we should be very careful how we call a poisoning anaphylactic, for their results show that the so called anaphylatoxine produced in the test tube is not necessarily identical with the anaphylactic poison.

**Typhoid Infection of the Biliary Passages with Aplasia of the Gallbladder.**—Stefan Zarzycki reports the case of a woman, twenty-five years old, who proved to be a carrier of infection after recovery from an attack of typhoid fever. Operation to remove the gallbladder revealed its congenital absence. Experiment on a rabbit confirmed the clinically proved fact that the large biliary passages furnish a good nutritive bed for a permanent deposit of typhoid bacilli, even when the gallbladder is absent.

May 22, 1913.

**The Benzol Treatment of Leucocythemia.**—Otto Alfred Roesler reports two cases in which great benefit seemed to be obtained from treatment with benzol, though final judgment cannot be passed upon the results as yet.

**The Formation of Specific Agglutinin in Artificial Tissue Cultures.**—P. Przygode finds that tissue of the spleen, exposed to the action of an emulsion of typhoid bacilli in a plasma culture, forms in the test tube specific agglutinins against these bacilli.



May 5, 1913.

**Inhibition of Inflammation.**—Hans Januschke finds that the acute exudation in the inflammatory chemosis of the rabbit's eye produced by oil of mustard may be prevented by medicamental or degenerative blunting of the sensory filaments of the trigeminus in the conjunctiva. The swelling of the conjunctiva caused by oil of mustard may also be greatly lessened or prevented by general narcosis, by the subcutaneous injection of such anesthetics and analgesics as morphine, antipyrine, sodium salicylate, or quinine, as well as by such sedatives as sodium bromide. The inhibition of the inflammatory exudation in the conjunctiva by narcotics takes place independently of narcosis of the central nervous system. The swelling may be restricted somewhat by the subcutaneous injection of salts of lime and of magnesium, and of epinephrin. Almost all the materials tested experimentally have been observed clinically to be able to act antiphlogistically in certain vascular regions and against certain inflammatory agents. In many forms of acute and chronic coryza the internal administration of calcium lactate seems to be indicated.

## ZENTRALBLATT FÜR GYNAKOLOGIE.

May 17, 1913.

**The Technic of Caesarian Section.**—Veit calls attention to the necessity of simplifying the technic as much as possible, in order that the comparatively inexperienced operator may get good results. Veit makes use of Frank's transperitoneal method of opening the lower uterine segment. By stripping off and reflecting the peritoneum he has succeeded in quite a number of cases in extracting the baby extrauterineally.

**Inversion of the Uterus.**—Froriep reports an interesting case of atony of the uterus complicated by placenta prævia. In consequence of the extreme thinness of the wall (from 0.5 to one cm.), the uterus became inverted, and was extirpated by the operator. On account of the great loss of blood preceding the operation, the patient died shortly afterward.

**A Case of Rupture of the Uterus Following the Use of Pituitrin.**—Herz reports a case in which a twenty year old primipara was in labor for forty-eight hours, the pains not being at all marked. The patient was then given an injection of one c. c. of pituitrin. Within three or four minutes the pains began, and rapidly grew more and more severe. In the course of about twenty minutes they became tetanic, lasting from five to seven minutes. An hour after the injection there was a terrific tetanic contraction, causing the patient to cry out and then collapse. Somewhat later the child was born, and examination showed that the anterior portion of the cervix had been torn from the uterus wall (colporrhesis). At the end of fourteen days, when the last of the gauze packing was removed, it was found that the torn cervix had firmly united to the wall of the uterus. The author believes that pituitrin should be used with the greatest care during the early stages, when there is rigidity of the cervical opening.

May 24, 1913.

**Perforation of the Uterus.**—Maly presents briefly a case in which a physician undertook to

cause an abortion on account of the critical condition of the patient, due to a cardiac lesion. The rigid cervix was being dilated by means of a blunt dilator when the instrument suddenly encountered no resistance. The abdomen was opened, blood removed, and a clean, sharp wound, 1.5 cm. long was found on the anterior wall of the cervical portion of the uterus. This was sewed up, and the abdomen closed, the patient making an uneventful recovery.

**The Care of the Umbilical Cord.**—After trying various methods, Nadory recommends the following: He ties the cord close to the skin with a silk ligature, cuts the ends short, and cuts the cord some one to 1.5 cm. above the ligature. The stump, as well as the umbilical ring, is thoroughly painted with iodine. After the infant's bath the iodine is again used. In the course of from two to three days, as a rule, the stump comes off. This method has been employed in fifty cases with good results. In this way all danger of infection is avoided, and the small stump rapidly shrivels. No bleeding occurs, the ligature preventing it. Then, after the separation of the stump, no further treatment is needed, as there remains only a smooth, clean scar.

**Delivery in a Case of Complete Paralysis of the Back and Lower Extremities.**—Bogdanowitsch gives in detail an interesting case in which there was paralysis of the lower extremities of the back and of the upper extremities as well. Although there was this complete loss of muscular power, the uterus spontaneously contracted, and in the course of about three hours the baby was born. The mother died two days later from respiratory embarrassment. It is evident from this case that the motor functions of the uterine muscle are not dependent upon the spinal cord, but evidently upon the peripheral nerve centres that are localized in the uterus.

## CENTRALBLATT FÜR ALLGEMEINE PATHOLOGIE UND PATHOLOGISCHE ANATOMIE.

May 31, 1913.

**A Hypernephroma in a Frog.**—Carl briefly reports the finding of such a tumor, one in which neither glycogen nor chromaffin cells could be demonstrated.

## BRITISH MEDICAL JOURNAL.

June 21, 1913.

**The Lachrymal Gland in Surgical Anesthesia.**—L. T. Rutherford seems surprised that the activity of this gland in anesthesia should have escaped notice for so long a time. He has given its behavior careful study in a series of over two hundred cases, and lays down its responses to the different stages of anesthesia as follows: 1. In the first stage the activity of the gland varies according to the strength of the irritation in the nose, and, if no vapor reaches the cornea, the canthus may be dry. 2. With the onset of the stage of excitement the glands become very active, and pools of secretion appear in the inner canthi. 3. During the stage of surgical anesthesia the glands cease to secrete, and with increasing depth of anesthesia they do not resume activity, so that in overdose they remain dry. Therefore, the inner canthi may be wet or dry in the first stage, are filled, in the second, and, if the secre-

tion from the second stage is kept mopped up, the canthi remain dry after the inception of surgical anesthesia. The importance of these observations lies in the fact that, when the pupil begins to dilate during the administration of ether or chloroform, and secretion remains absent from the canthi, an overdose is being given, whereas, if secretion appears in the canthi, the stage of surgical anesthesia is passing off and more anesthetic is needed. Ruth-erford believes that the observation of the canthi thus forms a very valuable aid to the estimation of the depth of anesthesia, and provides a very certain and early sign of an impending escape from anesthesia or of an overdose.

**Sleeping Sickness and Big Game.**—Warrington Yorke's researches show that in Africa the continuous supply of trypanosomes virulent for man and the domestic animals is to be found in the big game, from thirty-five per cent. to fifty per cent. of all of the larger wild animals in nature being infected. From this source the several flies, more particularly the *Glossina morsitans*, derive their infection, which they then transmit to domestic animals or to man. The extermination of these flies is a practical impossibility, as shown by previous studies. Yorke therefore suggests that an experiment be made upon the extermination of the larger wild animals in a given area, or that from such an area all such animals be driven out. He believes that their absence would not only soon rid the region of the infected flies, but that even the uninfected flies would become very much diminished in numbers. Owing to the nature of trypanosomiasis, it seems wholly improbable that man and the domestic animals would propagate the infection for long.

LANCET.

June 21, 1913.

**The Place of Climatatology in Medicine.**—William Gordon (lecture II) cites the elaborate statistics of Mueller, of Switzerland, for the years 1865 to 1869, and in addition many other similar, though less complete sets of figures brought forth since the days of Koch. These statistics are carefully analyzed by Gordon with reference to the effect of altitude alone upon the prevalence and the course of tuberculosis. He finds that altitude alone has no influence whatever on either factor. On the other hand, in the presence of prevalent rain bearing winds, increase in altitude brings about both greater frequency of the disease and a decidedly unfavorable effect upon the course, leading to a materially increased mortality rate. This is true only to a limited extent, however, the effect increasing from low lands with rise in altitude up to the point at which exposure to winds remains great, but the relative humidity falls. There is a zone at a medium altitude in which exposure and rainfall are greatest for any given region, and in this zone tuberculosis is at its worst, both as regards morbidity and mortality rates. In conditions of shelter from rain bearing winds altitude has no effect on prevalence of the disease.

**Tetragenus Septicemia.**—John Byers's and Thomas Houston's patient was a boy of eleven years who had suffered for years from recurrent attacks marked by respiratory catarrh, bronchitis,

bronchopneumonia, throat, nasal, and ear troubles, and, at times, abscesses and diarrhea. His last attack began with nasopharyngeal catarrh and pain in the ears. After a short period of improvement he became feverish, had an attack of epistaxis, and bronchopneumonia and catarrhal involvement of both ears developed. His condition progressed unfavorably, and he was becoming moribund when the *Micrococcus tetragenus* was isolated from his throat, nose, ear, blood and urine. Though it was in mixed culture in the throat and nose, the opsonic index lent confirmation to the belief that it was the prime cause of his infection. A pure autogenous vaccine of this organism was given, later being combined with one of the pseudodiphtheria bacillus for a local ear infection. Speedy recovery was made, though the patient was believed to have been moribund when the first dose was given.

**A New Spirochæta Found in Human Blood.**—Helen Chambers was led by her histological investigations of the thyroid gland in exophthalmic goitre to believe that the changes in many of the glands were of the nature of inflammatory responses to some infecting agent. Upon this hypothesis she was further led to make a search for an organism of a protozoal order, as she was unable to find any sign of bacterial infection of the gland itself. In her studies she found an actively motile spirochæta in the serum which separated from blood drawn into a small pipette. The organism is from four to thirty microns in length, may be thick or extremely thin, its curves are being constantly obliterated by its motions, the ends are usually rounded, and sometimes the ends are swollen and look like spores. The spirochetes have been seen in process of division, which takes place longitudinally. They can be stained with Leishman and Giemsa's stain, when small, red, chromatin granules are often found at their ends, or sometimes occurring along their length. Other methods of staining can be used, but the best method of finding it is in the fresh serum, examined in the dark field. It has been possible to cultivate the spirochæta in blood drawn into broth, in blood alone (allowed to clot), and in blood drawn into molten agar. In each instance the organisms are to be found in the region of the red cells which are present. No successful subculture on artificial media has been made as yet. The organism is often very abundant in the blood drawn from a person to all appearances in full health. In forty-seven cases, including fifteen persons in health, Chambers has found the spirochete in all but three. She offers no suggestions as to its nature or significance.

INDIAN MEDICAL RECORD.

May, 1913.

**Eucalyptus in the Treatment of Pulmonary Tuberculosis.**—L. G. Pedigo has obtained good clinical results in pulmonary tuberculosis, as well as in ordinary colds, by the inunction of a teaspoonful of a twenty-five per cent. eucalyptus ointment. The premises of the treatment are: Oil of eucalyptus is known to be inimical to bacterial and parasitic life; in whatever way this agent enters the circulation it will be eliminated chiefly through the lungs, the habitat of the tubercle bacillus in pulmonary tuberculosis. Essential oils, like the oil of euca-

lyptus, are irritating to the mucous membrane of the stomach; hence the oil cannot be administered in this way. Given hypodermically, it is a local irritant. It is very volatile, but to give it by vaporization the patient needs to be subjected to an exhaustive vapor bath. It can, however, be introduced into the circulation readily by incorporating it with an oily base and rubbing it into the skin. It is desirable to have a mixture that will remain firm at ordinary temperatures, but will melt rapidly at the temperature of the skin surface, and to have the base one that will readily penetrate the skin. One that he recommends for the colder months is as follows:

Olive oil, .....	5ij.
Benzoinated lard, .....	5vj.
Cacao butter, .....	5iv.

Cocoanut oil also makes a good base for summer use.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

June 28, 1911.

**The Auscultatory Determination of Early Pathological Changes in the Lungs.**—From a study of this question Henry Sewell concludes that the earliest objective information of physical changes in the lungs may be obtained through the use of auscultation, but this demands analysis of the sound into those vibrations due to resonance of the viscera and those of the chest wall, which latter vibrations can be damped by pressure of an appropriate form of stethoscope. Vibrations transmitting the whisper are confined almost wholly to the viscera. The modification of the voice sounds by which this quality becomes more amphoric and their duration prolonged into an echo are the striking characters which, when accentuated by stethoscopic pressure, indicate pathological changes in the viscera. The character and distribution of vocal signs over the normal chest are sufficiently constant, so that a topographic study of the chest by auscultation may definitely suggest, through recognition of slight abnormalities, the intensity and distribution of morbid intrapulmonary changes, which may be too slight to be revealed by any other method.

#### MEDICAL RECORD.

June 28, 1911.

**Dietetic Habit and Gastric Function.**—Charles S. Fischer states that while the question, What shall I eat? when put to gastrologists, should be answered with facility, it is one of the most difficult to reply to promptly, in any given case. Notwithstanding the progress made in the physiology of the digestive processes during the past generation, not one particular dietetic scheme has been evolved which will meet the needs of the average run of ordinary gastric disturbances. Except in the very small proportion of abnormal functions, due to direct abuse of the digestive organs, most vagaries of gastric secretion represent, in the individuals possessing them, indications of constitutional taint, either metabolic, evolutionary, or temperamental, and the secret of successful dietetic management of most dyspepsias consists in methodically meeting these conditions and adapting the food supply thereto. In most cases the food intake, in both quantity and

quality, is adequate for the individual. Its distribution is wrong. In a general way the greater the psychic strain, the more general should be the food distribution, while he whose labor is entirely physical can endure longer intervals between meals as the exhaustion is more gradual, more cumulative. The exhaustion attendant upon mental effort is irregular, increasing and diminishing according to conditions, at various periods of the day, and therefore more frequent support is required, the response being more rapid. The relief afforded depends not so much on the nutrition involved, as on the relaxation from the overtension which frequent feeding induces, under which the patient is laboring. In the treatment of the common mixed forms of gastric indigestion it has been demonstrated that a simple, nonirritating, rationally conceived mixed diet, distributed in such quantity and at such intervals as to meet the requirements of general energy disbursement and local muscular activity, will accomplish the desired results in most cases, irrespective of ordinary local conditions of acidity or motility, and without the need of scientific gastric analysis.

#### Some Remarks on Bronchial or True Asthma.

—Harold De Wolf describes asthma as paroxysmal dyspnea, largely of the expiratory type, of more or less sudden onset, and variable though short duration, which will at once exclude the so called asthmatic conditions developing in late cardiac and renal disease, and confine us to true or bronchial asthma with its allies—hay fever, rose cold, paroxysmal sneezing, and spasmodic bronchitis of children, all having a common basis in patients of the so called nervous or neurotic type, all being of a paroxysmal nature, with sudden onset, and a tendency to recurrence at more or less definite intervals, and none in itself fatal, although any may lead to a fatal issue. The disease is twice as frequent in the male as in the female. While hay fever and rose cold have a specific time of the year to appear, asthma itself is more frequent in the fall and spring, appearing frequently in family groups. The prognosis in early life, before the nervous system has acquired the habit, is good, it being often possible to train the little patient and entirely cure the condition. Later in life the hope of permanent relief is remote. Prophylactic treatment includes good, wholesome food, abundant fresh air, proper bathing and exercise, care of the bowels, and prompt attention to any abnormal condition of the nose and throat. In treating the attack nothing has given as good results to the writer as morphine hypodermatically and amyl nitrite by inhalation; if morphine is alone available, give enough and do not "putter around with minimal dosage." Chloroform is recommended, but its effects are too transitory. Adrenalin chloride has never given good results in the writer's hands. Extreme exhaustion or threatened collapse will be relieved by a cup of strong coffee; strychnine, caffeine, camphor are useful stimulants. Belladonna or stramonium cigarettes will relieve a mild attack. Between attacks the treatment is climatic, hygienic, and medicinal. Autotherapy, as elaborated by Duncan (see this JOURNAL, vol. xcvi, Nos. 24 and 25), promises results far and away beyond any the writer knows.



## AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

May, 1913.

**Nephritic Overtension; Clinical and Experimental Studies.**—Theodore C. Janeway calls attention to the labor expended in the study of the suprarenal glands, of which the net result is the solid, well grounded fact that the suprarenal glands, or at least their medullary portions, prepare a substance, epinephrin, which, introduced into the circulation, produces a rise in the systemic arterial pressure unequalled in intensity by any other known substance. While this rise is extremely transient the continuous, steady introduction of epinephrin is capable of maintaining a state of overtension as long as the introduction is continued. Coincident with this rise in blood pressure is a reduction in the volume of the extremities and of many organs, due to local vasoconstriction, so that the actual blood flow through them is diminished. Epinephrin, however, dilates the coronary artery, inhibits peristalsis, and abolishes intestinal tonus. Epinephrin also relaxes the bronchi when in a state of spasm. It is probable that during life epinephrin is constantly entering the general circulation from the adrenals, but except in the blood of the adrenal veins, epinephrin has never been positively identified in the general circulation of the normal animal or man. In renal disease the symptoms of overtension, the writer believes, can arise in three ways: Through a purely quantitative reduction of kidney substance below the factor of safety; in connection with the unknown intoxication called uremia, which causes disturbances of the central nervous system; in primary irritability of the vasoconstricting mechanism from unknown, probably extrarenal, causes, which lead eventually to arteriolar sclerosis. The vascular poisons back of these types of overtensive disease are unknown. Lead poison certainly does, and excessive stimulation of the central vasomotor mechanism must play some part in this action. The first and second types of overtension may at any time be superimposed upon the third. While the second, the uremic type, must be considered dangerous in itself, overtension in the arteriosclerotic or atherosclerotic kidney should be regarded as a compensatory effort to be interfered with only when danger threatens, either of cardiac failure or of cerebral hemorrhage.

**The Circulation in the Arm of Man.**—Albion W. Hewlett finds that, in studying the local circulation in the arm of man, local conditions must always be considered. The tachogram, the volume pulse, and the finer waves of the radial pulse depend in large part upon the condition of the larger arteries. The blood flow and the temperature of the part depend largely upon the condition of the finer arterioles. The color of the part depends partly upon the condition of the cutaneous capillaries and venules and partly upon the local flow. Changes in any of these cannot be referred entirely to changes in the heart action. Thermic effects produce many changes in the local circulation, and the function of the skin as a physical means of heat regulation must not be lost sight

of in this connection. Chilliness or warmth, whether from external temperature or from fever, profoundly influence the peripheral circulation in an extremity. General and local warmth are the most efficient means we have to increase the circulation in an extremity. The effect of drugs is insignificant in comparison with these thermic measures.

**An Instance of Premature Beats Arising in the Auriculoventricular Bundle of a Young Child.**—This case is reported by Thomas Lewis and Herbert W. Allen, and concerns a child, aged four and a half years. The percussion outline of the heart is normal, the sounds everywhere clear, but the normal rhythm is interrupted by moderately frequent premature contractions, each of which is accompanied by two heart sounds. No abnormalities found in the other organs. The point of origin of the beats is probably to be located in the main stem of the auriculoventricular bundle.

**Combined Tuberculosis and Carcinoma of the Stomach, with a Report of a Case upon Which a Partial Gastrectomy was Performed.**—Henry H. M. Lyle observes that the present consensus regarding the coexistence of tuberculous inflammation and cancer coincides with the views advanced by Bayle in 1810, notwithstanding the claim of Rokitsansky in 1830, that there was a mutual antagonism between cancer and tuberculosis. Cancer and tuberculosis can occur in the same individual and in the same organ, as demonstrated by six cases collected by the writer, one of which was discovered by operation; the remaining five by autopsy. The interesting point in the first case, beside the association of these two supposedly antagonistic lesions, is their sequence. From the clinical and pathological evidence the original lesion of the stomach was probably a tuberculous ulcer of the pylorus, secondary to a possible old lesion of the right apex. From this tuberculous ulcer a diffuse carcinoma developed.

**The Control of Rabies.**—Henry Albert gives the statistics bearing upon the prevalence of rabies in the world at present, the number of persons bitten by rabid dogs, the prevalence of rabies in the United States, and a comparison of the distribution of the disease in this country in 1908 and 1911. The methods for the control or eradication of rabies considered are, immediate local treatment, Pasteur antirabic treatment, accurate diagnosis, and regulations aiming at the control of rabies in dogs and other lower animals (the licensing, muzzling, detention, destruction, and quarantine of affected dogs). To effect extermination of the disease the writer advocates the better instruction of the public, that they should realize that rabies is prevalent in most countries of the world, and that in parts of the United States it is on the increase; that it is possible to exterminate the disease by adopting certain regulations concerning dogs; that the muzzling of dogs is not a hardship to the animal, and that all the stray or ownerless dogs should be killed; that eradication is worth while because of the loss to live stock; that efforts at eradication are justified by the loss of human life and the worry incident to a dog bite.

## ARCHIVES OF INTERNAL MEDICINE.

May, 1913.

**Relation of Gastric and Duodenal Ulcer to Vascular Lesions.**—W. Ophuls asserts that the commonest type of gastric or duodenal ulcer, at least in material obtained by necropsy, is the arteriosclerotic ulcer in persons over thirty years of age. He presents a table in which details are given concerning eighteen such cases, found among about 1,500 necropsies. There is a second class of gastric or duodenal ulcer, in the young, which is probably due to local endarteritis (four cases). One also occasionally observes acute embolic or thrombotic ulcers (one case).

**Effect of Change of Posture on Arterial and Venous Pressures.**—J. H. Barach and W. L. Marks give the results of investigations on forty-eight students. The subjects were placed on a table with a movable top, and the experiments so conducted that the effects of change of posture on the pressures were not vitiated by any muscular exertion of those under test. Change from the erect to the horizontal posture was found to cause an increase in the maximum pressure, a decrease in the minimum pressure, and an increase in the pulse pressure. Upon return to the erect position, after five minutes, the reverse pressure changes took place. The venous pressure was lowered by change of posture from the erect to the horizontal. In "poor muscular cases" there was a tendency to reversal of the pressure curves, change from erect to horizontal position causing in over one half the cases a decrease of maximum and an increase of minimum pressure.

**Budding and Other Forms in Trophozoites of Entamoeba Tetragena.**—S. T. Darling concludes that the descriptions of the life cycle of *Entamoeba histolytica* by Schaudinn and Craig are in all likelihood those of a spurious species, having resulted from observations of pathological changes in senile races of *Entamoeba tetragena*.

**Therapeutic Value of Theobromine Sodium Salicylate in Acute Experimental Nephritis.**—H. A. Christian and J. P. O'Hare produced acute nephritis with uranium nitrate in a large series of rabbits and gave diuretin in amounts varying from large doses to doses equivalent to a one gramme dose in the human subject. The results supported the view that in severe acute nephritis a diuretic drug such as diuretin is contraindicated, as in the experiments the drug shortened the life of the animals. On the other hand, of the survivors three fourths had received diuretin. This rather indicates that in less severe cases diuretin may be beneficial, and so justifies the cautious use of the drug in moderately severe cases of acute nephritis.

**Infantilism and Pituitary Neoplasm.**—E. J. Mullally reports a case presenting the following features: Marked underdevelopment of the skeleton and organs; "infantile" mental state; brain tumor symptoms; feminine contour of body, and slight myxedema. The patient weighed seventy pounds and appeared twelve years of age, though actually twenty-six. Acetonuria, diaceturia, and fever preceded death. The necropsy revealed, among other conditions: Cystic degeneration of the pituitary, with complete disappearance of the

posterior lobe and only a few degenerated cells representing the anterior lobe; free communication through the pituitary stalk with the third ventricle; neoplasm of the choroid plexus extending into the pituitary; excessive colloid material in the thyroid; vacuolation of the fasciculate layer of the adrenals, and underdevelopment of the testes.

**Determination of the Diastolic Pressure in Aortic Regurgitation.**—A. E. Taussig and J. E. Cook conclude that with the auscultatory method of sphygmomanometric observation the beginning of the fourth phase in the arterial sound—that is, the point at which it becomes dull—marks the diastolic pressure. Since this point can readily be made out in aortic regurgitation, the auscultatory method is as applicable to this condition as to any other. The persistent arterial sound is not pathognomonic of aortic regurgitation, being often absent in this disease and occasionally present in other conditions. In cases with very low blood pressure, in those with marked dyspnea, and in Cheyne-Stokes breathing, the auscultatory method is especially valuable.

## ARCHIVES OF OPHTHALMOLOGY

May, 1913.

**The Use of Vaccines in Eye Infections.**—James Garfield Dwyer published in 1910 the results he had obtained from vaccine treatment in a series of infections of the eye, ear, nose, and throat; since then the series has grown to cover 300, and time has strengthened his conclusion that in vaccines, properly used, we have an agent that has no equal in certain cases. Of twenty-seven patients with recurrent hordeola, twenty-four have been free from the attacks since treatment, one did not seem to improve at all, and two are still under treatment. The *Staphylococcus aureus* was found in the majority; some contained the *albus*, a few the *citreus*. Auto-genous vaccines were used in all. The series was limited to cases that had lasted for years, and the recurring hordeola appeared to be small local foci of supuration, due to infection with certain organisms in persons whose resisting power was below normal. One striking result is that the patients feel better generally after the treatment. Other infections treated were the tubercle bacillus, twelve; gonococcus, six; pneumococcus, three; streptococcus, four; staphylococcus, seven; Friedländer's bacillus, one; Morax-Axenfeld, two; xerosis, two; *Micrococcus catarrhalis*, one. The infections with the tubercle bacillus comprised phlyctenular conjunctivitis and keratitis, five; iritis, one; chorioiditis, one; keratitis, three, episcleritis, two. The results of treatment with tuberculin were excellent in all these cases, and Dwyer thinks that tuberculous eye affections are ideal ones for tuberculin treatment. The results from the use of vaccines in the other infections were equally gratifying, even including the three infections with the pneumococcus.

## INTERSTATE MEDICAL JOURNAL.

May, 1913.

**The Treatment of Typhoid Fever.**—From a careful study of this question O. H. Brown concludes that the ideal prophylactic treatment of typhoid is the proper disposal of human excreta. The inoculation of dead typhoid bacilli, however, is of very great value in preventing typhoid, and should

be resorted to wherever there is suspicion of danger. In dealing with typhoid carriers, and for preventing relapses during the course of an attack, inoculations of dead typhoid bacilli are decidedly useful and efficient. No specific serum of real value has yet been found, although the work has yielded very encouraging results. Frazier has recently claimed to have aborted six cases of typhoid fever through the use of large doses of ipecac exhibited in salol coated capsules. The diet in typhoid fever should include protein and fat in small amounts and a large amount of carbohydrate. The preferred proteins are milk and albumen water. The preferred fat is cream. The preferred carbohydrate is lactose, of which a pound may be given in twenty-four hours. This diet should reduce the grade of toxemia and maintain the patient's weight, and therefore increase his immunizing power. Copious supplies of water should be given at regular intervals, and cracked ice may be taken continuously when the patient is awake. Pyrexia may often be controlled by keeping the patient in a cold room where the air is kept freely moving, the patient being very lightly covered, with the exception of the arms and legs, which may require heavy coverings.

**Prophylactic Measures against Epidemic Meningitis.**—A. Sophian emphasizes the importance of a rigid quarantine, which should not only include the sick, but also the healthy members of families in which the disease occurs, and which should be for at least ten days, during which time active prophylactic treatment should be instituted; cultures made of suspected carriers, both the sick and healthy, should be used to control the quarantine, which should be lifted only when the cultures become negative. Local medicinal prophylaxis should consist of the application of antiseptic sprays, douches, swabbings, and inhalations to the nose and throat, and the exhibition internally of hexamethylamine in doses of from twenty to forty grains daily, well diluted so as to eliminate renal irritation. Serum injected subcutaneously, in average doses of ten c. c. may be used temporarily as a highly efficient prophylactic, the protection lasting about two weeks. In those sensitized to serum, who later require serum therapeutically, in order to prevent the severe symptoms of serum anaphylaxis, small doses of from one to two c. c. had better be tried at first, when, if reaction occur, we must await its subsidence and administer a larger therapeutic dose later. Active vaccination, such as prophylactic typhoid vaccination, is the ideal prophylactic against infectious disease, the principal objections to which are the local and general reactions and the danger of the negative phase. Local reaction consists of redness, tenderness, and induration, lasting from twelve to twenty-four hours. Both the local and the general reactions are, in the writer's experience, much less pronounced, in most instances, than in prophylactic typhoid vaccination. As to the negative phase, it is very doubtful whether, in healthy persons, it will ever be so pronounced as to permit the occurrence of active infection. Among the several thousand vaccinated no instance of this has occurred.

## JOURNAL OF INFECTIOUS DISEASES.

May, 1912.

**Experimental Streptococcic Arthritis in Rabbits.**—Jackson, in experiments made with streptococci from a milk epidemic of sore throat in Chicago, was able to produce inflammatory conditions in the joints of seventeen rabbits. These were studied at periods varying from two hours to four months, and the differences present were only such as were consistent with the varying phases of a single inflammatory process. Also there were no striking differences in the reactions produced by the various kinds of streptococci employed.

**Some Experiments Bearing upon Droplet Infection in Diphtheria.**—Teague undertook to determine whether diphtheria patients in coughing and talking emit diphtheria bacilli frequently or only rarely, and whether in large or in small numbers. He found that in both talking and coughing, such patients frequently emit droplets containing viable diphtheria bacilli, but that such droplets are usually in small number. It was also noted that the bacteria in the suspended droplets would remain alive much longer in cool or cold temperatures than in warm.

**Epidemiological Diagnosis and Management of Typhoid Fever.**—Hunt gives an interesting report of an epidemic of typhoid fever and the means employed in determining the source of the infection. It was also the first time (so far recorded) of an antityphoid vaccine being generally used during the height of an epidemic. Taking the number of secondary cases as a measure of the preventive work done, there were in this instance but four, and three of these were nurses.

**The Meistagmin and Epiphanin Reactions in the Diagnosis of Carcinoma.**—The first of these reactions is dependent upon variations in the surface tension of the serum, while the epiphanin reactions depends in part on an acceleration of the rate of diffusion in a solution when antigen and its specific antibody are introduced. Burmeister found that a decidedly negative meistagmin reaction is of more value than a positive one, and may be considered of some weight in ruling out carcinoma. A moderately or even strongly positive reaction is not necessarily indicative of malignant tumor. The epiphanin reaction he considers valueless in the diagnosis of malignant tumors.

**Study of an Outbreak of Septic Sore Throat Occurring in Concord, N. H., in January, 1912.**—Mann reports an investigation made of an epidemic in which probably 1,000 persons were attacked by the disease. The milk was suspected, but could not be proved to be the source of infection. Further inquiry, however, elicited the fact that the cases occurred only among those who used cream from a certain source. It was shown that the milk became infected through the handling by persons suffering with the disease, and the cream when separated from the milk retained the infecting organisms. Mann holds that it is not safe to use market milk in the raw state, and that efficient pasteurization should be insisted upon where vending is engaged in.



## JOURNAL OF MEDICAL RESEARCH

May, 1933.

**Concerning Secondary Infection in Pulmonary Tuberculosis.**—Avery and Lyall first call attention to the proper interpretation of the terms "mixed" and "secondary" infection: the first referring to the simultaneous invasion of more than one species of pathogenic bacterium through the same portal of entry. The second indicates the entrance of infectious microorganisms at intervals following the implantation of the primary species. In regard to the lesions in tuberculosis, it is at present generally held that the combined action of other pathogenic organisms may aggravate and accelerate the ulcerative processes; and thus exert a grave influence on the course and prognosis of the disease. In an attempt to determine the exact pathological significance of secondary infection, the authors made a bacteriological study of the blood with reference to organisms other than the tubercle bacillus in one hundred and fifteen cases of pulmonary tuberculosis, in various stages of the disease, and in five cases of bronchiectasis. The bacteriology of the sputum of twenty of these patients was studied at the time of the blood culture, to correlate, if possible, the findings of the one with the other, and of both with the clinical course of the disease. The examination of the sputum showed results that differed but little from those reported in a series of cases of non-tuberculous diseases of the respiratory tract; and from the findings it was difficult to draw inferences concerning their clinical significance. In regard to the blood cultures, in no case was the presence of a secondary bacteremia demonstrated.

**Further Studies upon the Leprosy Bacillus. Its Cultivation and Differentiation from Other Acid Fast Species.**—Duval and Harris give an interesting review of this subject and demonstrate that the acid fast bacillus known in the human leprous lesion as the Hansen organism can be cultivated *in vitro* under special nutritive conditions. The initial multiplication away from the tissues of the host occurs in the presence of the split products of animal protein, the amino acids, and under no other conditions. The authors have found also that the experimentally induced lesion affords no reliable means of differentiating acid fast species other than the tubercle family, since the lesion in all instances has the same general gross appearance.

**The Experimental Production of Pernicious Anemia in Rabbits.**—As it has been shown that the hemolytic substance of the head of the *Dibothriocephalus latus* is oleic acid, Adler sought to determine whether the introduction of a hemolytic fat into the digestive tract would produce an anemia in a rabbit. In each case, at some period of the experiment, a severe form of anemia appeared as a blood crisis: Hemoglobin from forty to fifty per cent., red blood cells about four millions, poikilocytosis and anisocytosis, polychromatophilia, achromia, stippling, and the presence of normoblasts and occasional megaloblasts. Inasmuch as the hemolytic substance is a fat, it is not capable of true solution in the body fluid; the effect is not a uniformly diffused one, but is dependent upon the meeting of a part of the hemolytic fat with a red cell. The anemia produced is, therefore, probably due to a de-

struction of red cells in the bloodvessels, as the bone marrow showed nothing of note.

## MONTHLY CYCLOPEDIA AND MEDICAL BULLETIN.

May, 1933.

**Unrecognized Pulmonary Lesions in Cases of Suspected Chronic Pleurisy.**—C. M. Montgomery is convinced that mistakes of this nature occur more frequently than is generally recognized, and emphasizes the necessity of always suspecting a pulmonary lesion when one meets with signs suggesting fibroid changes in the pleura. This is supported by autopsy findings. Sometimes, though, a diagnosis of tuberculosis is made, the abnormal findings over most of the affected area (*i. e.*, elsewhere than at the apices) are attributed to a thickened or obliterated pleura, to the neglect of an extensive, even if scattered, infiltration of the lung. The most important help in differentiating between a fibroid lung and a simple thickened pleura may be marked deformity and visceral displacement. Typical signs of consolidation, if present, will indicate lung involvement, and sometimes râles are of great assistance, but often a thorough knowledge of the history and symptoms is required to establish the diagnosis. In cases of pulmonary tuberculosis two signs in particular are apt to be neglected, except when occurring at the apices, *viz.*, weakening of the respiratory murmur and râles. The importance of these signs is as great if they are distributed over a large circumscribed area as if over a small one. Diminished respiratory movement on one side is also a valuable sign.

**Prevention of Bubonic Plague.**—V. J. P. Jourdan asserts that ship fumigation is often carried out too superficially. The only evident effect of five successive fumigations which he witnessed was the death of one rat. The rodents appeared as numerous after as before the fumigations. Only the cabin, crew's quarters and holds had been dealt with. The coal bunkers, fire and engine rooms, chain lockers, and other storerooms, as well as the bilges, should also be fumigated. Two or more bilgeboards should be removed from each side of every hold, and at least two sulphur pots be placed in the most suitable bilges. Then a number of pots should be placed on the floor of each hold, and when all of these have been ignited the hold tightly covered.

## NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

May, 1933.

**General Paresis.**—A plea for more thorough prophylaxis in this disease is made by Henry Daspit because of our inability to attack paresis with any success, owing to the fact that symptoms of the disease are not in evidence until irreparable; cortical atrophy having taken place. Though the diagnosis is usually clear cut and may usually be made before the mental picture is complete, this early diagnosis does not help us. The usual tonic or mixed treatment, with incomplete courses of insulin, is inadequate, no matter how long employed, for it has been proved that organisms become tolerant in culture to the presence of weak solutions of mercuric chloride, etc. The writer believes, also, that the pale spirochete grows in a

system where the mercurials are gradually introduced, and even though finally pushed to the point of tolerance. When the disease is observed some years after the initial lesion the usual procedure is to give a short course actively and then put the patient on mixed treatment or potassium iodide alone, which in neither case will keep a reaction negative for any length of time after ceasing treatment. As a rule, whether parasymphylis of the nervous system or any other demonstration, the idea should be that whenever there is a positive Wassermann reaction, clinically supported, there is an active syphilis, and except in cases of frank paresis, the case should be energetically treated for the three year period, irrespective of how recent or remote the initial lesion may have been. In positive reactions, even when clinically negative, the therapeutic test will decide the advisability of long attention. Tissue changes will not be cleared up, but the further progress of the disease will be arrested. The writer advises the use of salvarsan (not one dose, but several), followed by intensive treatment for a period of three years. By intensive he means the abrupt saturation of the patient with mercury, and by any of the various means at command.

**Epilepsy; Its Cause and Treatment.**—H. L. Fougereousse avers that in spite of extensive investigations by the foremost scientists, equipped with the latest instruments and appliances, practically nothing has been learned as to the real cause of epilepsy. No uniform anatomical findings applicable to all types have yet been demonstrated. Because of the lack of this definite knowledge of the morbid anatomy, pathology, and etiology applicable to all forms of this disease, experiment and empiricism stamp all efforts at treatment. There is no specific, and none in sight. The most useful treatment, prophylactic in results, is the dietetic, and consists of the use of easily digestible, simple foods in reasonable variety and never in excessive quantity. This with moderate exercise, fresh air, and a simple life, is the best suggested. Surgical aid is seldom sought and is beneficial only in the reflex types of the disease.

**Poliomyelitis.**—O. M. Patterson relates his experience with poliomyelitis or infantile paralysis as health officer for the parish of Morehouse during the year 1911. He concludes from the study of seventeen reported cases that it is a communicable disease in which strict quarantine and isolation are very important and useful. The period of incubation in these cases was from three to eight days. Those who visit the sick are the carriers of the disease, and prophylactic measures offer the most hope, as a satisfactory treatment cannot be offered. Children over twelve years of age were not attacked; nearly all the cases were from two to six years old. The disease prevails and spreads more rapidly during the warm, dusty weather. Most of the cases occurred in April, May, and June.

#### OPHTHALMIC RECORD.

May, 1912.

**The Intracapsular Operation for Cataract after the Method of Professor Stancleanu, of Bucharest.**—W. Likely Simpson describes this

operation in detail. The incision in the cornea is a trifle larger than the ordinary and made with a small conjunctival flap. An ordinary iridectomy is made. The anterior capsule is then grasped with the most prominent portion of the curve of a pair of forceps with no teeth, with which movements are made from side to side so as to rupture the zonule. After this has been done the forceps is removed and the cataract extracted by pressure with a spoon over the cornea, a little below its centre, with slight counter pressure above the wound.

#### Letters to the Editor.

##### FRIEDMANN'S ANTITUBERCULIN SERUM.

NEW YORK, July 3, 1913.

To the Editor:

In my statement of May 26th, addressed to the medical and lay press and setting forth the conditions on which I had accepted the direction of the Friedmann Institute of New York, I laid much stress on the fact that my chief aim was to remain for a year or so an impartial observer with all the data at my ready command; after which I would communicate to the medical profession the results obtained by the use of the Friedmann vaccine, whether those results were good, indifferent, or bad. I realized how arduous a task I was assuming. My work appeared to me in the light of a public duty; I felt that sooner or later my colleagues and the public would come to recognize the absolute sincerity of my purpose.

My own observations had led me to conclude that the Friedmann vaccine was worthy of a fair, that is, of a prolonged trial. Since they my convictions have only become deeper.

My most serious objection was to the secrecy observed in regard to the vaccine. I had come to my own conclusions when I read that it contained live bacilli and when, later on, Dr. Friedmann explained to me his method of preparation I found that I had been correct in my deductions; I felt that he was working along the right path, for the results obtained in bacteriotherapy from the introduction of live germs into the organism are much more satisfactory than the results from the use of dead germs or bacterial extracts. In the Pasteur treatment, for instance, we inject an emulsion of live germs, avirulent for man, when properly used. The medical profession, however, not knowing the composition of Friedmann's vaccine, naturally showed itself averse to using it. On the other hand, Friedmann held, not without reason, that it would be unsafe to release all the data concerning his vaccine and to place it in the hands of every physician before those wishing to administer it had made themselves thoroughly familiar with its use. The correctness of his contention was evident, and I could not at the time raise any strong objection to it. But now I have concluded that the medical profession is entitled to know that *the vaccine is simply a homogeneous emulsion of live, avirulent tubercle bacilli in plain sterile distilled water. The germ was isolated several years ago from a turtle, and the culture has been maintained since that time by transplantation on artificial culture media, according to the usual procedure.*

Before long, full particulars concerning the culture and preparation of the emulsion will be made public, when sufficient time has elapsed to demonstrate the correctness of the present modus operandi. In the meantime I shall welcome any colleague who desires to familiarize himself with the administration of the vaccine, that he may use it personally on his own patients. I wish it distinctly understood that I have not formed any final opinion as to the efficacy of the treatment. In a disease like tuberculosis it would be most unscientific to draw any conclusion as to the value of a certain treatment at the end of two or three months. I can only say that I have now observed over 100 cases and that, in many of them, I have noted beneficial results, such as, according to my experience, have not been obtained in the same length of time, with any other known method of treatment.

Finally, I have not observed one case in which the judicious administration of this treatment has, in any manner, harmed the patient. GEORGE GIBIER RAMBAUD, M. D.

## Proceedings of Societies.

### THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Special Queens Borough Meeting, held at Jamaica, April 7, 1913.

Dr. L. HOWARD MOSS in the Chair

**Report of a Case of Perforating Ulcer of the Stomach; Presentation of the Patient.**—Dr. ALBERT L. VOLTZ, of Queens, presented a male patient, twenty-six years old, with the following history: For the past two years he had been subject to eructations of gas, accompanied with the feeling of a "lump" in the epigastrium, but without actual pain, and at no time was there any hematemesis. On February 22, 1913, he spent the night carousing, indulging freely in drinking and inordinately in creamed salad. On awaking the next day, at 3 p. m., he ate a hearty breakfast and drank some highballs. At 6 p. m. he was seized with an attack of severe colicky pain in the epigastric region, which was somewhat relieved after vomiting of some mucus. Pulse 80; temperature 98.6° F. Doctor Voltz noted no particular rigidity or tenderness of the abdomen, though there was a slight firmness in the region of the stomach. He administered morphine hypodermically and ordered castor oil and 2 grains of calomel in divided doses. He was summoned again at 2 a. m. on the 24th, and found the pain much worse and apparently without intermissions, though there was no vomiting. As the bowels had not moved, he gave an enema containing a drachm of turpentine. The pulse was now 88, but there was no increase in temperature. Noting tenderness and rigidity along the whole right rectus muscle, he made a diagnosis of appendicitis and advised operation. This was refused, however, and he gave another hypodermic of morphine. At 6.30 a. m. he was again called, and he then found the patient steadily growing worse. The pulse was 96, the temperature 99.4° F., and the abdominal rigidity was intense. After consultation with Dr. L. H. Moss, the patient was removed to the Jamaica Hospital, where at 9.30 a. m. laparotomy was performed; the incision being made over McBurney's point. As soon as the peritoneum was opened several ounces of yellowish fluid escaped, suggesting a ruptured gallbladder. The appendix, which was found much thickened from chronic inflammation and markedly congested, was removed, and after drainage had been established the incision was closed. Another incision was then made, but the gallbladder was found to be apparently normal. Considerable quantities of the yellowish fluid continued to pour out, and on further search for the leakage it was discovered that the outwall of the stomach, near the pylorus, had been perforated by a clean-cut ulcer,  $\frac{1}{4}$  inch in diameter, with perfectly smooth edges. A pursestring silk suture surrounding it was passed about  $\frac{3}{8}$  inch from the border of the ulcer, tied, and buried in the gastric wall by means of Lambert silk sutures passed through the peritoneal coat. The peritoneum having been thoroughly washed with normal saline solution, a fenestrated rubber tube was placed behind the stomach, along the lesser curvature, and the wound closed about the tube. The patient was then put to bed in the Fowler position, and a Murphy drip started. The operations consumed about two and three quarter hours. There was more or less shock and the prognosis looked grave. Pulse 124; respirations, 28. On the second day the temperature was 101° F. and the respirations rose to 50, though the pulse rate remained the same. After that, however, the patient made an uneventful and rapid recovery. In this case, Doctor Voltz said, it was noticeable that the patient did not go into collapse, that vomiting was absent except at the beginning of the attack, when a small amount of mucus was thrown up, and that, although the operation was deferred for fifteen hours and the gastric contents bathed the whole right side of the peritoneum, general peritonitis did not occur and the local peritonitis was only moderate in amount. The maximum temperature was 101° F. The rapidity of respiration he thought might perhaps be explained by the proximity of the seat of disease to the diaphragm.

**Report of a Case of Twin Pregnancy, Uterine and Tubal Combined.**—Dr. C. O. STUMPE, of Queens, re-

ported this case. Mrs. C. K.; aged thirty-seven years; occupation, house and farm work. Had had no children; one miscarriage at three months. Last menstruation August 25, 1912. On October 29th, while pitching cornstalks on a wagon, overstrained herself, and immediately felt bearing down pains in the pelvis and radiating down the thighs. She felt feverish and went to bed, vomited, and passed some blood clots by the vagina; after which she had a slight uterine hemorrhage. She was admitted to the Jamaica Hospital November 21st, twenty-three days after the first attack of pain. She was then jaundiced and her condition one of extreme anemia. Pulse small and 92; respiration 26; temperature 99.8° F. There was some fetid, bloody discharge, and on vaginal examination a mass was felt on the right side which appeared to be in the tube. The uterus was curetted, and a large placenta removed. On the day following there still remained a slight discharge tinged with blood, but the general condition was much improved. On the second day the temperature fell to 99° F., though the pulse continued between 80 and 100. The mass on the right side of the pelvis did not diminish in size, and on December 2nd the tube was removed, together with a semi-organized blood clot as large as the head of a new born infant. The patient made an uneventful recovery.

**Dystocia, and the Unflexed Head.**—Dr. A. ERNEST GALANT, of Manhattan, in this paper, said that in about sixty-five per cent. of his consultation obstetric cases the following combination was met with: a normal pelvic inlet with a relatively small head, which, failing to flex properly, failed to engage and stay in the grip of the inlet, to make any advance, and to glide down the pelvic planes; and thus caused delay for many hours or days. This showed the importance of estimating the relative size of the fetal head to that of the inlet, for it was a fact that a relatively large head would flex more completely, be molded to fit the inlet more accurately, follow the planes more surely, and be delivered more quickly. In these cases of delayed labor the pains might be of good quality; yet the membranes did not rupture, the head did not engage, and the woman grew weaker and weaker. Finally, after an usually strong pain, delivery might occur, perhaps in the absence of the doctor, who on his arrival might, in addition to the complaints of the patient, be chagrined to find the perineum badly lacerated, and that by a child weighing only six and a half or seven pounds. Normally, flexion and rotation, with coincident descent, were processes which every fetal head had to go through before it could enter the true pelvis. Before the beginning of labor every part of the child's body lay flexed, and as soon as the strong expulsive pains commenced, after the rupture of the membranes, the body became more completely doubled on itself under the compression exerted. Especially was this increased flexion marked as regards the head, in order that the smallest diameter, the occipitofrontal, might be forced into the right or left oblique diameter of the inlet; after which the occipital bone would impinge upon the pubic plane, and, as it descended, rotate downward and forward under the symphysis. This was the normal process, and in the early recognition of the unflexed head as a source of delay in labor often lay the key for accelerating delivery; which had a threefold benefit. For the mother it would minimize the number of pains, as well as the wear and tear on the birth canal. For the child it would reduce the danger of prolonged compression, which had been demonstrated to be a frequent cause of stillbirth, asphyxia, paralysis, feeble mindedness, idiocy, etc. In the third place, it would enable the accoucheur to avoid long hours of needless watching and loss of sleep, the repair of the perineum, and all the incident unpleasant effects on the patient and her family.

Now, how could we facilitate the mechanism of labor, and thus make the delivery a less onerous ordeal for mother, child, and physician? Our endeavor should be to promote flexion and the engagement of the head within the inlet, and to keep it there between the pains, and this might be accomplished by the following means: (1) External pressure on the buttocks at the fundus, increasing the flexion of the trunk on itself and of the chin toward the sternum; (2) external pressure on the occiput just above the symphysis pubis, with the palm of the hand pressing it down into the brim; (3) internal pressure on the forehead, with the fingers in the cervix tilting it upward during each pain; (4) the introduction of a single blade of the forceps (preferably a solid blade) and gentle traction during a pain; (5) forceps traction by means of a high forceps



with loosely fitting blades, used chiefly as a guide and to prevent recession; care being taken not to pull too suddenly or vigorously, in order to avoid too precipitate delivery and an unnecessary laceration of the perineum; (6) the judicious combination of two or more of these manœuvres as required by the existing conditions. Having referred to the methods employed in delayed labor among uncivilized nations, as described by Engelmann, Doctor Gallant said there could be no doubt that the squatting posture was the most natural one for the parturient woman, and that it had its advantages in accelerating the passage of the head through the pelvis. It was therefore to be regretted that the old fashioned obstetric chair, which in former times used to be carried from house to house, had been abandoned among Anglo-Saxon peoples. The great practical value of compressing the lower abdomen on the thighs, with the woman in the sitting or squatting posture, had been clearly demonstrated in a case he saw in consultation with Doctor Moss. The pains were frequent and of good force, but, although the membranes had been ruptured artificially, there had been no progress made for a long time, when the patient insisted on rising to have her bowels moved. A pail with a wooden seat was brought, on which she sat down, straining vigorously, and delivery followed so promptly that a seven and a half pound boy was barely saved from drowning in the pail. The change to a low sitting posture, in which she leaned forward with her elbows on her knees, accomplished the necessary flexion of the head, and the medium sized child was precipitated through the comparatively roomy pelvis.

The advantages to be gained by early diagnosis of the unflexed head, and appropriate measures for promptly assisting Nature, were shown in the case of Mrs. G., whom he had attended in three confinements. She had previously had one child, and when this was born the labor was very slow and prolonged. At the time he first attended her she was a frail, slender woman, five feet and two inches tall, and weighing 110 pounds. The first stage of labor lasted five hours. The head was found in the R. O. A. position, and the os externum dilated and dilatable. The protruding membranes were ruptured with a knitting needle, and the head, wabbling above the pelvic brim, was tilted into more acute flexion by external pressure upon the forehead. It then readily entered the inlet during a pain, and the edematous anterior lip was pushed upward behind the symphysis. The pains were forceful, and at the end of the fourth contraction, twenty minutes after the rupture of the membranes, the child was born. The total time of the labor, including the third stage, was five hours and fifty minutes. In this patient's next labor the first pain was at 2.30 a. m. The occiput was to the left. 5.15 a. m., external os dilatable; membranes ruptured. Standing behind the woman with his hands clasped over the fundus, he directed her to throw her body forward during the pains, so that her weight would be borne by his hands, thus compressing the fundus. The second time that this manœuvre was practised the head came rapidly down into the pelvis, and was guided through the vulva. The entire time occupied by the labor was but three hours and forty minutes. When he attended her for the third time labor commenced at 1 p. m., and terminated at 9.15 p. m. The os externum being dilatable, he ruptured the membranes and repeated the procedures resorted to in the previous labor; and with the same successful result. External pressure on the fundus uteri and the breech of the fetus was always combined with internal manipulation, to promote the flexion of the head and trunk, and thus help the occiput to engage during the pain, as well as prevent it from disengaging when the pain ceased. These three deliveries, he said, illustrated in a striking way the present day idea in obstetrics, namely, that by judicious interference at the right time we can reduce the hours of labor the workingman's limit of eight hours, or even less; and this, frequently, without the use of the forceps. He did not hesitate, however, to apply the forceps for this purpose, and for this alone. In other instances the forceps might be resorted to, to avoid more serious difficulties, as in a case he had attended where the head lay occiput left, transverse, with the forehead lowest. In response to upward pressure on the forehead, through the cervix, the occiput was tilted downward into the left inlet. The pains being ineffectual and the advance very slow (although the membranes had been ruptured), and the patient being extremely excited, chloroform was administered to the obstetric degree, and

moderate, intermittent traction resorted to. The result was that in ten minutes the head was delivered and rotated to the left, and the shoulder drawn from under the symphysis. Here there had been a medium sized head, wabbling above the brim, with the face inclined toward the inlet. Correction to left occipital anterior was made by combining internal and external manipulation, and a safe delivery accomplished in fifty minutes from the perforation of the membranes; thus saving the mother from several hours of unnecessary pain and anxiety, and the child from the dangers of a face delivery. Other illustrative cases also were cited in the course of the paper.

**Healthy Sick Children.**—This was the title of a paper by Dr. LEGRAND KERR, of Brooklyn, which was published in the JOURNAL for June 21, 1913.

**Changes in the Treatment of Syphilis.**—This paper, by Dr. WILLIAM S. GOTTHEIL, of Manhattan, was published in the JOURNAL for June 7, 1913. In connection with it a large number of lantern slides presenting various syphilitic lesions were shown.

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

**Clinical Pathology.** By P. N. PANTON, M. A., M. B., B. C. Cantab., Clinical Pathologist to the London Hospital. Formerly Assistant Director of the Louis Jenner Clinical Laboratory, St. Thomas's Hospital. With Thirteen Plates (Eleven Colored) and Forty-five Illustrations in the Text. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. viii+446 (Price, \$4.)

Within some 440 pages the author has compressed a great deal that is both useful and valuable. There is, however, the fault that usually obtains under such conditions. When briefness is attempted there is always the danger that certain valuable methods may be omitted. That, nevertheless, is frequently a matter of purely personal opinion. What has been mentioned in this book is good, and the few sins are evidently more of omission than commission. In the preparation of tissues no reference is made to the celloidin method; paraffin alone is given. Then, too, in speaking of the rapid (freezing) method it is stated that a diagnosis may frequently be given within ten minutes: Wilson, of Rochester, please note. Another point of criticism is the way in which the English authors ignore the apparatus of other countries. The English microscope alone is mentioned, and no other microtome than the Cambridge rocking type is given. The freezing microtome, as represented, cannot compare with the German models. On account, however, of the text and the most excellent thirteen plates, the book can be well recommended; the representations of the blood parasites and bacteria being particularly good.

**An International System of Ophthalmic Practice.** Edited by WALTER L. PYLE, A. M., M. D., Philadelphia, Member of the American Ophthalmological Society. *Ophthalmic Semiology and Diagnosis.* By CHARLES H. BEARD, M. D., Surgeon to the Illinois Charitable Eye and Ear Infirmary, Oculist to the Passavant Memorial Hospital and the North Star Dispensary, Chicago, etc. With Thirteen Colored Plates and Seventy-one Figures in the Text. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. xi+400. (Price, \$4.)

Doctor Beard tells us in his preface that his object in writing this book was to enable one "to get, in a single small volume, information not otherwise to be obtained save through research that, to the vast majority, would be impossible," and we wish to congratulate him on his success. So far as we know, he is right in the statement that there is no other separate volume, in any language, devoted exclusively to differential ocular symptomatology, and therefore we have no other work with which to compare it. The introduction to the first part considers the difficulties of obtaining histories from patients, which are annoying at times, as we all know. Then follow chapters on the lids, the lacrimal apparatus, the conjunctiva, the

globe, the cornea, the iris, the anterior chamber, the pupil, the crystalline lens, and cataract. The second part is devoted to the interpretation of the ophthalmoscopic signs to be seen in the fundus, and is well illustrated by reproductions from the author's own drawings. An exceedingly brief and unsatisfactory review of the chapter on the pupil, pages 90 to 133, may perhaps convey some idea of the nature of the work. First come the physiological modifications of the diameter of the pupil, then an account of the way in which miosis is produced with the drugs and diseases that cause it, a similar consideration of mydriasis, congenital and acquired anisocoria, and the diseases in which the latter is a symptom, alternating and transitory anisocoria, the pupillary reflexes and the diagnostic significance of their modifications, congenital and acquired anomalies of form, with the causes of the latter; closing with persistent pupillary membrane. The entire book is written concisely and clearly, while it contains an immense amount of diagnostic information. It is well worth having and reading, but is especially valuable for reference.

*Appendicitis. Its History, Anatomy, Clinical Etiology, Pathology, Symptomatology, Diagnosis, Prognosis, Treatment, Technique of Operation, Complications, and Sequels.* By JOHN B. DEAEVER, M.D., Sc.D., LL.D., Professor of the Practice of Surgery, University of Pennsylvania, Surgeon in Chief to the German Hospital, etc. Fourth Edition, Thoroughly Revised. Containing Fourteen Illustrations. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. xi-379. (Price, \$4.)

The author's very wide experience in this special branch of abdominal surgery has made him well adapted to be the author of a monograph on the subject. The present edition brings the whole topic thoroughly up to date and, in preparing it, the author has found it necessary practically to rewrite certain sections of the book. He has had the practical nature of the subject uppermost in mind and has striven "to portray the disease in its clinical aspects for the benefit of students and practitioners whose opportunities for extensive experience are necessarily limited." Furthermore, those methods of treatment are given in detail which the author has found after his many years of practical experience to give the best results. The most important subject that has necessitated revision is that of general peritonitis of appendicular origin. The recent advances in the operative treatment and the after-treatment of this complication have been such that the chapters in most textbooks have become hopelessly obsolete. A technic which to-day saves ninety per cent. of these cases must be very different from that of fifteen years ago, with its ninety per cent. mortality. The modern conditions such as Lane's bands, Jackson's membrane, and movable cecum receive some attention by the author, but he is not so enthusiastic in attributing symptoms to them as their respective discoverers and the followers of these have been. The subject of carcinoma of the appendix is taken up in detail, and its pathology and diagnosis put on a firm basis. In its new form the book is more valuable than ever in giving the last word on this most important branch of surgery.

*Handbook of Diseases of the Rectum.* By LOUIS J. HIRSCHMAN, M.D., Lecturer on Rectal Surgery and Clinical Professor of Proctology, Detroit College of Medicine, etc. With One Hundred and Seventy-two Illustrations. Mostly Original, Including Four Colored Plates. Second Edition, Revised and Rewritten. St. Louis: C. V. Mosby Company, 1913. Pp. 339. (Price, \$4.)

The author has limited himself in this short work to a discussion of conditions of the anus and rectum which are amenable to treatment in office practice. Local anesthesia is therefore relied upon chiefly in the operative treatment. The book is essentially practical and is a very useful addition to our literature, especially from a technical point of view. Many practical "points" in the minor surgery of this region are given which will be very useful, not only to the general surgeon, but also to the general practitioner, who is so frequently called upon to treat the less important ailments of the anus and rectum. The value of the x ray is demonstrated, not only in the diagnosis of abnormalities in the sigmoid flexure and rectum, but also in the location of fistulous tracts. The more common affections, such as hemorrhoids, fistula, fissure, pruritus, and

polypus are discussed in full, and the most up to date methods of treatment which have stood the test of the author's wide experience are given in detail. The illustrations are profuse and very clear. The same can be said of the x ray plates. The prompt appearance of this, the second, edition demonstrates the popularity of the book, as well as the rapid advances that have been recently made in these common but practically very important affections of this region.

*Flora Medica Brasileira.* Pelo Dr. ALFREDO AUGUSTO da Matta, Da Faculdade de Medicina da Bahia; medico dos hospitais de Manaos; exencarregado do Laboratorio de Analyses do Amazonas, etc. Manaos: Seccao de Obras da Impensa Oficial, 1913. Pp. 318.

This small work, written in Portuguese, describes the medicinal plants in certain parts of Brazil, and particularly in the State of Amazonas. The popular and botanical names being given with their synonyms, and the physical, chemical, and therapeutic properties of each being clearly, though briefly, described wherever possible, it represents a mine of information for seekers of new remedies; the majority of drugs described being strangers to our materia medica.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending July 2, 1913:*

**Cofer**, L. E., Assistant Surgeon General. Directed to proceed to Ellis Island, N. Y., and make an inspection of the medical examination of arriving aliens, and in returning to make an inspection of the Delaware Breakwater quarantine station. **Cumming**, H. S., Surgeon. Directed to make a sanitary survey of the Potomac River watershed for the purpose of an investigation begun under the supervision of the director of the Hygienic Laboratory. **Fox**, Carroll, Surgeon. Directed, in cooperation with Dr. John S. Fulton, secretary of the Maryland State Board of Health, to examine the public health laws and regulations of Maryland, and make an investigation of the sanitary administration conducted under them. **Frost**, W. H., Passed Assistant Surgeon. Relieved from duty at the Hygienic Laboratory, and directed to assume charge of the investigations of the pollution of the Ohio River. **Hasseltine**, H. E., Assistant Surgeon. Directed to report at the Bureau of Medicine and Surgery, Washington, D. C., Wednesday, July 9th, for examination to determine his fitness for promotion to the grade of passed assistant surgeon. **Kerr**, J. W., Assistant Surgeon General. Detailed to inspect certain laboratories in England and Germany, with a view to granting licenses; also to attend, as a delegate on behalf of the United States, the International Conference on Infant Mortality, to be held in London, August 4 and 5, 1913, and the International Congress of Medicine, to be held in that city, from August 6 to 12, 1913. **Kolb**, L., Assistant Surgeon. Directed to report at the Bureau of Medicine and Surgery, Washington, D. C., on Wednesday, July 9th, for examination to determine his fitness for promotion to the grade of passed assistant surgeon. **Leake**, J. P., Assistant Surgeon. Directed to report to the Bureau of Medicine and Surgery, Washington, D. C., July 9, 1913, for examination to determine his fitness for promotion to the grade of passed assistant surgeon. **Lumsden**, L. L., Surgeon. Directed to resume investigations of typhoid fever in certain rural districts of Virginia, to be selected by the Virginia State Board of Health, to determine causes of its undue prevalence, methods of transmission, and measures necessary for its control. **McMullen**, John, Surgeon. Directed to proceed to certain counties in Kentucky, to be decided on after conference with the State Board of Health, to take measures for the prevention and suppression of trachoma. **Moore**, Dunlop, Surgeon. Granted one month's leave of absence from July 10, 1913. **Robinson**, D. E., Surgeon. Granted one month's leave of absence from August 1, 1913. **Wertenbaker**, C. P., Surgeon. Directed

to take charge of the Cape Charles quarantine station during the absence of Acting Assistant Surgeon Mac Caffrey, on leave.

#### *Boards Convened.*

Board of commissioned medical officers convened to meet at the Bureau on June 30, 1913, for the reexamination of a cadet of the Revenue Cutter Service to determine his fitness for appointment to the grade of first lieutenant. Detail for the board: Assistant Surgeon General W. J. Pettus, chairman; Passed Assistant Surgeon H. J. Warner, member; Assistant Surgeon R. A. Kearny, recorder.

Board of commissioned medical officers convened to meet at the Bureau, Washington, D. C., Wednesday, July 9, 1913, to examine Assistant Surgeons H. E. Hasseltine, J. P. Leake, and Lawrence Kolb to determine their fitness for promotion to the grade of passed assistant surgeon. Detail for the board: Assistant Surgeon General L. E. Cofer, chairman; Assistant Surgeon General W. C. Rucker, member; Surgeon B. S. Warren, recorder.

Board of commissioned medical officers, which was convened to meet April 7, 1913, at the Bureau, Washington, D. C., for the examination of applicants for appointments as assistant surgeons, reconvened to meet on Monday, July 7, 1913, for the same purpose.

Boards of medical officers convened for the physical examination of applicants for appointment as assistant surgeons and for the presentation of questions for the written examination to meet at 10 o'clock a. m., Monday, July 7, 1913, as follows:

Marine Hospital, Boston (Chelsea), Mass., Senior Surgeon Fairfax Irwin, chairman; Surgeon H. W. Wickes, recorder.

Marine Hospital, St. Louis, Mo., Surgeon P. M. Carrington, chairman; Acting Assistant Surgeon H. C. Wakefield, recorder.

Marine Hospital, San Francisco, Cal., Surgeon R. M. Woodward, chairman; Passed Assistant Surgeon J. R. Hurley, recorder.

Marine Hospital, Chicago, Ill., Surgeon J. O. Cobb, chairman; Passed Assistant Surgeon H. de Valin, recorder.

Marine Hospital, New Orleans, La., Passed Assistant Surgeon A. D. Foster, chairman; Acting Assistant Surgeon J. T. Scott, recorder.

Fort Stanton Sanatorium, Fort Stanton, N. M., Passed Assistant Surgeon F. C. Smith, chairman; Passed Assistant Surgeon F. H. McKeon, recorder.

#### **United States Army Intelligence:**

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending July 5, 1913:*

**Bevans, J. L.**, Major. Reports his departure on leave of absence. **Brooke, Roger**, Major. Will return to his proper station, having completed his duties in Washington, D. C. **Hill, E. C.**, Captain. Was retired from active duty in the Medical Corps of the United States Army on June 27, 1913. **Huntington, Philip W.**, Captain. Ordered to West Point, N. Y., on August 28th, for temporary duty until October 10, 1913. **Kean, Jefferson R.**, Lieutenant Colonel. Will report on duty between July 7th and 13th, at Gettysburg, Pa., for the purpose of delivering a lecture on personal hygiene at the military instruction camp at that place. **Priest, Howard**, First Lieutenant, Medical Reserve Corps. Resigned his commission on June 28th. **Pyles, Will L.**, Captain. Ordered to West Point, N. Y., on August 28th, for temporary duty until October 10, 1913. **Tarleton, L. O.**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Benicia Arsenal, Benicia, California, to take effect on the arrival at that station of First Lieutenant Julius C. Le Hardy, Medical Reserve Corps, and will then return to the commanding general of the Western Department and report for duty. **Tasker, Arthur N.**, Captain. Ordered to West Point, N. Y., on August 28th, for temporary duty until October 10, 1913.

The following named officers of the Medical Corps have arrived at the Gettysburg Encampment: Major P. L. Boyer. Captain W. L. Little, Captain W. M. Smart, Cap-

tain C. E. Doerr, Captain A. N. Tasker, Major C. C. Collins, and Captain H. S. Purnell.

The following named officers of the Medical Reserve Corps have arrived at the Gettysburg Encampment: First Lieutenants W. W. Vaughan, G. L. McKinney, R. Slee, M. M. Stark, W. M. Bickner, G. S. Magill, J. V. Klander, S. M. Strong, R. W. Wilcox, G. C. Beach, G. C. Kuffer, A. R. Jarrett, T. Darlington, H. M. Hays, W. E. Fitch, C. B. J. Wittelstaedt, H. Hume, M. M. Eckert, and W. S. Cornell.

#### **United States Navy Intelligence:**

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending July 5, 1913:*

**Bass, J. A.**, Assistant Surgeon. Ordered to the Navy Recruiting Station, Erie, Pa. **Bunker, G. W. O.**, Passed Assistant Surgeon. Ordered to the *Vermont*. **Hart, S. D.**, Assistant Surgeon. Detached from the Atlantic Reserve Fleet, and ordered to the *Louisiana*. **Helm, J. B.**, Assistant Surgeon, Medical Reserve Corps. Ordered to the Navy Recruiting Station, Richmond, Va. **Irvine, W. L.**, Assistant Surgeon. Detached from the Atlantic Reserve Fleet, and ordered to the Naval Training Station, Newport, R. I. **Norton, O. D.**, Medical Director. Detached from the Naval Recruiting Station, Denver, Colo., and granted leave of absence. **Robbins, I. W.**, Assistant Surgeon. Ordered to the Navy Training Station, San Francisco, Cal.

#### **Births, Marriages, and Deaths.**

##### *Married.*

**Anderton—Newman.**—In Catonsville, Md., on Wednesday, June 25th. Dr. George A. Anderton, of Greystone Park, N. J., and Miss Minnie P. Newman. **Blake—Barney.**—In St. Louis, Mo., on Wednesday, June 25th. Dr. John B. Blake, of Boston, and Miss Madge Barney. **Klotz—Robbins.**—In Allentown, Pa., on Tuesday, June 24th. Dr. Frederick G. Klotz, of Northampton, Pa., and Miss Margaret Grace Robbins. **Knerr—Bransome.**—In Philadelphia, on Monday, June 30th. Dr. Bayard Knerr and Miss Ethel M. Bransome. **Lowney—Barry.**—In Boston, on Monday, June 30th. Dr. Francis Lowney, of Fall River, Mass., and Miss Catherine Teresa Barry. **Myers—Whartenby.**—In Wilmington, Del., on Tuesday, June 24th. Dr. Joseph Myers, of Jersey City, N. J., and Miss Minnie Whartenby. **Nichols—Eaton.**—In North Haven, Conn., on Tuesday, June 24th. Dr. Ralph Wilbur Nichols and Miss Mary Margaretta Eaton.

##### *Died.*

**Bacon.**—In New York, on Sunday, June 22nd. Dr. Stetson L. Bacon, of Port Norris, N. J., aged seventy-six years. **Boynnton.**—In Mount Washington, Mass., on Thursday, July 3rd. Dr. Frank H. Boynnton, of New York, aged sixty-three years. **Cain.**—In Pittsburgh, Pa., on Saturday, June 28th. Dr. William Jonathan Cain, aged twenty-seven years. **Carter.**—In Tarrytown, N. Y., on Wednesday, July 2nd. Dr. H. Skeleton Carter, of New York, aged sixty-four years. **Essex.**—In Hope, Ind., on Thursday, July 3rd. Dr. Herman L. Essex, aged thirty-eight years. **Footo.**—In Brooklyn, N. Y., on Monday, June 30th. Dr. A. Freeman Footo. **Furness.**—In Malone, N. Y., on Saturday, July 5th. Dr. Henry Furness. **Gregg.**—In Pittsburgh, Pa., on Wednesday, June 25th. Dr. Edward Rollin Gregg, aged forty-three years. **Hurlburt.**—In Norwich, N. Y., on Thursday, June 19th. Dr. John E. Hurlburt, aged seventy-two years. **McFadden.**—In Philadelphia, on Wednesday, July 2nd. Dr. William H. McFadden, aged eighty-five years. **McFarlane.**—In Oneonta, N. Y., on Sunday, June 29th. Dr. William H. McFarlane, aged sixty-seven years. **Morrill.**—In North Andover, Mass., on Friday, June 27th. Dr. Charles P. Morrill, aged seventy-three years. **Robinson.**—In Newark, N. J., on Sunday, June 29th. Dr. George W. Robinson, aged seventy years. **Weber.**—In New York, on Wednesday, July 2nd. Dr. John G. Weber, aged seventy years.



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### Original Communications.

#### A CASE OF DEMENTIA PRÆCOX WITH AUTOPSY.

BY CHARLES W. BURR, M. D.,  
Philadelphia,

Professor of Mental Diseases, University of Pennsylvania.

The case is interesting clinically because of the difficulty in diagnosis on account of the complexity and variability of the picture presented; the patient seeming at one time to be suffering from gross organic brain disease, at another from pure hysteria, while the correct diagnosis, which was made only after long and careful study, was dementia præcox; and pathologically because the necropsy showed no gross lesion of any organ and the most thorough and minute examination of the cord and brain revealed no evidence of disease.

The patient, a white girl, nineteen years old, was first admitted to the Orthopedic Hospital and Infirmary for Nervous Diseases under the care of my friend, Dr. Francis Sinkler, and later transferred to my wards at the Philadelphia General Hospital (Blockley). Her parents stated that she had always been nervous and delicate, had never cared much for the society of other boys or girls and, since puberty, had had many spells of depression. But little could be learned of her family history; not enough to justify any opinion as to whether it was medically good or not. Her illness began in January, 1911, when she received a slight wound of the right hand while at work; after which she immediately became very nervous. She had an hysterical attack, in the vulgar sense of the word, immediately after the accident, and continued to cry throughout the night. A few days later she began to be forgetful, speech became stammering, and she seemed to have lost the sense of pain; that is, when pricked with a pin she would deny that it hurt her; indeed she denied that she felt it, though she would withdraw the arm or leg which was pricked.

When admitted to the Orthopedic Hospital she was in semistupor and speechless. When spoken to she laughed in a silly fashion. She obeyed a few simple commands. For example, after being repeatedly told, she finally put out her tongue. It seemed as if the process of thought was greatly slowed, rather than that she was obstinate. Whether there was a blocking of the efferent or afferent paths between the bulb and the cortex, or whether the trouble was cortical (mental), cannot, of course, be known, but her slowness certainly was not willful. It is hypothetically possible in these cases that a seeming mental sluggishness may really be due to a break between the cortical centres of thought and the tracks leading to or coming from them. The knee jerks were greatly exaggerated. Her weight was ninety-five pounds. The urine was normal. She paid no attention to the bladder or bowels. Both the Wassermann and Noguchi tests were positive. After a couple of weeks superficial bed sores appeared on the heels and sacrum. They developed not only on parts subjected to pressure but elsewhere. Her

legs were drawn up on the abdomen and stiffened, and there was some little rigidity of the right arm. She held her hands up when asked. The second Wassermann and Noguchi tests, made two months after the first, and after salvarsan had been given intravenously, were negative. Dr. Thomas B. Holloway examined the eyes ophthalmoscopically (December 6, 1911) and found them entirely normal. Her mental state precluded taking the fields of vision. Early in December she began to have twitching of the right arm and right side of the face, most marked around the corner of the mouth. The right arm was at this time not spastic, but, when not twitching, was held flexed at the elbow. The knee jerks were normal. There was neither a Babinski jerk nor ankle clonus. There were at times irregularly recurring contractions of the abductors of the right leg. On December 15th the Wassermann and Noguchi tests were both doubtful. By January 15, 1912, the bedsores were almost healed, her general appearance was better, all spasmodic movements had ceased, and she answered questions responsively, though she spoke but little spontaneously and never save to ask for water or to have something done for her. Altogether, she was greatly better both mentally and physically. On February 2d the Wassermann and Noguchi tests were again doubtful, but on the ninth day they were again weakly positive. On February 9th the patient again ceased to speak, and would not obey any simple command save to open her mouth. She had no trouble in eating after food was put in her mouth, but she would not use her hands to feed herself. Her legs were held strongly flexed, but she used her hands occasionally. Often she would hold her hands uplifted for a long time and keep her gaze fixed on them. She had several other tricks of muscular movement and many spells of grimacing. She gave no evidence of paying any attention to anything going on around her.

On February 16th she was admitted to my wards at Blockley. When I visited her, she lay in bed taking no notice of her surroundings, seeming to be in a stupor, not speaking spontaneously or in response to questions. Both arms and legs were contracted and the contractures could not be passively overcome. Both thighs were flexed on the abdomen, the left knee was crossed over the right, and both legs were flexed at the knee. The knee jerks were increased. On February 20th she was still stupid and mumbled and talked incoherently. On March 5th she was much weaker. She would hold remnants of food in the mouth for hours, but did not choke in swallowing. When spoken to she made inarticulate sounds. Negativism was marked. Told to open the mouth or eyes, she closed them tight. Attempts to passively flex the head made the neck stiffen. There was some tremor of the head. The right arm was contracted in flexion, and also the fingers. There were numerous superficial bedsores on the shins, ankles, and buttocks, and several scars of old healed ones. She used the left arm to pull up the bed clothes, but did not voluntarily move either leg or the right arm; but if the right arm was passively lifted would move it about for a time and then lower it to the bed. She gave no evidence of feeling pain from pin pricks. The biceps jerk was plainly present, the triceps very slight. The contractures were so marked in the leg that it was impossible to tell whether the Babinski jerk, ankle clonus, knee jerk, and Achilles jerk were present or not. She was not in real coma, as was proved by the fact that she showed, by trying to pull up the bed clothes during an examination, that she disliked being exposed. At this time, at rest, the right eye wandered slightly up and out. The pupils were

equal and reacted to night. She paid no attention to the bladder and bowels. She died March 8, 1912.

At irregular intervals during the course of her illness she had fever lasting days at a time. The temperature chart was not characteristic of any disease. The temperature would remain between 100° and 101° F. for a week or two, then vary night and morning from 102° to 98° F. for another week or two, then be normal for an indefinite time, and finally fever would recur. At first I thought the fever was correlated with the bedsores, but that turned out not to be true. There was always some fever when bedsores were present, but there was also fever at times when the skin was entirely healthy. Repeated examination of the urine proved the absence of cystitis, a frequent cause of fever. Fever is, of course, not a symptom of either hysteria or dementia præcox. What its cause was in this case I do not know. The contractures came and went. When I first saw the patient the case looked like one of organic hemiplegia with the ordinary contractures of the palsied arm and leg, at other times all four extremities were contracted, or any one, and at still other times all the contractures would disappear suddenly. They finally, however, became persistent. Speech also varied; at first it seemed to be truly aphasic, later it was bulbar, and finally the patient was mute. Her mental state, too, varied from apparent stupor to fair consciousness but ended in true stupor.

Dr. Williams B. Cadwalader reports as follows concerning the condition of the brain and spinal cord: "The specimens were received some weeks after preservation in formalin. The brain is rather small and the frontal lobes are slightly flattened. The convolutions and fissures are well defined, the membranes are not thickened, and there is no evidence of meningitis nor lesions of the cortex. On cross section through the lateral ventricles a few brownish red minute areas are seen scattered diffusely through the basal ganglia and internal capsules, but there is no evidence of softening or of hemorrhages. In the pons, medulla, and the cervical and thoracic cord the same appearance is found, but in the lumbar cord it is absent. Microscopical examination (with the Nissl and alum hematoxylin and fuchsin and Weigert's stains): Sections taken from the frontal and occipital lobes and the paracentral lobules show nothing abnormal. With the Nissl stain there is no chromatolysis. The cells are well formed and the nuclei are not displaced. Sections taken from the basal ganglia and internal capsules reveal no degeneration with the Weigert stain. The bloodvessels are not diseased, but are engorged with red blood cells, which are well stained. There are no perivascular infiltrations. Sections of the pons and medulla, cervical and thoracic cord, present the same appearance. The lumbar cord, however, does not show so much engorgement of the bloodvessels. The membranes of the spinal cord and brain are nowhere thickened, nor is there any evidence of round cell infiltration. The cells in the anterior horn throughout the cord are normal."

When I first saw her in consultation at the Orthopedic Hospital the question was as to the possibility of brain tumor or serious cerebral vascular disease. She then showed hemiplegia with contractures, an apparent motor aphasia and semistupor. Brain tumor was excluded by the absence of the classical symptoms—vomiting, vertigo, choked disc—and by the history of the mode of onset. After fully considering the matter Doctor Sinkler and I felt sure that syphilitic vascular disease also could be excluded, and there was no reason to suppose that vascular disease from any other cause could be present. We were somewhat perplexed by the variability of the results of the Wassermann and Noguchi tests. We were forced, when the contractures and the speech defect suddenly passed off, to the conclusion that the disease was either hysteria or dementia præcox. I confess that for some days I was not sure from which she was really suffering. By the time of her admission to Blockley the diagnosis was well established.

There is a similarity between dementia præcox and hysteria, and it is often hard to tell for some time in a given case with which disease we are dealing. The differential diagnosis is of great importance because of the difference in prognosis.

An attack of hysteria is usually cured, though the hysterical temperament remains, and there are almost always recurrences which in time are recovered from, while in dementia præcox, though there may be a remission during which all symptoms disappear, or a cure of the first attack, if one dare speak of it as such, there is inevitably a recurrence and finally complete dementia. Hysteria may recur many times over a period of years, and no dementia result; dementia præcox always leads to permanent dementia after, in the most favorable cases, a few years.

The alleged cause of her illness, a trifling injury, cannot have been anything more than a mere excitant. No healthy person would be made seriously ill by such an experience. There was no real shock—nothing to frighten, alarm, or horrify a normal girl. It is possible that the accident had nothing to do with her subsequent illness, but was a mere coincidence; it is more probable that she was in the prodromal stage of disease and ready to be influenced by any, even the slightest, stress. The real exciting cause, the material thing which acted on her organs, remains unknown. It is a very common thing for patients, and their families, to regard as the cause of nervous or mental illness any unusual, remembered thing which may have occurred soon before the illness became manifest. Sometimes, when the element of legal responsibility and consequent damages exist, there is a distinct motive for assigning an accident as the cause, but in this case there was no question of damages, since confessedly the accident was entirely due to the girl's own carelessness. The real predisposing cause was within the girl herself, in her nature and constitution. Her protoplasm had power to resist the stress and strain of life for only so many years, or, rather, it could only do a certain amount of work, and when that had been done she succumbed. Gowers has explained several local physical diseases, such as idiopathic muscular atrophy, on this theory (abiotrophy), and the same thing is a reasonable, though hypothetical, explanation of this case.

The total absence of any discovered cause of death is very interesting. None of the organs gave any signs of disease to the naked eye, and a careful microscopical examination of the brain and cord did not reveal any abnormality. Every now and again, in any large series of necropsies in a large general hospital, a case will be met with in which the lesions do not seem to be adequate to have caused death, but it is rare not to find any lesion of any kind. When such happens it is reasonable to assume either that some intoxication has caused death without producing lesions sufficiently marked to be discovered by our present methods, or that there has been a real protoplasmic exhaustion due to the inherent weakness of the protoplasm itself. The case was a true insanity, and not a mere febrile delirium, because the mental symptoms existed for weeks before any fever existed and were not influenced in any way later by the course of the temperature. Furthermore, contractures and articulatory disturbances are not a part of febrile delirium.

1018 SPRUCE STREET.

## THE INTERNAL SECRETIONS AS THEY CONCERN THE GYNECOLOGIST.

BY SAMUEL WYLLIS BANDLER, M.D.,  
New York.

The internal secretions play so important a part in the development of the body and mind, and so important a part in the development of vital structures and functions—they are such essential factors in preserving these functions and structures, and in supporting the upkeep of the body—that scarcely any field of medicine exists in which a study of the ductless glands is not to-day an essential point in the thorough understanding of normal and pathological processes.

The proper development of the body in the earlier years and up to adolescence is to a great extent under the control of the hypophysis cerebri and thyroid. This development, associated as it is with the ripening of the genital organs and the sexual glands, determines to a great extent the question of stature and genitalism. Many of the glands of the body enter, each through its own particular field of work, and also influenced by its relations to other glands, into the realm of bony growth, ossification, form of the bones, metabolism, and the mental state. When a physician sees an adult patient, the size of the patient, the proportion between the body length and the length of the limbs, the shape of the pelvis, the amount of adipose tissue, certain peculiarities of the skull, hands, or feet, certain mental characteristics, many so called minor details, such as distribution of hair, trichosis, etc., attract attention to the existence during infancy, childhood, or adolescence of certain alterations and anomalies of gland function, which show that at all times deviations from the normal in individual or related glands must be reckoned with. In other instances there is nothing in the physical makeup of the individual, nor in any of the points elicited by a careful history, to point toward any previous easily recognized alteration of function on the part of any gland or glands, and in such cases one must look for other than developmental alterations and tendencies, and must consider acquired irritations, injuries, and causes in the elucidation of the questions involved. Then comes a large class in which the exercise of the normal functions of the body for the purposes for which they were designed, or interference with such functions, or the failure to make use of such functions, or interference with these functions by disease or injury, are productive of those deviations in the nervous system, which practically constitute a pathological picture. We must not overlook a very large class who are in that stage, or in those stages eventually reached by all, where regression begins, where glands naturally begin to cease their former activity, where the interrelation between the glands is so readily upset, and where abnormalities in gland functions seem particularly to turn in the direction of nervous and mental diseases.

An important matter, and one which makes the study of the ductless glands so fascinating, is the interrelation between the glands. Animal experimentation has shown us how a removal of almost any gland produces changes, sometimes compensa-

tory, in others. If the changes which were produced in one gland were always to produce the same changes in the others the question would be simple, but, as we may have increased function of the anterior lobe of the hypophysis, associated with function or excessive function of the posterior lobe, or *vice versa*, we may have an anomaly in gland function associated with increased or diminished function of one or other glands of the body. The pancreas, the pineal gland, the adrenals, the ovaries, the hypophysis, the thyroid, the thymus, with their interrelations, give us an endless series of changes and modifications, physical, nervous, and mental, which are extremely difficult to classify. Each and every one of these glands is influenced by, or influences ovarian and uterine function and we, who are interested in gynecology, are called upon to give these questions our most earnest study. There is no doubt in my mind, after years of observation, that this matter has been splendidly put by Cushing, that in certain families Mendelian principles hold good. It is probable that some families have certain ductless gland peculiarities. There may be instability of the thyroid, there may be instability of the hypophysis, there may be early or late genital maturity. This instability may be evidenced by increased activity in some members or generations, or decreased activity in other members or other generations.

Almost the first questions which a gynecologist asks his patient are: How old were you when you first became unwell? Did your menstruation come every four weeks, or were there intervals of weeks and months? Were you well during this period and before each period? Were you able to play like other children, or were you kept out of school? A girl who begins to menstruate at thirteen, fourteen, or fifteen shows that ovarian and genital development were probably normal. A patient who answers that she was able to play at that time and was perfectly well probably suffered from no palpitation, no nervousness, no functional cardiac neurosis. We know the important relation which the hypophysis and thyroid bear to genital development. We know that increased or decreased function of the hypophysis in the preadolescent stage is productive of failure of full development of the genitalia and the genital glands. We know that decreased function of the thyroid is an important factor in producing failure in complete development of the genital glands. Here, however, care must be exercised to be sure that we are dealing with alterations in these gland structures, for we know that congenital smallness of the arterial system, associated with narrow arch of the aorta, for instance, may be associated with sexual infantilism. The diseases of childhood, if these exanthemata involve the ovaries and uterus, may retard or inhibit the development of the genital structures. Chlorosis, supposedly related to ovarian function, may, in these and later years, bear a relation to the points under discussion.

Infantilism may be due to failure in proper function of the thyroid, hypophysis, and other internal secretions, or it may be part of the general failure of development resulting oftentimes in the type of partial, scattered, or general asthenia. Frequently this



asthenia is masked and is only brought to light by subsequent events and phenomena. The involvement of the sexual organs in these types of cases is not to be confounded with that form in which infragenitalism seems to be unconnected with any other ascertainable physical or glandular alterations, nor must it be supposed that in this type the secondary characteristics are always deficient or wanting. Just as we may find infragenitalism a factor to be reckoned with, we may find in supergenitalism some points of great interest. Supergenitalism and pubertic precocity may be primarily the outcome of precocious development of the genital glands or may be the secondary results brought about by primary affection of other glands. Hypophyseal affections are frequently associated with gigantism, but generally with genital atrophy. Pineal tumors, however, produce abnormal growth in height, plus premature genital development. Suprarenal tumor results in exceptional development of the body, plus sexual precocity. Excluding these cases, there are a certain number which can be explained only by primary supergenitalism.

In physiological puberty, proliferation of the epiphyses soon ceases. Premature puberty is often associated with accelerated ossification, for the genital glands have a great effect upon the growth of the skeleton. Thus, the age at which genital maturity takes place has an important influence on skeletal growth, and early maturity is associated with short legs, for the ovaries elaborate a hormone which stimulates the process of ossification. The effect of late maturity of the ovaries is to increase the height, especially the length of the legs. All gland functions are naturally stimulated at puberty, and, in addition to the influence which ovarian maturity has on skeletal growth, the influence which the hypophysis has at this stage must be taken into consideration. Many of the rapid growths are due to hypophysis activity, and come within the realm of the normal; others do not. Since hypophyseal hyperplasia may be responsible for the rapid body growth which normally occurs at puberty, an exaggeration of the growth may produce what is known as a "normal giant, an individual normally proportioned, sexually intact, with great physical strength." The relationship between the ovaries and those other secretory organs which influence the growth of bone is sufficiently remarkable to attract attention, and castration is followed by changes in the thyroid, the thymus, and the hypophysis. In passing, it may be mentioned, that the principal rôle in osteomalacia is played by the ovaries. These glands have always been considered as a factor in chlorosis, in which the amenorrheic type is the most frequent. The diminished power of blood formation is supposed to bear some relation to the female sexual organs, since from them come stimuli which act upon the blood producing structures. In the younger years, before adolescence, anomalies of the hypophysis cause as a rule failure of development of the ovaries, the uterus, and the other structures characteristic of the female. After adolescence anomalies of the hypophysis result in atrophic changes in the genitalia. The same thing, lack of development of the genitalia, holds true with giants and dwarfs. In the one case there is too little secretion, in the

other there is too much, and yet with either of these alterations genital dystrophy occurs.

The distinctions between the genitalia of the two sexes themselves constitute the "primary sex characteristics," but a number of differences which are not connected with propagation, but which are characteristic of the female sex are called "secondary sex characteristics." Among these are the greater tendency to fat under the skin, and the resulting rounding of the body, the width of the hips, and the marked development of the gluteal region, as well as the length of the hair, the absence of beard, and the difference in the larynx. The difference in the pelvis is very marked. There is a slighter development of the features of the face, especially the lower jaw. The brain is smaller. Physically, even as children, there is a taste for different forms of play. The differences are already apparent between the ages of eleven and fourteen, as concerns the rounding of the features, the increase in the fat, especially in the mammae, in the gluteal region, on the thighs, etc. The most important of the secondary sexual characteristics are the breasts.

The element of the ovary which is responsible, directly or through modification of hypophysis or other gland activity, for the constitutional physical changes which characterize puberty is not known, but some assert that it is possibly the interstitial gland structure. As a consequence of sufficiently early preadolescent castration, the acquired characteristics of sex may fail to appear. As a result of failure of ovarian function the secondary sex characteristics may be poorly developed, though the reproductive functions, covered by the follicles, may not be impaired. Castration never produces the positive characteristics of the opposite sex, but, when carried out early, results in a continuation of the infantile type. The ovary exerts its influence on the growth of bone, on the accumulation of fat, and on the character of the blood. Castration is followed by excessive longitudinal growth, a lack of proportion between the length of the trunk and that of the extremities. Removal of ovaries causes atrophy of the uterus, but has little effect on the vagina, almost none on the external genitalia, and very little on the libido. Therapeutically, castration produces splendid results in osteomalacia. At puberty, when the ovary begins to assert itself in the economy, the thyroid likewise begins to enter the field of observation and attracts attention through periodic states of overactivity. How much the ovary has to do with bringing on these secretory alterations in the thyroid is still unsettled, but, in my opinion, the ovary, which so dominates in many ways the functions of a woman's body and mind, is responsible, because of its relation to the thyroid, for many of those thyroid deviations of which I now speak, and which I may mention later.

Heart symptoms at puberty may develop for weeks or months before the first menstrual period. There is often an increased, objectively noticeable palpitation, which is frequently associated with vasomotor sensitiveness, blushing, tendency to pallor, tendency to fainting. There are cases where the pulse may be from 120 to 140. The symptoms usually occur in attacks, sometimes daily, sometimes at intervals of several days. When the period be-

gins the attack disappears, and usually recurs at the following periods in milder forms. Kisch describes the paroxysmal attacks of tachycardia with very rapid pulse, which occur some time before the first period, then each time before every following period, and may last several months after the establishment of the menstrual function. These patients show an increased irritability of the sympathetic. In them there is neither anemia nor chlorosis. In certain patients the heart symptoms and vasomotor disturbances mentioned above occur before each period. Noticeable irritability of the heart at the time of menstruation is of course observed in most girls suffering from hyperthyroidism. The thyroid may then be swollen, or may show no change in size. Women with fibromyomata often have thyroid changes, especially if the fibromyomata are interstitial. The greater the proportion of connective tissue in the tumor, the more marked are the thyroid changes. Röntgen rays cause a diminution in size of the myomata and favorably affect the associated struma. This regression is said by Frankel to be due to the effect of the rays on the ovaries. Probably the tachycardia, so often associated with fibromyomata, especially with marked uterine bleedings and generally attributed to the bleedings, may be due to the thyroid changes. We all acknowledge the connection between myxedema and Basedow's disease, Addison's disease, etc., on the one hand, and varying degrees of amenorrhea on the other.

I wish, however, to devote a few moments to the question of relative and actual amenorrhea, especially when associated with obesity and occurring, as it often does, many years before the awaited climacterium approaches. It is of course recognized by all that the ovaries preside over menstruation and exert a trophic influence on the uterus; senile atrophy and lactation atrophy being simply physiological and expected processes, due to cessation of ovarian activity. We find a certain type of case in which menstruation grows gradually less, the menstrual molimina less pronounced, the uterus and ovaries smaller; associated with which is a progressive gain in weight. For years these cases have been a puzzle to me, and I have come to the conclusion that little can be done to reduce such patients in weight or to restore their menstrual function. I like to characterize these cases by the term "precocious menopause," and have previously explained them on the theory of an equal and harmonious diminution of function on the part of the thyroid and the ovaries. In recent months, especially since the work of Cushing has become known to us, we realize that a new explanation gives us a better understanding of the matter. A lowered function of the posterior lobe of the hypophysis, with a coincident disturbance in metabolism, is responsible for the gain in weight and for the ovarian atrophy, and in all probability is in many cases associated with thyroid lowered function. Here, again, we find ourselves in the position of explaining the cause for the changes in the hypophysis. With acromegaly, universally recognized as due to superfunction on the part of the anterior lobe of the hypophysis in the later post adolescent stages, the genital atrophy is usually so pronounced, and amenorrhea often so early a symp-

tom, that in the minds of many men the ovarian alterations have been considered the primary ones and the changes in the hypophysis as secondary. At any rate, the trophic relation between the hypophysis and the ovaries in the preadolescent and later periods seems to be closer even than the relations between the thyroid and the ovaries, and that is certainly saying much.

The ovaries certainly bear some relation to certain excessive uterine bleedings. They are, after all, the cause of menstruation, and the vast majority of cases of relative or absolute amenorrhea are due to involvement of the ovaries, directly or through the influence of other glands or certain diseases. Why may we not expect symptoms of the opposite extreme with overfunction on the part of the ovaries, if they produce a congestion or hyperemia of so marked a nature that only slight disturbances in the uterus are necessary to result in menorrhagia or metrorrhagia? Some of these cases in adolescent patients seem to be due to a too rapid and sudden maturation of the ovary. There is often an inherited tendency, the mother having undergone similar troubles. This condition may be a family trait and may represent an inherited instability of the glands of internal secretion. Metrorrhagia may be due to a hyperemia resulting from underfunction of the ovaries and may be accentuated by masturbation. The normal uterus, lined with a normal endometrium, resists the premenstrual congestion up to that certain point when menstruation begins. The greatest wonder is that menstruation occurs with such marked periodicity and that the flow lasts a certain time and then ceases because the endometrium is bled, the uterine wall contracts, and that substance secreted by the ovaries which is responsible for menstruation is thrown out of the system. If, then, we are dealing with an abnormal endometrium, perhaps hyperplastic through excessive ovarian stimulation, especially of the adenoid type, or if the uterus has lost its elasticity and if its contractile power is diminished, then even a normal ovarian congestion may, with perfectly understandable ease, produce menorrhagia or metrorrhagia. We observe these excessive bleedings very often in women in the late thirties and early forties, and they are usually healthy, well developed women. I have hysterectomized a large number of these, large enough to have my attention attracted to the fact that they have large, plump ovaries, and I have long since come to the conclusion that failure of the ovaries to regress at this period naturally prevents the uterus from undergoing atrophy, and the associated persistence of marked premenstrual congestion within the uterus of lessened elasticity readily explains the frequent bleedings to be found in the preclimacteric period.

I have always felt that the internal secretions had much to do with sterility, aside from the effect on uterus and ovaries. To my mind a normal functioning ovary evidences itself by a certain, supposedly normal amount of menstruation. With this as an accepted standard, and with the added weight of certain degrees of premenstrual molimina, we have the right to presuppose the existence of follicles which produce ripe ova. The facts that some women who conceive menstruate only every

two or three months, and that several cases have come under my observation of women who have borne children and have not menstruated for intervals of from one to two years (not because of lactation), do not nullify the general principles just enunciated, for they are only clinical points that guide us in forming an opinion. Hence, with relative amenorrhea, or with actual amenorrhea, or with the amenorrhea associated with obesity, we have a right to presuppose the possibility that the ova may be at fault, either in not being what may be termed "ripe" or through being retained in atresic unbroken follicles, which is of itself an evidence of follicular weakness. In this type of case, and also in the form characterized by the various degrees of genital hypoplasia, other factors may come into play. The tubes may be very small, they may be tortuous, and, what is most important, the cilia may be involved. On the activity of the cilia of the tube depends the entrance of the ovum into the uterus. It is a natural supposition that the ovaries, through their trophic effect on the uterus, may be among the factors which control the action of the cilia. If we have absence of spermatozoa or inactive spermatozoa in the male, why may we not have inactive cilia in the Fallopian tubes? So that, with abnormalities in the ovarian secretion, or in diseases involving the thyroid or hypophysis, it is only a rational opinion and not a reckless conjecture to point toward the possibility or inaction on the part of the cilia as a possible cause of sterility, and to hold the ovary and thyroid or some of the other internal secretions responsible.

In gynecology, for years reflex annoyances have been supposedly produced in the nervous and digestive systems by abnormalities in the genital tract. No change in the position of the uterus has been too slight, no tear in the cervix too small, no palpable or pathological alteration in position or function on the part of the ovary has been too slight to be considered the cause, by reflex action, for slight and great changes in digestion, in cardiac activity, in the functions of the nervous system, in the realm of the mind, and in the field of pain. This reproach, I hope, is no longer borne by gynecology, that useless operations are advised because reflex causations are presupposed. As we view this question to-day we recognize that a very important class of patients, in whom there is a decided tendency to inelasticity and asthenia, come into the hands of the gynecologist, and especially those who practise obstetrics, who realize the truth of this statement. This asthenia may be constitutional and general, it may involve the nervous system or the circulatory system, it may be characterized by poses, or by lack of mental stability. Many of these cases go back to developmental physical alterations in infancy and early childhood and cannot be placed to the credit, so far as we now know, of any one particular gland, or set of glands.

At all periods of a woman's life alterations of the thyroid functions may occur. Lowered function may be so marked as to produce the classic symptoms of myxedema. Overfunction may be so decided that exophthalmic goitre is evident. But we are now on the threshold of unanimously acknowledging that underfunction may be of all degrees and overfunction likewise; so that the term hyperthyroid-

ism is now of almost universal use. Anomalies of thyroid function concern the gynecologist, so far as menstruation is concerned, by occasionally producing menorrhagia; more frequently, varying degrees of diminished menstruation. The intimate relation between the ovary and thyroid is such that it is more than probable that changes occurring in the ovaries themselves influence the thyroid to underfunction or to overfunction. These anomalies in thyroid secretion, whether in the way of amount or quality, concern the gynecologist because of the alterations which they produce in the digestive system, in the nervous system, and in the psyche.

It is worth while asking why thyroid affections in the form of myxedema and Basedow's disease are so much more frequent in women than in men. Whatever the real explanation may prove to be, it also serves a purpose by giving an explanation for the marked instability of the thyroid in the wide field of hypothyroidism and hyperthyroidism of minor grades, sometimes affecting the genital sphere, the digestive functions, the nervous system, or the psyche. I may take a moment to state that if the theory of intimate relation between ovary and thyroid be true, if either of these glands stimulates the other, and at the same time has an antagonistic action, then the elements of menstruation, pregnancy, and the climacterium, plus the numerous injuries to which the ovaries are subjected, furnish a very rational basis for the frequent alterations in thyroid function and give us at least this much which may be stated, namely, that whatever may be the cause or causes for thyroid alterations in the male, those same causes naturally act with much greater readiness in the female. Then, too, comes the question of the uterus. I have often said that no woman is really so well as that one whose uterus plays no further part in her economy. So long as menstruation takes place, so long as the uterus and its lining undergo their premenstrual changes as a result of ovarian stimulation, just so long have we a factor which in turn reacts upon the ovaries and also upon the thyroid. So that the interrelations between the ovary and the thyroid, on the one hand, between the ovary and the uterus on the other, and then, too, between the uterus and thyroid, furnish another reason for the instability of thyroid activity. Therefore, the almost universal recognition of the frequency with which hypothyroidism and particularly hyperthyroidism influence certain periods, stages, or even the whole, period of a woman's life open to us a clearer understanding of the causation of these phenomena, which for so many years have been erroneously attributed to pelvic reflexes, and recent observations show that in this field, too, the hypophysis takes a position which demands attention.

Knowing, then, the relations which the important glands bear to the ovaries and genital functions, and the relation which the ovaries bear to other glands, we in gynecology must remember to view with suspicion in every case the diagnosis that cessation of menstruation, as such, is a cause of nervous or mental disease, or *vice versa*, and must be on the alert to correlate, whenever justified by accurate diagnosis, nervous and mental symptoms on the one hand and disturbances of menstruation or genital abnormalities on the other, by referring both to



affections of the ductless glands, and thus separate ourselves, so far as is correct, from the former fixed ideas concerning hysteria, neurasthenia, and reflex neuroses. The nerve phenomena in the climacterium show variations from the phlegmatic type to the excitable type. The psychic variations run from melancholic and psychasthenic to manic forms. In many cases the annoyances are clearly the result of changes incident to the climacterium. In others they resemble various forms of mental diseases and seem oftentimes to have nothing to do with the interglandular upset. Each is of course necessary to separate the forms which are coincident with the preclimacteric or climacteric phase from the forms which are due to the alterations of that period. Some women go through this time of life with scarcely a ripple to mar their good health, while others are miserable and unhappy for months or years. There are women who are in this so called change of life state (if that be used to signify an abnormal relation between the secretions) during the greater part of their life or for certain months of their existence, or preceding a few or many, or all, of their menstrual periods. They suffer from the same variations in the way of annoyances as the patients of the class mentioned who are about to go or are going into the climacterium. There is too much ovarian stimulation, or too little ovarian secretion, there is too much thyroid actually or relatively, or there is too little thyroid, or there is a play between these various alterations.

We are concerned in the climacterium with a progressive failure on the part of the ovaries to produce their normal secretion. Coincidentally, and because of this failure, there occur alterations in other glands in the body, the thyroid being the one most particularly involved. During a woman's existence her good health depends, to a very great degree, on a proper balance, so to speak, between the ovaries and the thyroid. Overactivity or underactivity of the one affects the activity of the other, and this balance is frequently upset at each menstruation, or after certain causes have been productive of certain changes, during lactation, in the post partum period, sometimes during pregnancy, etc. If the ovary and thyroid diminish as to the secretion which they produce in equal ratio, the patient goes through her menopause calmly and without upset. If the ovaries diminish with too great rapidity and the thyroid too slowly, the patient is in a state of hyperthyroidism. The thyroid function diminishes too quickly, the patient may be in a state of hypothyroidism.

134 WEST EIGHTY-SEVENTH STREET.

## THE FACULTY OF PARIS IN THE SEVENTEENTH CENTURY.\*

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The seventeenth century was a period of transition, the ideas and forces of the middle ages having not altogether passed away and those of modern times being as yet undeveloped and crude. The

feudal system, although broken by the decline in the power of the nobles, still ruled the world in spirit, and the freedom of the individual was as yet an unrealized dream. The Church, which by its solidarity and force had kept Europe from lapsing into barbarism, had by its unquestioned rule become a tyranny and largely controlled intellectual life. Everywhere there was an exaggerated respect for authority which often stifled progress. In medicine the writings of the great ancients, Aristotle, Hippocrates, and Galen, were still regarded as supreme authority, and exhaustive of the subjects which they treated.

The Faculty of Paris was the name given to the entire body of physicians authorized to practise medicine in that city; what we should now call a medical association. The rules and regulations by which they were governed were, however, much more strict and precise than anything now in vogue. The organization claimed to go back to Charlemagne, and it is known that it was an independent corporation in 1280. It was formerly called the *Physicorum Facultas*, or Faculty of Physics; hence our own word physician. It fulfilled the function of an academy of medicine and of a board of health, and was the final authority in medicolegal matters. The organization had a strong ecclesiastical flavor. Medicine, during the middle ages, was usually practised by monks and subject to the discipline of the Church. We shall therefore find in the customs and ritual of the Faculty much that reminds us of conventual usage.

The number of physicians in this body was not very large. During the seventeenth century it varied from 100 to 110, about four being added each year from the graduates. There was thus one regular physician to about 5,000 inhabitants. The ratio to-day is one to 960. It was a close corporation difficult of access, whose members commanded respect, having a dignity only second to the noblesse and often counting members of that body among its numbers. The cost of a medical education was so great that it was beyond the reach of any below the state of the wealthy bourgeoisie. A candidate had to have a preliminary degree of master of arts or of philosophy, as he must be able to discourse fluently in Latin, which was still used to distinguish the learned from the vulgar herd. He must be a Roman Catholic, not even the request of the king being allowed to prevail against this.

The teaching was wholly theoretical, the students listening to lectures which began at seven o'clock in the morning and continued till noon, commencing again at one. The lecturer often added to the reading explanations and remarks. Questions on the lectures were asked once a week. There were but few professors and they were frequently changed, every member of the Faculty being supposed to be competent to teach any subject. Dignity was upheld by appropriate dress, as the statutes provided that each professor should pledge himself to teach in a long gown with wide sleeves, a doctoral cap on his head, and a knot of scarlet ribbon on his shoulder. After two years of attendance the student was subjected to an examination, which lasted a week, and if he passed he became a bachelor of medicine. He took a solemn oath: To

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observe faithfully the practices and customs of the Faculty and never in any case to act against it; to treat with honor and respect the dean and all the masters; to assist the Faculty against any opponents, especially illicit practitioners.

All this was only preliminary. He had to be examined in botany during the next summer, and the following year had to dispute against members of the Faculty—not his teachers—on some selected subject, sometimes such as appear to our modern minds trivial and absurd, such as: Is it well to get drunk once a month? Are women imperfect works of nature? Are bastard children brighter than those which are legitimate? Should the phases of the moon be considered when we have the hair cut? These disputations were of almost incredible length, lasting from six a. m. until noon. Commenced by nine doctors, who attacked successively, they were continued toward noon by all present. During Lent still more vigorous examinations were held, the bachelor attending from five a. m. to twelve, and disputing with all present, each one of the doctors in attendance having the right to propose two questions. For seven hours he had to pit his wits against the assembled Faculty, men trained and exercised in subtle dialectics. The candidate was also required to furnish food and wine for his adversaries.

After two years' trial of this kind the candidate could become a licentiate and be granted the right to practise. You will observe that he had had no clinical experience; indeed, many never saw a patient during the whole course of their study. The course was wholly in words, words, words. As Montaigne acutely says, they knew their Galen but not their patients. The license to practise was administered in the most solemn manner by the chancellor, a canon of the Church, in the presence of representatives of the Court and the municipality. The candidate having knelt before him, the chancellor announced in sonorous Latin: "By authority of the apostolic see which I wield in this region I confer upon you the right to read, interpret, and administer the medical art here and throughout the world. In the name of the Father, the Son, and the Holy Ghost." The chancellor then proposed some questions to the candidate highest on the list. These also were sometimes quite puerile, such as: Does drunkenness have any curative effect on a quartan fever? Whence came the water that flowed from the side of Christ after death when he was pierced by a spear? This ceremony over, the entire assembly proceeded to the cathedral, where the chancellor made a short prayer in which he admonished the new licentiates that they now belonged in a special manner to the Church, for which they must sacrifice all things, even their lives. Needless to say, the whole ceremony was in Latin.

The licentiate was not yet a doctor, not entitled to full privileges as a member of the Faculty. After six weeks or more, and on application being made, the dean having inquired minutely into the life and manners of the applicant, the Faculty voted on his admission. If this was favorable, a session was held at which the applicant was solemnly admonished on the importance and dignity of the medical

profession, and still more questions were proposed. Some days after, he was expected to visit each one of the governing body and invite him to attend the ceremony of his reception. When the day for this arrived the applicant was required to swear to observe the rights, statutes, laws, and customs of the Faculty, to contend with all his might against anyone who practised medicine illicitly. "Vis ista jurare?" Do you swear this? solemnly asked the grand apparitor. "Juro" replied the licentiate—a phrase to become afterward famous as we shall see. Receiving then the doctoral cap and the accolade borrowed from the ceremony of knighthood, he became a full fledged doctor.<sup>1</sup>

The result of all this exaggerated respect for learning, for books, and for authority was necessarily the formation of an ultrapedantic and conservative body, jealous of innovations, a foe to progress, and wedded to tradition. Their peculiarities of dress and bearing were the target for many popular lampoons. This is one of the most famous:

Assume a most pedantic frown,  
Some Greek or Latin spout;  
Have on a wig and grotesque gown  
Of satin furred about;  
For such things almost make, we own,  
A doctor out and out.<sup>2</sup>

The results of the narrow and bigoted attitude of the Faculty were very striking. Scientific medicine in France fell to a low ebb. While remarkable discoveries were being made in Holland, Germany, England, and Italy, France remained unproductive. Except some slight matters in anatomy by Riolan, nothing was brought forth. Harvey's demonstration of the circulation, Aselli's discovery of the lacteals, and Pecquet's discovery of the thoracic duct were forbidden to be taught.

Another reactionary restriction which did great harm to the Faculty was its attitude with regard to surgery. Strange as this may seem to our modern minds, instruction in this important branch was not included in the curriculum, and the most bitter opposition was made to any who ventured to consider surgeons as of equal rank with the regular physicians. There were several reasons for this antagonism. It probably arose in the first instance from the monkish traditions that affected the Faculty, the Church always forbidding the shedding of blood; also from the fact that surgery was considered a handicraft and therefore unworthy the attention of those engrossed in the interpretation of Hippocrates, Galen, and Avicenna. The surgeons did not tamely submit to be thrust out of the learned professions. It was Pigray, one of them, who used the oft quoted simile concerning a comparison of the ancients and moderns: "We may say that we are a child standing on the shoulders of a giant, we can see all the giant sees and something more." They established for themselves a separate school, the college of St. Cosmo, and claimed the privilege of teaching anatomy. The prime difficulty was the obtaining of material, which was only granted to the Faculty. On the

<sup>1</sup>A more complete account of this ceremony, and of the entire organization of the Faculty, is found in Maurice Raynaud, *Les médecins au temps de Molière*, Paris, 1862.

<sup>2</sup>Translation of Chatfield-Taylor.

rare occasions when the bodies of criminals could be procured for dissection the surgeons would sometimes surround the scaffold and carry off the warm cadaver in spite of the authorities. As it was absolutely necessary for the members of the Faculty to have some surgical assistance, they relegated this department to a class of uneducated men, the barber surgeons, who practised blood letting as a trade, and the profession which Ambroise Paré had adorned was nearly destroyed. Persecuted incessantly and pursued by royal decrees, they finally sank into temporary insignificance, to revive again in the next century.

Trained and inured to disputation as were the members of the Faculty, it is not surprising that they had violent disagreements among themselves, usually upon some point of diagnosis and treatment. There was always great jealousy of outside influence, whether this came from the rival Faculty of Montpellier, from the surgeons, or from some bold innovator like Paracelsus or Van Helmont. Yet there were not wanting in the Faculty itself those who were open to novel ideas, and the controversies were often bitter, as we see from the letters of Guy Patin, the dean and censor of the Faculty, a man of the keenest wit and a most uncompromising adherent to the ancient doctrines as interpreted by the commentators.

Bleeding, cautiously recommended by Hippocrates, was carried to a most shocking extreme. Bouvard, physician in chief to Louis XIII, bled that monarch forty-seven times in one year, Guy Patin bled a child seven years old thirteen times in one month, he also bled an infant of eleven months and another of three days who was attacked with erysipelas. He had the courage to perform the operation on himself seven times for a cold. He expresses himself very bitterly about a poor physician who did not believe in bleeding and declared he would rather die than be bled, which he promptly did. "May the devil bleed him in the other world; the scamp, the atheist!" He defends this strange treatment by saying that all Parisians live too well, and consequently have a plethora which needs to be reduced. There was also the dreaded cacochymia, or corruption of the humors, which had to be relieved. Botal compared the blood in the human body to the water in a good spring, the more that we draw off the more it is replenished.

Another famous controversy that raged at this time related to *antimony*. The somewhat apocryphal story about this substance is that it was discovered early in the sixteenth century by Basil Valentine, a monk of Erfurt, who tested its virtues by feeding it to pigs, which then became very fat. He then tried it on his fellow monks, who immediately became sick. He therefore named it antimony—deleterious to monks. Its virtues were highly vaunted by Paracelsus, and its prompt and vigorous emetic action recommended it to those who wished to reduce the "peccant humors." As it was recommended by the Faculty of Montpellier, the Faculty of Paris declared it a poison and forbade its use. There was, at that time, but little known of the proper doses of powerful medicines, and, besides, the antimony then obtained was not free from arsenic, which explains the fattening of Basil Val-

entine's pigs. Consequently, fatal results quite frequently followed the use of the drug. The controversy concerning its use grew very hot, and a cloud of pamphlets and verses was issued for and against. Guy Patin declared that antimony had killed more men than perished in the Thirty Years' War and published in his "Martyrology of Antimony" every case that he could collect of its deleterious effects. During the campaign in Holland Louis XIV, then twenty years old, fell dangerously sick of a fever, and was taken to Calais, where doctors from Paris were hastily summoned. As no amelioration occurred, a consultation was held, even bringing in a country doctor from Abbeville, who, disregarding ceremony, seated himself on the bed and, after examining the young king, said, "Well, he is a pretty sick boy, but he won't die." Strange to say, Cardinal Mazarin presided at the consultation and recommended the administration of antimonial wine, which was done by Dr. Guénaud, and the patient recovered. Great triumph for the antimonists. Guy Patin declared, what was probably true, that it was the robust constitution of the young king that saved him.

There were still other controversies that vexed the medical world and which had much less cause than that about antimony. In 1638 the Countess of Cinchon, wife of the Spanish viceroy of Peru, introduced into Europe the powdered bark of the cinchona tree as a remedy for intermittent fever. Its use was approved by the Pope, and it became known as Jesuit's bark. Talbot used it to cure the King in 1679. Ipecac was another drug introduced during this reign as a remedy for dysentery. The use of both of these important new medicaments was bitterly opposed by the Faculty.

It remains now to be seen how the growth of public opinion gradually ameliorated the tyranny and dogmatism of this august body. It was not from the medical profession that the greatest aid came, but from the despised and little considered realm of the theatre. Jean Baptiste Poquelin, the obscure son of a Parisian upholsterer, educated for the law, gave it up in 1643 and joined a strolling theatrical company then going to the provinces of France, thus abandoning the steady life of a bourgeois for a career of vagabondage. Young Poquelin assumed the name of Molière, and eventually became the most famous dramatic satirist that the world has ever seen. But little is known of his early life. He was probably for a time under the influence of the philosopher Gassendi, a pronounced anti-Aristotelian and astronomer, a correspondent of Galileo, Kepler, and Hobbes, who possibly assisted him to acquire that free and open quality of mind which enabled him to see things as they are and "shoot folly as it flies." It is beyond our limits to deal fully with the life of this great genius; we are particularly concerned with his career in Paris at the court of Louis XIV and the result of his satires upon the celebrated Faculty. The stage at that time had a much more influential position than it has to-day. It was the principal means by which the general public could be reached, and took the place of our daily newspapers with their cartoons and amusing skits. Besides, a popular piece like a play of Molière was presented night after night.



You can readily see the force of well directed shafts of ridicule, emphasized by all the accessories of the theatre, and repeated in this manner. Probably no author has ever equaled Molière in the delicacy of his satire. It resembles the celebrated sharp sword of Baron Münchhausen, which cut off a head so neatly that the victim never knew it until he came to blow his nose, by which act the head was thrown across the room. To be sure, he sometimes descends to farce, even a little broader than a cultivated taste approves, but he had been a "barn stormer" and knew his audience. He first appeared before the King in 1660, in the inimitable comedy of *Les Précieuses ridicules*, an untranslatable title which may be roughly rendered *The Utterly Uters*, in which he satirized the foolish whimsies of a certain set that had become the vogue at court. The courtiers were immediately up in arms and tried to shut up his theatre and prevent him from playing, but the King had been vastly amused and took Molière under his protection.

A few words should be said about the "grand monarque," the "sun king" who shaped the destinies of France for nearly seventy years. He was not really a very great man nor a very wise one. He had a great capacity for work and was a fair judge of men, using them as tools to advance his own interests. It was probably some indescribable psychic quality of presence and his care never to be caught at a disadvantage that gave him his enormous prestige. He was icily callous, regardless of the feelings of others, greedily selfish, and fond of adulation. It was through his powerful influence that Molière was able to maintain himself and to freely satirize the follies of the time.

I cannot dwell upon the famous plays in which he held up to the world Tartuffe, the hypocrite; Harpagon, the miser; M. Jourdain, the sham gentleman; Alceste, the misanthrope; my concern is with those in which he attacked medicine and the medical profession. In these he undoubtedly had the sympathy of the King, who had suffered many things from many doctors. In *Don Juan*, a comedy first produced in 1665, and which served afterward as the foundation for Mozart's opera, *Don Giovanni*, we find Don Juan's attendant Sganarelle (the Leporello of *Don Giovanni*) disguised as a doctor. He says:

Do you know, this dress has obtained for me some consideration: People salute me when they meet me and come to consult me. Five or six country fellows and their women came to ask my advice on different diseases. It would be a droll thing if they should be cured and come and thank me for it.

*Don Juan.* Why not? Should you not have the same privileges as other doctors? They have no more to do with curing patients than you have: Their art is mere pretence. You will find that everything which may proceed from a lucky chance and the powers of Nature will be attributed to your remedies.

*Sganarelle.* What! Don't you believe in medicine?

*Don Juan.* It is one of the greatest errors of mankind.

*Sganarelle.* You do not believe in senna, cassia, or emetic wine?

*Don Juan.* Why should I?

*Sganarelle.* You have a very unbelieving disposition. Yet you know that emetic wine has lately made a great noise in the world. Its miracles have converted the most incredulous minds, but three weeks ago I saw it produce a marvelous effect. There was a man who had been at point of death for six days; they did not know what to

do for him as none of their remedies were any good, at last they took it into their heads to give him an emetic.

*Don Juan.* He recovered then?

*Sganarelle.* No, he died.

*Don Juan.* What a wonderful effect!

*Sganarelle.* Surely. For six days he had been trying to die and this killed him at once. Could anything be more efficacious?

In *Love as a Doctor* Molière makes a more direct attack. Lucinde, in order to avoid a marriage into which her father is forcing her, feigns illness and her alarmed parent calls in four doctors.

The bright and saucy servant remonstrates with the father:

"What do you want of four doctors, Sir, is not one enough to kill anybody?"

"Hold your tongue, four heads are better than one."

"Can't your daughter die without the help of these gentlemen?"

"Do people die by employing doctors?"

"Indeed they do; I knew a man who contended that you never ought to say that such and such a person died of a fever or an inflammation of the lungs, but she died of four doctors and two druggists. Not long since our cat fell off the top of the house into the street; for three days he could not eat nor move; luckily there are no cat doctors to physic and bleed him, or it would have been all over with him."

"Hush! the doctors are coming."

"Now, you will be highly edified, they are going to tell you in Latin that your daughter is sick."

The doctors then proceed to consult, but instead of discussing the patient, converse about trivial matters. A difference of opinion has arisen between two practitioners and the rules of the Faculty had been violated, the junior consultant daring to differ from his senior. The senior killed the patient, but the worthy quartette hold him to have been entirely right and the junior wrong, although his advice was better. "A dead man is only a dead man and of but little consequence, but the whole profession suffers injury if a formality is neglected." It should be remembered that at the time this play was produced a very scandalous scene had recently occurred at the death bed of Cardinal Mazarin, where four doctors had disagreed totally as to the manner of treatment, and had denounced each other in no measured terms. The doctors in this play were carefully made up to imitate the personal appearance of those physicians, and the dialogue that ensues when they come to prescribe for the patient is evidently based on the rumor of that famous consultation. The first doctor finds "great heat of the blood" and proposes to bleed, the second finds "putrefaction of the humors" and proposes an emetic. High words ensue. "An emetic will kill her." "If you bleed her she will die." "Do you remember the man you killed a few days ago?" "And you the woman you recently finished off?" etc., etc. They leave, and the remaining couple prescribe purgatives and anodynes. "Your daughter may die, but you will at least have the consolation of knowing that she died in due form. It is better to die according to rules than to recover contrary to rules." The puzzled father rushes out to get some quack medicine, and the denouement is made by Lucinde's maid bringing in the lover disguised as a physician, who with much palaver makes a totally different diagnosis and prescribes a mock marriage with himself, to which the father agrees and finds too late that the marriage is valid. During the play the

two angry physicians meet a third, who expresses sentiments which we may feel were shared by Molière himself: "Are you not ashamed to show so little prudence and quarrel like young fools? Is it not enough that we should dispute with our learned contemporaries and ancient masters without revealing to the laity our quarrels? The science of medicine is not improved by this. Since heaven has allowed people to be infatuated with us for so many centuries, let us not disabuse them, but profit by their follies. Let us agree before our patients, so that the happy issue of the illness may be attributed to us, and our blunders be laid at Nature's door. Let us not destroy the happy fondness for an error which gives bread to so many people."

In *The Doctor in Spite of Himself* the farce is even broader. A drunken scamp of a woodcutter who has picked up a smattering of medical terms is forced by a good beating to pose as a doctor, and finding it "the best of all trades" diagnosticates in gibberish, which the company think is Latin, a case of pretended dumbness, and assists his patient to elope with her lover. It is excruciatingly funny. The pretended doctor in his discussion of the malady reverses the relative position of the heart and the liver, and the father says, "I have no doubt your reasoning is most excellent, but there is one thing which puzzles me, the position of the liver and the heart. It seems to me that the heart is on the left side and the liver on the right." "Formerly it was so," replied the doctor, "but we have changed all that." This is an excellent instance of the way in which Molière used the events of the day to heighten his effects. The medical profession of Paris was much excited just then over a case of *situs inversus viscerum* which had recently been discovered, and much discussed. The wit of implying that the doctors had power to change the position of the viscera at will, and had probably done so, must have pleased the audience.

The attack upon the doctors was kept up in *M. de Pourceaugnac*, a comedy with ballet interludes that were composed by Lulli. There is in this also a consultation between two doctors, one of whom is described as follows:

He is a man who knows his profession as I know my rosary and who, were his patient to die for it, would not depart one iota from the rules prescribed by the ancients. For all the gold in the world he would not cure a patient with other remedies than those prescribed by the Faculty; he is expeditious and despatches his patients promptly. If you must die, he is the man to help you to do it quickly.

This learned man prescribed for the patient, who is not in the least sick, as follows:

Firstly, in order to cure this obdurate plethora, and this luxuriant cacochymy throughout the body, I am of the opinion that he should be liberally phlebotomized, that is to say that he should be liberally and copiously bled; in the first place by the basilic and then by the cephalic vein; and even, if the disease be obstinate, the vein in the forehead should be opened, and the opening made large, in order that the thick blood may come out; and, at the same time, he should be purged, deobstructed, and evacuated by suitable and proper purgatives, that is to say by cholagogues, melanagogues, etc.; and as the veritable source of all the evil is either a thick and feculent humor or a black and gross vapor which obscures, infects, and contaminates the animal spirits, it is necessary that this treatment should be followed by a bath of pure and clean water, with plenty of whey, in order that the water may

purify the feculence of the gross humor and that the whey may clarify the blackness of this vapor.

There is much more of this; indeed, it is hard to select; but I must not weary you. It sounds strangely to us, but the remarkable thing about it is that it is not a caricature. It can be easily matched by serious prescriptions taken from Fernel and other distinguished members of the Faculty. It is indeed remarkable that Molière was able to imitate so perfectly the Galenical jargon of the day. The scene ends rather broadly, the patient rushing off protecting his *derrière* by an arm chair and pursued by a number of apothecaries each armed with an enormous syringe.

We now reach Molière's last play, *The Hypochondriac*, in which he continues his biting satire upon the Faculty. It calls up tragical memories, as upon its fourth representation, our author, playing the title rôle, was stricken on the stage and died of a hemorrhage a few hours later. It was, perhaps, from personal experience that he places the following words in the mouth of the brother of the hypochondriac:

Between ourselves, I consider medicine as one of the greatest follies of mankind; and, looking at it from a philosophical point of view, I cannot think of anything more ridiculous than for one man to undertake the cure of another. The springs of these machines of ours are a mystery which, up to the present, men do not understand; Nature holds too thick a veil over our eyes for us to know anything about it. Most of the doctors know a great deal about the classics, they can talk in fine Latin, they know the Greek names for every disease, but as for curing them, they know nothing at all about that. Their art excels in pompous gibberish, in specious twaddle which substitutes words for sense, and promises for performances.

My limits will not permit me to dwell upon this wonderful play which is truly a masterpiece of medical satire. It should be read as a whole, as it fairly bristles with good things. It ends with a ballet and spectacle in which the ceremony of graduation of a doctor is parodied. In many respects this closely approaches the actual ritual. It is thought that Molière had here the assistance of some of his friends who were members of the Faculty. The ceremony is given in macaronic Latin; the candidate being propounded certain questions, for example, "Why does opium produce sleep?" replies

Quia est in eo  
Virtus dormitiva  
Cujus est natura  
Sensus assoupire.

whereupon the chorus of the Faculty exclaim:

Bene, bene, bene, bene respondere  
Dignus, dignus est entrare  
In nostro docto corpore.

In this there is a dig at the innate faculties of Aristotle, which placed in every object special and peculiar virtues which gave it its qualities. Malebranche asked whether a carriage followed horses because of a *tractive* virtue. Being asked how he would treat a dropsy, the candidate replies:

Clysterium donare  
Postea seignare  
Ensuite purgare.

The same answer is given for the treatment of asthma, and for hectic fever with headache and pain in the side, each time with the felicitations of the chorus. A fifth doctor asks:

Mais si maladia  
Opiniatria  
Non vult se garire  
Quid illi facere?

and receives the same answer. The candidate then swears to observe the statutes of the Faculty, to follow in all consultations the old methods, to never use any remedies but those approved by the Faculty, no matter if the patient should die on his hands. At each clause the candidate solemnly pronounces "Juro." It was while pronouncing this word that Molière succumbed, and his enemies did not fail to allege that it was a judgment of God for his impiety toward the Faculty.

His death was truly tragical. Feeling woefully weak and ill, he had been implored to close the theatre and not to play, but he made it a point of honor not to give up, saying: "What can I do? There are fifty poor workpeople who live on their daily wage; what would they do were there no performance?" The actor's profession being under the ban of the Church, burial in consecrated ground was refused. "What!" said Madame Molière to the canon who turned back the coffin, "you refuse burial to a man to whom you ought to consecrate altars!" It is true, for his was the greatest reformatory force of the period, Boileau said of him, "Thy lightest jest is worth a learned sermon." Burial was finally secured by orders of the king. Though easily the most eminent man of letters of his time, the prejudice against him was such that he was never elected to the French Academy. One hundred years after his death the Academy placed in its assembly room a fine bust of him, with the following inscription:

Rien ne manquait à sa gloire.  
Il manquait à la nôtre.

Nothing was wanting to his fame.  
T'was ours that needed him.

I have given considerable space to the work of this illustrious man because he was really the chief force that caused a reformation of medical education in the seventeenth century. "Cervantes laughed Spain's chivalry away," and I think we may truly say that from the laughter of Molière grew the forces that led the medical profession in France to abandon its antiquated methods and enter upon the career of investigation and research which has ever since distinguished it. The decree against antimony was rescinded before Molière's death. They held out longer against the circulation of the blood. The *circulators* (meaning *charlatans* in Latin) were decryd by the entire Faculty, even by Riolan, whom, it will be remembered was the only opponent whom Harvey deigned to answer categorically. It was with reference to this controversy that Boileau and Bernier drew up the celebrated "Burlesque Decree" in the form of a judicial order, as follows:

In view of the fact:

That an unknown person named Reason, by an illegal and lawless procedure, has attributed to the heart the charge of receiving the chyle formerly belonging to the liver;

And also has made the blood circumgyrate throughout the entire body with full powers to wander, stray, and circulate with impunity through the veins and arteries;

Having no right nor title to do these things excepting

only the authority of *experiment*, whose testimony has never been allowed by the Faculty—

The Court orders:

That the chyle go straight to the liver without passing any more by the heart,

That the liver receive it;

Forbids the blood to divagate further, to wander and circulate throughout the body, under penalty of being entirely given over and abandoned to the Faculty.

Forbids Reason and her adherents to attempt to cure by bad remedies such as pure wine, powdered cinchona bark, and other drugs not approved nor known by the ancients.

And in case of irregular cures by the said drugs it is permitted to the members of the said Faculty to proceed, in their usual manner, to throw the patient into a fever, and to reproduce the illness from which he formerly suffered, in order that he may be treated according to the rules, when if he does not recover he will at least pass to the other world sufficiently purged and evacuated . . .

And in order that the orders of the Court may be obeyed, it has banished forever the said Reason from the schools of the said Faculty: It forbids her to enter there and to trouble and disturb Aristotle in the possession and enjoyment of the same under pain of being declared a Jansenist and a favorer of innovations.

In 1673, the year of Molière's death, Louis XIV established at the *Jardin des Plantes* a special chair for the dissemination of the new discoveries of the circulation of the blood and of the lymph.

The paralyzing effect of the Faculty could not wholly stop progress in France; those who traveled and saw what was being done in other countries came back with minds somewhat enlightened. It is to the honor of Riolan that he persuaded Louis XIV to establish the *Jardin des Plantes*, where Duverney made important investigations and infused such spirit into his work that even noblemen flocked to hear him and witness his demonstrations. Montpellier, though suffering from an incubus like that of Paris, was still able to produce Vieussens, whose researches on the anatomy of the brain deserve mention.

The progress was, however, mediocre when compared with that seen elsewhere. In England, besides Harvey, Glisson placed our knowledge of the liver on a secure foundation; Wharton and Needham investigated the salivary glands; Willis described more fully the brain and the cerebral sinuses; Highmore the cavities of the face and the seminal ducts; Sydenham greatly improved the diagnosis and treatment of disease. In Italy, Malpighi made a host of discoveries, anticipated the cellular theory, and gave a correct idea of the nature of glands; Borelli worked out the mechanics of the bodily structure; Pellini obtained a fair idea of the structure of the kidney, and Wirsung discovered the pancreatic duct. At Leyden, Leeuwenhoek, with his rude microscopes, discovered infusoria, spermatozoa, and many other minute matters; Van Horne and Nuck demonstrated the lymphatics and the thoracic duct, Sylvius increased our knowledge of the brain and established clinical teaching as a necessary method. Swammerdam, at Leyden, and Ruysch, at Amsterdam, perfected the art of injections; Bartholin, at Copenhagen, studied the lymphatics, while Stensen worked upon the brain and glands, anticipating our modern idea of tracts for the conduction of impulses in the central nervous system. At Wittenberg Schneider correctly described the mucous membrane of the nose, completely overthrowing the prevalent doctrine of the brain as a secretory organ.



The reason for this marked difference did not lie in the lack of capacity in the French people. The great burst of discovery that occurred in France during the next century shows this. The country that produced Bichat, Laennec, Lavoisier, Laplace, Buffon, Vicq d'Azyr, and Lamarck has no reason to hide its head before any other. It was the terrible deadening effect of an iron bound system. May we not take warning from this? Is it not well for us even to-day to avoid placing too restricting fetters upon medical teaching? May not this minute supervision so insisted upon by the American Medical Association and other bodies lead to a lack of freedom and a restriction of personal initiative?

1788 COLUMBIA ROAD.

## THE SENSE OF SMELL AS AN AID IN DIAGNOSIS.\*

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Old medical works rarely referred to odors, but as time goes on new notices in the newer publications occasional references to odors, at times in a way to make it appear that they may be used as real characteristic signs of diseased conditions. There can be no denying the fact that we should use every means at our disposal in endeavoring to make a diagnosis. Helen Keller says that many of us who have all our senses do not use them—a rebuke by one who cannot see, hear, or talk, except as she has lately learned to use her voice after years of teaching. How many have the sense of smell and never use it for any useful purpose? As the writer understands it, our duty is to use this sense if it helps us in our study of diagnosis, but to the minimum extent.

Probably every physician and surgeon, as well as experienced nurse, uses the sense of smell either instinctively or as the result of experience in diagnosing disease or appreciating diseased conditions. That this is an important sense often forcing itself upon us hardly any one will deny. It is difficult to imagine its extreme usefulness if it be carefully developed and cultivated along given lines. There is food for thought in such a subject. Are we using this sense as we should in the recognition of disease? Our sense of sight we have developed or tried to develop in every possible way. Inspection as the result of observation has its proper place in medicine, and no article or book is every written, and properly so, on the diagnosis of disease without space being devoted to inspection as an aid in diagnosis. The sense of hearing has its place, especially in auscultation, nervous diseases, and ear work. The sense of touch—feeling or tactile sense—has its proper place in abdominal and chest percussion, as well as in gynecology and obstetrics. The sense of taste has a very small place in diagnosis, unless it be along the line of materia medica and toxicology. In urinalysis we hear of the sweet taste of saccharine urine. The sense of smell undoubtedly has its place in diagnosis, although no attempt has ap-

parently ever been made to put it on a really working or scientific basis.

### GENERAL CONSIDERATIONS.

Two individuals as a rule will agree as regards unpleasant odors and agreeable odors. A fragrant flower will be in a degree as fragrant to one person as to another and will always call forth an expression of pleasure on the face of the individual smelling it, while a foul odor will cause a contortion of the facial muscles, signifying a feeling of disgust. The sense of smell occurs at an earlier period in female than in the male infants, and girls and women have, as a rule, a better sense of smell than boys and men. It is well known that the lower animals have the sense of smell acutely developed, owing to the relative size of their olfactory bulbs and the greater distribution of their olfactory nerves. The scent of the hounds in the chase is well known. Lower types of men seem to have scent similar to animals, but not at all to the same degree. Paradoxically, the higher up you get in civilization the more acutely developed is the sense of smell. The esthetic sense is accompanied by a delicate sense of smell, while in the lower walks of life this sense seems to be blunted. An illustration of this is afforded by the stifling and malodorous atmosphere in which many illiterate people pass their lives. Different races of people have an odor peculiar to themselves, as, for example, negroes, Chinese, and Indians. Different nationalities also have a distinctive odor, as, for example, the Italians, Irish and Russians.

Men have an odor about their persons which differs from the odor belonging to women as a class. The young person differs in odor from the adult of the same sex. The old man has an odor peculiar to himself, likewise the old woman. Brunets have a distinctive odor; likewise the blond; and in the former the odor is in certain types very positive. Red haired persons have a peculiar odor about their bodies, especially those with dark skins. The odor of the infant is said to be of butyric acid; that of old people of dried leaves. Occupational odors of different kinds may also be considered, as workers in different occupations will have about their persons odors of the kind which they work in. People will also carry about their persons the odor of their living rooms. Habits of cleanliness or lack of cleanliness have a good deal to do with the odor about a person. The odor of the body before a bath may be very strong, whereas immediately after the bath a freshness may take the place of a strong disagreeable odor. We are not, by the way, running much of a chance of a limitation of our study by too great cleanliness, for it is the opinion of the writer that most humans do not bathe sufficiently.

It is generally conceded that different individuals under ordinary circumstances possess odors which are distinctive and peculiar to them. These particular odors are changed when the body is diseased. A healthy person's odor differs from the same person's odor in a time of disease. As observed by the writer, different diseases have different odors, and these odors are about the same in different individuals. Thus, the odor of phthisis is about the

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same in all individuals, especially during the later stages of the disease. Different diseased conditions differ in odor as regards the location of the diseased focus in the body. For instance, pus gives off a different characteristic odor when the situation of the disease is in the chest, in the ischio-rectal region, or in the appendix. Different body organs when diseased give off characteristic odors. Special odors emanate from the skin, hair and scalp, breath, arm pit, feet, perineum, prepuce, mons veneris, vulva and vagina, and from the menstrual fluid. Each secretion and excretion has its own particular odor. Normal feces have a strong odor, while in certain diseased conditions (as jaundice, for instance) there is almost complete absence of odor about them. There is no unpleasant odor in normal fresh urine; ammoniacal decomposition of bacteria is the cause of the so called urinary odor. There is a disagreeable odor in decomposing albuminous urine. According to Emerson, a diagnosis may be made from this alone. There is said to be an intolerable odor in cancer of the bladder and deep inflammatory diseases of the urinary tract. Charbie believes in a characteristic odor in certain conditions of abnormal metabolism with incomplete combustion, such as diabetes and oxaluria. There is said to be a special odor in chyluria, and even in slight hematuria. Emerson has noticed a strong odor of sulphuretted hydrogen in certain nephritics, even when the urine is quite fresh. Valerian, coffee, asafetida, and various foods are excreted as such in the urine. Copaiba, cubeb, etc., cause odorous bodies. Turpentine produces an odor of violets in the urine. After eating asparagus there is a characteristic odor attributed to methyl mercaptan. The odor of semen resembles a mixture of flour and water, crushed leaves, or sawed bone, according to different observers. There is thought to be an odor about the bodies of the dying. Pet animals will leave their masters when they perceive this odor. A "mousey" smell has been noticed about the persons of dirty adults as well as children. Smoking interferes with the sense of smell. A few persons find it impossible to smoke when they have a coryza without experiencing an attack of nausea. A well known chemist has developed his sense of smell very successfully to distinguish compounds in his laboratory. Parlor games have shown that the sense of smell tires very easily. One may not perceive the odor of kerosene after a few attempts at forcing the sense to recognize different substances. The sense of smell is excited by substances in a fine state of subdivision or in the gaseous state floating in the atmosphere. Sniffing or short inspiratory movements bring these substances in contact with the rod cells which make up the special olfactory mucous membrane. A moist condition of the mucous membrane favors the act of smelling. Most of the olfactory nerves are distributed to the upper and middle part of the nasal cavity. No motile cilia are in this area. The extreme delicacy of smell is shown by the fact demonstrated by Valentin that perception of two millionths of a milligramme of musk is sufficient to excite the olfactory nerves in man. The acuteness of the sense of smell is greatly improved by practice. A boy named James Mitchell, who was deaf, dumb, and blind, used his sense of smell like a dog to distin-

guish persons and things. Electrical stimuli give rise to olfactory sensations. Flavor depends on the sense of smell.

Rufus Ephesus (97 A. D.) described the passage of the olfactory nerve through the ethmoid bone. Carbonieri (*Revista Clinica*, 1888) contributed a clinical observation which gives some information as to the position of the olfactory centre. The patient suffered from a number of epileptiform convulsions, during which he always complained of a nauseating odor not perceptible to others. Post mortem examination revealed a tumor in the occipitotemporal and hippocampal convolution, or at that portion of the brain in which the olfactory centre has been placed by Ferrier, Munk, and others. Dr. William H. Bayles reports the case of a gentleman who persistently perceived a smell which resembled a bug. He sincerely believed that a bug had crawled up his nose and become lodged there. Upon examination an abscess of the frontal sinus was found.

Continent young men are said to smell more strongly than the unchaste. The emanations from the body during sexual excitement are well known. In men this is more marked than in women, except in rare instances. Just prior to intercourse the odor in both sexes differs from that which is perceived following the act. A close observer may by proximity to a man or a woman after the orgasm perceive a peculiar and characteristic odor. In women this odor, like that prior to intercourse, is not quite as perceptible as in men. Gimaldi states that the odor from a man's breath, skin, or both during sexual excitement is of rancid butter or chloroform. Girls and young women during menstruation give out an odor from the breath quite distinct from that of the menstrual fluid. In insanity of a sexual character hallucinations of smell are encountered by alienists. Scents of white flowers, like syringa or gardenias, sexually excite some persons, as does the personal odor of a beloved individual or certain artificial perfumes. Lack of sexual vigor is frequently accompanied by a neurasthenic sensitiveness to sexual odors. It is generally conceded that as the sole factor in sexual selection olfaction must be rare, sight always taking precedence. The very same odor may at one moment be highly agreeable and, at the next, highly unpleasant, according to the emotional attitude resulting from its associations.

*Body Odors and the Part They Play in the Symptomatology of Disease.* The odor of the breath has some importance, especially in tuberculosis. It may be fouler than the sputum in the cup. Some maintain that they have diagnosed small cavities by this sign before they could have been discovered by physical examination. The sputum when fresh has almost no odor; when it is allowed to stand a very positive odor is given off. In tuberculosis and bronchiectasis the odor of the sputum is heavy, sweet, and penetrating; in perforating empyema, like that of old cheese; in putrid bronchitis, fetid. In pulmonary gangrene it has the worst odor of all. (Emerson's Clinical Diagnosis.) Dr. Algernon T. Bristow, in a paper entitled *A Case of Streptothycosis* (*Long Island Medical Journal*, November, 1912), says: "We are all familiar with the characteristic odor of pus produced by the colon bacillus." Dr. Harvey Cushing,

in describing in his book, *Pituitary Body Disorders*, page 226, a case presenting a "syndrome of precocious sexual adolescence," says: "There is excessive secretion from the cutaneous glands with a most offensive odor." The *Lancet*, February 1, 1913, draws attention to the fact that many cases of ill health which have been attributed to lead poisoning are not really due to this form of poisoning, but are mainly if not wholly owing to a foul mouth condition. Dr. Robert Abbe, in the *Medical Record* of March 15, 1913, in a paper on Malignant Disease of the Tongue and Mouth, says: "When the tongue cancer reaches the stage of the foul excavated furrow along the half tongue, with a heaped up mass of new growth about it, looking like an over cooked sausage which has burst its skin, we have reached a point in the patient's endurance which is intolerable." Dr. Virginus Dabney, in a paper in the *NEW YORK MEDICAL JOURNAL* of March 15, 1913, on The Connection of the Sexual Apparatus with the Ear, Nose and Throat, says: "The marked increase in odor from the nose in ozonous cases at the time of the monthly flow, noticed by Mackenzie and Trousseau, has been my observation to this extent, that those who have atrophic rhinitis without ozena, had it at this period of ovarian activity." Dr. M. Gross, in a paper in the *Medical Record* of November 30, 1912, on Disinfection of the Intestine by Insufflation of Oxygen, says: "In putrefaction there is a mixed type. The feces are dark, of putrid odor, etc." In a case of chronic fermentative and putrefactive catarrh which he reports the odor of the feces was offensive, and in a case of colitis he describes the stool as soft, dark, alkaline, and of offensive odor. In necrosis of bone we are apt to perceive a rather characteristic odor. Patients with incontinence of urine have about their person a pungent urinous odor. Dr. Richard C. Cabot, in his recent book on *Differential Diagnosis*, makes mention of the sense of smell in many places.

*The Sense of Smell as a Real Diagnostic Aid in Different Diseases and Diseased Conditions.* Foulness of the breath is met with in four groups of conditions: 1. Septic and putrefactive changes within the nose and mouth; 2. septic and putrefactive changes within the lungs; 3. ingestion of certain substances such as tobacco smoke, garlic, onions, spirits, whose products are excreted by the lungs and saliva; 4. severe toxic conditions.

The nature of the trouble in the mouth may be tartar, septic gums, carious teeth with particles between them, pyorrhoea alveolaris, hypertrophic or atrophic rhinitis, ozena, septic tonsillitis, squamous celled carcinoma of mouth or tongue. Dentists tell us we must remember that bridge work will harbor all kinds of germs, as well as maggots alive and dead and in various stages of decomposition. Rarely will one find a foul breath in a perfectly healthy person with no signs of disease; not even flatulence or any bowel condition. In ozena the secretions have an extremely offensive odor. The patient as a rule does not perceive this odor, owing to impairment of the sense of smell. In purulent inflammation of the middle ear the discharge has frequently an offensive smell. In chronic purulent diseases of the middle ear the purulent secretion

simply dries, and later becomes changed into caseous masses which have an offensive smell. In abscess of the brain the contents of the walls of the abscess are of the nature of greenish, decomposing pus, which usually emits a most offensive odor. There is frequently an offensive odor from the breath. In septic thrombosis of the sigmoid sinuses the pulmonary symptoms are accompanied by expectoration, streaked with blood or having "a prune juice" character, giving forth in some cases a fetid or even gangrenous odor.

In typhoid fever there is generally a foul condition of the breath. The odor about a typhoid fever patient is quite marked, owing to the emanations from the body and the discharges, especially if there be diarrhea. This characteristic odor is rather sharp and stinging to the sense of smell, "a semicadaverous musty" odor as Nathan Smith says. In smallpox there is said to be a sickish odor, especially during the stage of suppuration, like the odor of sweet potatoes, according to some. In scarlet fever the breath often has a heavy, sweet odor. In diphtheria there is a very characteristic odor about the patient, depending upon the severity of the infection and the extent of the membrane. The old fashioned gangrenous sore throat was undoubtedly diphtheritic in character. The odor is fetid when the membrane reaches the back of the nose, as a rule. Almost any experienced person can make a diagnosis of diphtheria by this odor of the breath alone. In septicemia and pyemia the odor of the breath is foul. In pulmonary tuberculosis there is a characteristic odor about the patient, aside from the odor of the breath before alluded to. This odor is pungent and emanates from the skin and sweat glands of the patient. It may be perceived on the underclothing after removal from the body. In rheumatic fever we have an acid sour smelling odor from the sweat glands, and this particular odor is not noticed in any other disease.

In diabetes mellitus we have the sweet odor of the breath sometimes called "the acetone breath." This is a fairly constant symptom, and once recognized will always be appreciated. In ulcerative stomatitis we have a fetid or putrid sore mouth condition, with a very bad odor to the breath, and this is also the case in mercurial stomatitis or pyalism. In suppurative tonsillitis the odor to the breath is foul, and the odor of the discharge is very characteristic. Dyspepsia in itself may produce a bad odor to the breath, as will any of the toxic conditions affecting the alimentary canal.

In cancer of the stomach the vomited matter consists of food and mucus in grayish or dark, sour smelling fluid. (Osler.) Children with gastrointestinal conditions have a sour smelling odor about their mouths and bodies. In some appendicitis cases we have the characteristic odor of the discharge, denoting ulcerative gangrenous appendicitis. In severe toxic conditions affecting the peritoneum the odor of the breath is foul, and this condition also obtains in intestinal obstruction. Bronchiectasis is also accompanied by a foul breath; likewise abscess of the lung and empyema. Gangrene of the lung, as has been mentioned, has the distinction of producing the worst odor of all.



In uremia and puerperal eclampsia there is a urinous odor about the body. This emanates from the skin and sweat glands, and is very pronounced and diagnostic. In fecal fistulae there is always a disagreeable odor in the discharges. Abscesses in different parts of the body may produce odors which are very pronounced, especially old multiple ischio-rectal abscesses. Ulcerating cancer in general will cause the production of odors, but there is one kind of cancer which is especially known for its foul smelling discharge, viz., nonoperable cancer of the uterus. Incomplete abortion will cause a bad smelling vaginal discharge, as will the leaving of secundines or portions of the placenta after full term labor. If the child be dead in the uterus the odor of the discharge, which comes from the vagina and may contain exfoliated epithelium, is as a rule fetid. In death of the fetus the breath is fetid. (King, p. 144.) In endometritis there may be a very bad discharge per vaginam. The odor from the uterus following normal labor where everything has gone on successfully should be free from any suspicion of bad odor, and the same is true after abortion under the same circumstances. During labor there is an odor about all women. This is changed when the membranes rupture, and becomes negative or nearly so after the birth of the child under normal conditions. The breath is very foul in postpuerperal sepsis.

Alcoholism may be diagnosed by the odor of the breath. In bone involvement of the middle ear there is a very characteristic odor. In cholesteatomatous masses in the middle ear the odor is that of Camembert cheese. One observer has noticed an odor in the breath of patients suffering with an ulcer of the cornea. In the active stages of measles there is present a very characteristic odor which is difficult to describe. There is said to be a cadaverous odor in children with tuberculous enteritis. In pregnancy there is a distinctive odor about women; one observer going so far as to express the opinion that it is possible to make a diagnosis from this sign alone.

#### ILLUSTRATIVE CASE REPORTS.

CASE I. W. C., came to the writer for relief from pains situated in the upper extremities, along the course of the sensory nerves. No patella reflex. Other reflexes normal. Breath smelled strongly of alcohol. He denied the use of this at first, but later confessed he was a free user of it. Diagnosis, alcoholism.

CASE II. H. M., aged thirty years. Complained of an extremely bad odor emanating from his person when he becomes sexually excited and when he was having intercourse with his wife. Wished to know if anything could be done about it as it was very disagreeable. When his wife was spoken to about the matter she said she had never noticed any such odor about her husband's person under any circumstances. This appeared peculiarly strange.

CASE III. The writer was summoned late in the evening to the bedside of a woman who was supposed to be dying. Her husband, under great excitement, was walking about the room attired in a short garment, the evening being particularly warm. As he approached the writer an odor was perceived about his person which resembled freshly sawed bone or spermatic fluid. Careful inquiry revealed the fact that the couple had just had intercourse, withdrawal was performed, and the culmination of the act had not been accomplished as far as the wife was concerned; the same leaving her in an hysterical condition. The odor of semen led to the correct diagnosis in this particular instance.

CASE IV. A young man presented himself with all the signs and symptoms of neurasthenia. In examining his chest at his request, as he feared phthisis, I perceived the odor of tobacco on his underclothing and as apparently emanating from his skin. Inquiry revealed the fact that he was in the habit of smoking at least fifty cigarettes daily.

CASE V. The writer was summoned in the middle of the night to the bedside of a woman who was supposed to be dying. Her husband said he had been awakened from a sound sleep by her calling out to run for the doctor as something horrible had happened. Although the night was very cold he lost no time in reaching the nearest telephone. When the writer entered the patient's room his olfactory sense at once told him that defecation had just occurred. Upon very careful examination nothing more than a very loose bowel movement in the bed was found. After close questioning our supposed patient confessed that she had had a most horrible dream or nightmare and was so scared that she lost control of her sphincters. This frightened her still more as she "thought her insides were coming out," as she expressed it, and consequently she cried out for help. In trying to extenuate the circumstances the husband said: "It never happened before," and the weary writer answered: "Well, let it never happen again."

CASE VI. R. K., aged twenty-one years. Habits good; negative family history. Chief complaint, extremely bad odor about feet. Bathing did not help condition. Along with the bad odor there was extreme sweating. Diagnosis, hyperhidrosis. Malodorous feet are quite common. Profuse sweating is often due to nervous conditions. The odor of the feet under these circumstances is very offensive to the patient, as well as his friends. One is reminded of the little girl who when her mother had company said: "Say, mother, let me go out and get some of that kind of cheese that smells like punky feet, but isn't?"

CASE VII. Woman past middle life, who complained of bad odor and extreme itching of vulva. Said she had diabetes. Was very obese, weighing about 260 pounds. Bathing and astringents helped the condition to some extent but not entirely. An examination of the urine showed a large amount of sugar. In rare instances we find the same odor and pruritus present in patients without evidence of disease.

CASE VIII. Mrs. G., patient of Dr. M. Pregnant; labor about due. Slight jaundice present; anxious expression of countenance; fetid odor breath; vaginal discharge fetid; no fetal heart sounds heard. Diagnosis, dead fetus with sepsis. Diagnosis confirmed by autopsy.

CASE IX. Mrs. C. Dr. W. in attendance. Had given birth to a full term child fifteen days prior to the time when the writer was called in. Dr. W. insisted that everything had come away, placenta, membranes, etc. Lochia profuse and foul smelling; temperature normal. Diagnosis, sapremia. Douches cleared up the condition in a few days.

CASE X. Patient of Dr. S. One week after a normal labor about due. Slight jaundice present; anxious expression had to be given because of the severe attacks of pain. Urine very foul smelling after standing a short time. Diagnosis, probable infection of the bladder by the colon bacillus. Hexamethylenamine and sodium benzoate cleared up the condition very promptly.

CASE XI. Miss D. Incomplete abortion at the third month; profuse and fetid vaginal discharge; temperature normal; all signs of infection absent. Curettement cured the condition.

CASE XII. Mrs. S. Three days after full term labor the vaginal discharge became fetid and profuse. Temperature 105° F.; pulse 120; expression anxious. Diagnosis (which was later confirmed), retained piece of membrane.

CASE XIII. Dr. M.'s case. Very bad odor to vaginal discharge on the fourth day following a normal labor. Retained piece of placenta was removed by finger.

CASE XIV. The writer was called to see a sick child Christmas Eve, 1912. Chief complaint by mother, very bad odor to child's breath. Writer made a diagnosis of diphtheria before looking at throat because of characteristic odor. This child had no sore throat, and in consequence the mother never thought to look for membrane. Diagnosis was confirmed by clinical course of disease and bacteriological examination of culture.

## ODORS AS RELATED TO HYGIENE.

All are familiar with the agreeable odor of fresh, pure air, likewise the disagreeable effect on the sensibilities of bad air, so called. One has only to think of the disagreeable odor of the subway, the ill ventilated moving picture house, the badly ventilated bedroom as we find it after a night's occupancy, and by comparison the fresh, pure air in the country on a clear day or on a stormy day when the rain drops strike a new pine shingle. Aids in the diagnosis of unhealthy odors may be used along the line of discovering the origin of the bad odor, as, for instance, leaking gas fixtures in homes and places of business, poorly ventilated living rooms, smoky rooms, disagreeable odors from kitchens, toilets, wash basins, sewer pipe leaks, etc.

Trillat in the *Archives des sciences physiques et naturelles*, June 5, 1912, reports experiments concerning the growth of pathogenic bacteria when exposed to air containing putrid gas. He found that diphtheria bacillus and plague bacillus grow very rapidly under such circumstances. The experiments were conducted in the laboratory and out of doors. He believes that putrid gases from the soil cause changes in milk and meat after a thunder storm. The general impression is that breathing and living in bad odors, such as those from leaks in sewer pipes, from out houses, or from decaying animal and vegetable matter, are a source of disease. In coal mines the miners are said to wear canary birds in cages on their hats for the purpose of watching the effect of the bad atmosphere on the constitutions of the birds. When the atmosphere becomes bad the bird will faint, and this is a sign to the miner to beware. Before the bird faints he will wilt; this also is a sign of impending danger.

Dr. S. P. Goodhart, in an article on atypical children (*NEW YORK MEDICAL JOURNAL*, XCVII, page 750) says:

For instance, a horror of death can often be traced to the impressions in childhood of the funeral ceremony, the house of mourning, the memory of all the highly emotional features of that period of stress and suffering. This has frequently helped to aggravate a neurosis in sensitive children. I have been able to bring the emotional complex out of the subconscious by stimulating the olfactory centre; that is, by allowing the patient, while in the hypnoidal state, to smell a tuberose, a flower so common at funerals.

The atmosphere in a neighborhood may be tested by the olfactory sense. The smell of chemicals, smoke, slaughter houses, tanneries, etc., all contribute to make a neighborhood more or less undesirable. There have been many attempts to eliminate smoke in certain cities, as, for example, in Chicago, where the smoke is measured and data carefully recorded. Tobacco smoke in living apartments undoubtedly does harm, especially where there are growing children. What may be a disagreeable odor to one person may be quite agreeable to another person. Odors experienced in childhood are as a rule remembered in all the after life. The odor of new leather gives a very agreeable sensation to most people. The odor of coffee grounds is especially offensive to certain individuals. Particular odors will cause certain persons to faint, as, for example, the odor of iodoform, collodion, ether, or tuberose. A perfume maker may have two hundred different odors in his laboratory, yet he can

distinguish them all. Probably nothing is really inodorous. In conclusion, the writer wishes to make the statement that bad odors and good odors have their place in the study of medicine, in the development of the olfactory and esthetic sense, and that the sense of smell is a useful adjuvant in the diagnosis of disease and abnormal conditions.

428 FORTY-SEVENTH STREET

## CREATING FALSE MOTOR PATHS. \*

BY MAX STRUNSKY, M. D.,  
New York.

This article is a plea for a more thorough understanding of the principles on which muscle education is based, so that a more scientific technic for the treatment of chronic infantile paralysis can be constructed. In recent years so much has been written on the surgical and mechanical treatments of this disease, and so little that is actually good on muscle education, that the latter is forced to occupy a subordinate position in the therapy, as compared with the newer and more advertised methods. Even more conducive to the disrepute of muscle education than the overbalanced literature is the way it is practised both by private physicians and in institutions. The physician always wants to do the big things for infantile paralysis. Preventing the inevitable deformities by constructing good braces or correcting the deformities by tenotomies, etc., naturally attracts his immediate attention. He plans and often performs operations for tendon transference, arthrodesis, and even nerve grafting. On the other hand, muscle education is so time consuming and so simple as to seem undignified for him to practise it himself. He invariably, therefore, leaves the gymnastic part of the treatment without adequate supervision to the nurse, masseur, or the patient's relatives, with the result that innumerable cases are met with in which patients have not only not received the benefit they might have had from scientific exercise, but have been actually harmed by faulty gymnastics. The object of this paper is to point out a few of the glaring mistakes which are frequently made in gymnastic treatment.

The movements of the body are executed by two sets of muscles: the direct and the auxiliary. In paralysis, the direct muscles being involved, the patient learns to accomplish the movements by employing those auxiliary muscles which were spared. Also, being unable to move directly, he is forced to perform vicarious movements. He avoids the use of paretic muscles, for it is hard work to use them, especially, as is often the case, when so little strength remains. To avoid this hard work the patient unconsciously does the easier thing, that is, he uses the auxiliary muscles. So strong is this tendency to avoid the use of the paretic and substitute the use of the auxiliary muscles that, in treatment, it is not only necessary to insist that the patient make continued efforts to overcome this tendency, but also to watch the movements constantly, for if left alone he will immediately revert to the habit he has acquired. Moreover, he learns to manœuvre his auxiliary muscles in so subtle a

\*Read before the members of the Staff of the Hospital for Deformities and Joint Diseases, April 8, 1913.

way as to give the impression that he is using the paretic muscles. This he does so naturally as to deceive even an experienced instructor. It often happens that the patient suddenly swings his limb in a way which seemingly must necessitate the use of the paretic muscles. On scrutiny, however, it is discovered that it is only a new movement which he has learned, and that he has helped himself with the auxiliary muscles after all. It is apparent, then, that when children who instinctively resist contracting their weakened muscles, and use their auxiliary muscles instead, are taught gymnastics by persons who do not know anatomy, the paretic muscles escape the exercise, and the brunt of it falls upon the auxiliary muscles, which become overworked. Needless to say that the opposite is the aim of muscle education.

It is obvious that in order to administer muscle education, it is not only necessary to know anatomy, but also to be able to reason anatomically. Otherwise one cannot know in what position to place the limb so as to frustrate the action of the auxiliary muscles, or be able to tell during the movement which muscles are carrying the burden and which are in repose, or even to know the difference between auxiliary and direct muscles. However, even with gymnastic treatment, most patients make favorable progress. Their limbs fill out, their trophic disturbances lessen, and their gait grows stronger. This blinds the physician and prevents him from discovering the wrong principle in the treatment. I have made a study of a number of infantile paralyses who have improved under various treatments, with the object of determining what constituted the improvement. I was surprised to find that in the majority of cases the favorable progress was not due especially to any perceptible increase in the strength of the paretic groups, but mainly to the development of the auxiliary muscles. It is easy to understand that the filling out of a withered limb can also be caused by the increase in bulk of the auxiliary muscles; that the modification in the vasomotor disturbances may be brought about by the increased circulation in the limb from any form of exercise, and that the slight improvement in gait may be due to the greater agility with which the patient has learned to execute the vicarious movements. But, of course, this does not mean that the pathological lesion of the child has improved. On the contrary, in several of such so called improved cases, there was even a decrease in the bulk and strength of the paretic groups, as shown by actual measurements and responses to the electric current. So that in these cases, though the patients were seemingly improved, pathologically they had really regressed. The fact, therefore, should be remembered that unless muscle education, in place of gymnastics, is used in the treatment of these cases, the paretic muscles will manage to escape the exercise more or less, and some entirely so. The harm of this can easily be imagined, especially when the muscles in question are already in the grip of atrophy and degeneration caused by paralysis of the vasomotor nerves. The harm of inactivity is not limited alone to the muscles, for physiologically they are not separate entities, but links in the structures which produce and express motor impulses, namely the nerves, the motor cells

in the cord, the motor cells in the brain, the motor tracts, etc. Increased degeneration resulting from disuse is not limited, therefore, to the muscles alone, but affects all the above structures. This, however, is the least of the evils which result from the arrested function of the paretic muscle. A far greater evil, in my opinion, lurks in the vicarious movements. In performing the vicarious movements the patient develops not only new muscle fibres, and in the spine and brain vicarious motor cells which dominate and execute these movements, but also creates in the central nervous system false motor paths which transmit the motor impulses for the crippled movements.

By this I do not mean to imply that the vicarious movements and the activity of the auxiliary muscles are in themselves detrimental. They are, on the contrary, conservative processes. The vicarious movements are the substitute for the direct movements which save the paralytic from total helplessness. They are Nature's crutch. The activity of the auxiliary muscles is Nature's tendon transference, so much superior to surgical tendon transference. The tendon transferred by surgery must give up forever the function for which it was originally destined before it can take up the new burden, while in the case of auxiliary muscle activity the tendon learns to perform the work created by the paralysis without interfering in any sense with its original mission. Where there is a total paralysis of a group of muscles, therefore, these two vicarious processes should even be encouraged. For the patient will need the crutch permanently, and the stronger it is made the greater its service to him. But, as a rule, there is paresis, and not paralysis. To teach the patient to use the paretic muscles and to persist in using them, to help him to unlearn the use of the vicarious movements which stamp him a cripple, is the aim of muscle education.

Healthy muscle responds quickly to exercise, and therefore comes the temptation to use gymnastics. (The term gymnastics is here used to designate simple exercise, the brunt of which falls mainly on the auxiliary muscles in infantile paralysis, while the term muscle education is reserved to the scientific application of the exercise by which the paretic groups are mainly compelled to functionate.) The temptation to use gymnastics is increased by the fact that the exercise of the auxiliary muscles generally improves the patient. But as was explained before, this is the wrong kind of improvement, and, on the other hand, paretic muscles respond slowly to exercise. Therefore muscle education is tedious, and often disheartening. Yet the response of paretic muscles to exercise is unquestionable, and the tediousness itself is felt only at the beginning. Later, when the paretic muscles begin to gain in strength, there is a great deal of encouragement. The gain may be small, but it is of the right kind, for it is due to the improvement in the patient's pathological condition, and not to mere development of vicarious muscle strength, which, though making the patient's movements firmer, eventually does him harm.

We must remember that the only thing that will stop the conversion of muscle cells into fat or fibrous cells, a process going on continually in the paretic muscle, is voluntary functioning of the



affected muscle. According to the investigations of D. Koch,<sup>1</sup> voluntary functioning of the paretic muscle has even the power to regenerate a great many of the muscle cells in the fatty areas which are distributed throughout the paretic muscle. However, we do not need any theory to convince us of the superiority of muscle education over gymnastics. I know many patients who for long periods were making little progress under treatment, but who gained rapidly when the more scientific exercise was introduced. Muscle education takes advantage of the law of compensation, by which surviving cells take over to themselves in a measure the function of destroyed similar cells, as in the case of increased hearing or vision in the remaining ear or eye when one of the organs is destroyed. In poliomyelitis the law of compensation expresses itself by the surviving part of the affected motor cell taking over to itself some of the burden of that part of the motor cell which was destroyed by the infection. The theory has also been advanced that in some cases the motor cells of the opposite side of the cord come to the rescue and take over some of the function of the destroyed motor cells. The two halves of the spinal cord and the motor cells on each side are interconnected by innumerable fibres, which makes an occurrence of this kind possible. Muscle education is the unique measure in the therapy of chronic infantile paralysis which influences the lesion itself, for it tends to develop the remnant of power left in the crippled motor cells, while all other measures deal with muscles, nerves, bones, etc., structures remote from the seat of the lesion itself.

The success or failure of all other measures is also dependent directly upon muscle training. For instance, persistent aftertreatment, the chief element of which is exercise, must follow the operation for tendon transference. So vital is the aftertreatment that many of the failures of this operation are attributed directly to the lack of aftertreatment, or to the unscientific application of it. The same is true of braces. They assist locomotion, but they have an inhibitory effect on the muscles. The only way to combat this inhibition is by muscle education. The substitution of muscle education for gymnastics would result not only in greater improvement from treatment, but in fewer failures in the operation of muscle transference, and in better results from the sometimes indispensable but always harmful brace.

24 WEST FORTY-FIFTH STREET.

## TUBERCULOSIS IN THE UNITED STATES ARMY:

### *A Study of the Admission Rates for Seventeen Years.*

By ISAAC W. BREWER, M. D.,  
Taughannock Falls, N. Y.

In the United States the active campaign against tuberculosis may be said to have begun with the formation of the National Association for the Study and Prevention of Tuberculosis in 1904. Prior to that time much educational work had been done by Trudeau, Biggs, and others. During the

past seventeen years there has been aroused a great deal of enthusiasm regarding the prevention and cure of the disease, and some of the most enthusiastic are predicting the conquest of the disease in the near future. The president of the local antituberculosis society in Manila adopted the motto, "No tuberculosis in the Philippines in 1920." Those of our fellow workers who are so much encouraged base their belief upon the published death statistics, which in most instances show great reduction in the rates charged to tuberculosis. However, death rates do not tell the entire story, for by modern methods of treatment we are curing many who would have been numbered among the dead but a few years since. While from the individual standpoint it is highly desirable to cure as many of these persons as possible, if we do no more we

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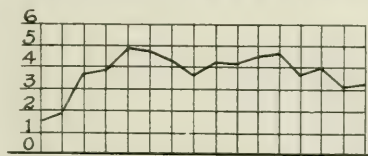


CHART 2.—Admission rates for 1,000 men of the United States army from pulmonary tuberculosis.

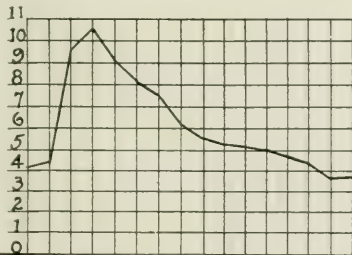


CHART 1.—Admission rate for 1,000 men of the United States army from all diseases (the actual rate has been divided by 200).

are in the long run failing in our endeavors to conquer the disease, for the cured patient is at best a cripple.

The correct judgment of the results of the campaign against tuberculosis must be based upon the number of persons taken sick and not upon the number who die. Statistics of morbidity are difficult to obtain and are generally untrustworthy. However, in the United States army there are fairly accurate records of the numbers of men taken sick and the causes of sickness, and from these we may form some idea of the results obtained from our efforts at prevention. I have therefore collected the published statistics from the annual reports of the surgeon general of the army from the year 1885 to 1911, and here present them as showing the morbidity from tuberculosis amongst picked men. It is assumed that these statistics are fairly accurate, and that the conditions

<sup>1</sup>Münchener medizinische Wochenschrift, July, 1904.

among the civilian population of the country will not be as good, because all of the men entering the army are carefully examined, and all of those with symptoms of disease rejected, especially if there is any deformity of the chest or lack of chest mobility. The soldier is, in addition, well housed, well fed, and not overworked. The sanitation of his environment and his personal hygiene are carefully supervised by the medical officers. All cases of disease, with but very few exceptions, are treated in the hospital, and no case of tuberculosis or other infectious disease is treated in the barracks. It will therefore be apparent that the soldier's chances of becoming infected are much less than are those of the general public.

The statistic here presented are subject to the allowance that must be made for data gathered by many individuals with different personal equations. It may be inferred that in recent years the diagnostic acumen of the medical officers has become more acute, but it is believed that this has not had any great effect upon the statistics. Tuberculosis when wrongly diagnosed is called either fever, malaria, bronchitis, or influenza. An examination of the statistics at the different posts where I have served does not seem to prove that this has made any appreciable difference in the statistics. In the army, with rare exceptions, a case of tuberculosis, no matter what the original diagnosis was, will sooner or later appear under its proper classification. Occasionally a man may be discharged without a correct diagnosis having been made, but this is very rare. During the past five or six years greater care has been taken in the examination of recruits, and therefore a greater number of latent cases must have been excluded. The statistics here presented show that for the ten years ending with 1894 the average admission rate for tuberculosis of the lungs was 3.24 in a thousand. There was a decline in the rate until it reached 1.59 in 1896. With the advent of the war with Spain the rate ran up to 3.70, increasing to 4.92 in 1900. By 1903 it had fallen to 3.89, but up to and including 1907 it remained above four in a thousand. In 1908 it fell to 3.81, but there was a slight rise in 1909, followed by a marked fall in 1910, when the rate of 3.12, the lowest since 1896 was reached. During 1911 there was a slight rise.

A study of the curve for the general admission rate for all diseases in the army shows that it rose rapidly during 1898 and 1899, but that it has fallen continuously since that time. The rise in the rate for pulmonary tuberculosis was somewhat slower, reaching its crest in 1900, and the amplitude was much smaller. The decline has been smaller, and whereas the general admission rate has now fallen below that of 1906, the rate for tuberculosis is considerably above the rate for that year.

Similar conditions are found in the statistics for the navy. The surgeon general of the navy, in commenting upon these, says that the incidence of tuberculosis corresponds very closely with the strength of the navy, and that this is due to the enlistment of those previously infected. I have considered the rates in the army in this connection and find that there is no coincidence between the two. Neither does the data at hand seem to prove

that there is any connection between the curve for recruits attacked during the first year of their enlistment and the general curve.

Surely if there is any place where the results of the campaign against tuberculosis should manifest itself it is in the army, where the men live under almost ideal circumstances.

These data seem to show that there are factors influencing the spread of tuberculosis that we are not taking into account in our efforts to prevent the disease.

ADMISSION RATE FOR THE UNITED STATES ARMY WITHOUT  
REGARD TO STATION.

Pulmonary Tuberculosis.	In a thousand	All diseases.
Year.		
Average 1885-1894	3.24	...
1895	2.24	...
1896	1.59	830
1897	1.97	896
1898	3.70	1937
1899	3.98	2125
1900	4.92	1820
1901	4.89	1622
1902	4.38	1514
1903	3.89	1228
1904	4.26	1127
1905	4.22	1058
1906	4.50	1053
1907	4.59	1005
1908	3.81	962
1909	4.00	865
1910	3.12	766
1911	3.13	769

## CAUSES OF CRIME.\*

BY PAUL E. BOWERS, M. D.,

Michigan City, Ind.,

Physician in Charge, Indiana State Prison

The question of the cause of crime is one of the most serious and difficult problems with which society has to contend. Concomitant with the advances made in civilization, there has been an increase in the kinds of crimes and the number of criminals. The law of the fittest has ever been enforced, but the surviving qualities have constantly changed and evolved. The physical struggle for supremacy of the past primitive ages which has been transformed into the present day struggle for existence, is, however, none the less determined and aggressive, even though there has been a refinement of methods. To-day it is mind against mind and brain against brain, and as a result of the demands made upon the central nervous system we find that one out of every three hundred persons in the United States is insane, and that one tenth of one per cent. are housed in penal institutions. Over one million of dollars a day is spent in society's efforts to stem the criminal tide of degeneracy that bids fair to submerge us, and in spite of the claims of enthusiasts, our prisons are full to overflowing. This problem being so paramount, what measures shall be taken to protect our civilization? The matter of treatment will not be hard to determine when we have, with scientific exactness, determined the cause of this foul sore on the body politic.

\*Read before the Logansport Presbytery, April 13, 1913.

It has been recognized only within recent years that vast quantities of clinical material are going to waste in most prisons for the lack of scientific investigation on the part of qualified investigators, who would shed a flood of light on the criminal question. Owing to the limits of this brief paper I will classify the causes of crime under two great heads:

1. External, or environment causes.
2. Internal, or constitutional causes.

By the external or environmental causes we mean those forces which are brought to bear outside the criminal himself, which act against him throughout the whole period of his life, such as opportunities for securing food, clothing, and education, existing economic conditions, and the conventions of social life.

As to internal, or constitutional causes, these forces must be looked for within the criminal himself, in his prenatal existence, with its burden of heredity and its tyranny of ancestry, in his physical, mental, and moral organizations. Before going further I will read a tabulation of 2,681 consecutive admissions to the Indiana State Prison, where criminals over thirty and murderers are received. I found that out of this number, 2,293 prisoners had used alcohol, eighty-three per cent. of the latter had used intoxicating liquors to excess, getting drunk at frequent intervals, 1,362 admitted that they had been infected with gonorrhea, 476 admitted infection with syphilis, and we can safely surmise that nearly as many more had been infected, but denied their venereal history; 127 admitted the use of narcotics, 1,879 had been previously convicted of criminal offences. This last fact shows a clear mental defect, namely, a lack of inhibitory control. One hundred and fifty-three had been convicted of rape, forty-three had been convicted of sodomy, and forty-six had been convicted of incest; making a total of 242 convictions for perversions and inversions of the sexual instinct. Pederasty is by no means uncommon among the recidivist and habitual criminals. One hundred and twelve were actively insane at the time of admission, forty-seven were epileptics, 596 were classified as dull, nearly fifty as feeble-minded of varying degrees, and 622 had relatives who were insane, feeble-minded or epileptic.

I will first discuss somewhat in detail the external causes.

#### ECONOMIC CONDITIONS.

The continuous and bitter struggle between capital and labor has a most disastrous effect upon the public. The financially weaker members of society are the first to suffer the dire effects of this never ending strife. The strength of the poor is undermined and demoralized by the sweat shop systems, which employ women and children at a wage insufficient to buy food and clothing. When the time for parenthood arrives, the reserve strength, vitality, and stamina necessary for healthy reproduction are lacking, and therefore many children are born into environments where poverty and ignorance are the only legacy. In our rich and well to do classes, luxurious idleness, conventional debauches, and the continuous round of excitement, to appease a hys-

terical and unsatisfied craving for novelty, are among the causes which operate to produce crime and criminals.

#### EDUCATION.

If a child escapes with its life the infantile period, education is not always provided, for commercialism often transforms the childish minds and bodies into sickly and defective derelicts. Even should an opportunity for education be assured and thereby highly developed wants and desires be created, a spirit of anarchism is produced by the economic conditions that do not permit of their satisfaction. We have abundant testimony of this last fact in strikes, bloodshed, and serious outbreaks against the law. Our present standards of pedagogics contain many frills which should be eliminated; more attention must be paid to vital subjects, like hygiene and physiology, including that of sex, instead of leaving this teaching in the hands of the vicious elements of the street. The theatre, which performs so great a function in the education of the public, has been betrayed for thirty pieces of silver. Licentiousness runs riot on the stage, and even the modern problems plays are baited with juicy bits of sensuality to form a bacchanalian feast for the eyes and imagination of the adolescent girl and boy; and these all lead to sexual crimes or those allied and dependent upon kindled sexual excitement. Bad companionship and vicious associations which foster idleness, frivolity, and excessive love of pleasure constitute one of the most potent contributing factors in the production of crime. Intemperance, as we all know, is a most prolific source of offense against physical, moral, and civil law. The growing lack of proper regard for moral and religious teaching sows a seed for the disrespect for laws which are consequently broken. Many practices of the business world are exceedingly questionable, and often have I heard this referred to by prisoners in a jesting manner, who remarked that if their crime had been the theft of thousands of dollars, instead of ten dollars, they might be respected and honored as elect and influential members of society.

There has been a vast increase in the number of murders in recent years, largely due to the sickening, mawkish sentimentality which would abolish capital punishment, and therefore increase a disregard for human life. Even darkest Italy has far less murders than the United States, which so shamefully heads the list in this regard. "There were 1,500 homicides in the United States in the year 1886, and more than 8,000 in 1911, an increase of 500 per cent., allowing for the increase of population. There were twenty-six homicides for every 1,000,000 of population in 1886, and eighty-eight for each million in 1911. It is a most threatening fact, therefore, that we have reached great altitude in crime, and we are with only trifling variations maintaining this alarming level year after year. Murder in Michigan increased from sixteen, in six years prior to abolition of hanging, to 152 in the same period of time, after forty years' trial of abolition; an increase of 2,500 per cent. Iowa, Colorado, Rhode Island, and Minnesota have restored the life penalty after experiencing a period of an-



archy and murder. I have failed to see as yet any enthusiastic advocate of the abolition of capital punishment who would not take life if such a course were necessary in defense of his own; his plea would be self preservation, and yet how much more necessary is the social defense than his right to protect his own little insignificant and selfish existence.

#### INTERNAL CAUSES.

I shall now briefly consider the internal, or constitutional, causes which are potent for the production of crime. Those of us who are familiar with abnormal as well as normal psychology know that at least fifty per cent. of the inmates of our penal institutions are composed of mentally and physically defective individuals, whose organizations preclude the possibility of their adjusting themselves to the conventions and laws of society; and unless we appreciate this fact much of our effort for reformation will be useless, for the defect can never be remedied. The doctrine of inherited degeneracy is in many respects a cold and heartless one and it has oftentimes been refuted for sentimental reasons; but much of the skepticism concerning this doctrine will be dissipated after a careful and systematic study of many criminals. A classic example and proof of inherited social degeneracy is the history of the Jukes family, which descended from the infamous Margaret, the mother of criminals; and for the sake of comparison I will read the following table which appeared in the *Medical Record*: Margaret Jukes (born, 1720)—1,200 descendants identified; 300 in the poorhouse; 440 viciously diseased; 300 died in childhood; 400 physical wrecks; fifty notorious prostitutes; seven murderers; sixty habitual thieves—averaged twelve years in jail.

Heredity is fortunately not always degrading, as may be seen by the worthy transmission to posterity by Jonathan Edwards.

Jonathan Edwards (born, 1703)—1,394 descendants identified; 205 college graduates; one vice-president; three United States senators; twelve college presidents; sixty-five college professors; sixty physicians; one hundred clergymen; seventy-five army and navy officers; sixty prominent authors, one hundred lawyers, eighty public office holders.

Many persons are now serving sentences in prisons whose crimes were merely symptomatic expressions of disregarded or unsuspected mental disorders; at least five per cent. of the admissions to our penal institutions belong to this class—our justice is often so confused, obscured, and tangled by the technicalities and faults with which our legal system bristles that the insane and mentally irresponsible must bear the stigma of being criminal. Again, there is a class of individuals who are necessarily abnormal, but whose abnormalities we are slow to conceive, because in so doing we seem to fiercely challenge the belief of man's free will; for only in this idea do we see permanence and stability of our present system of government and theology; but under the guiding fingers of psychiatry no alarm need be entertained, and we do find clinically again and again that there are individuals who are born with a defect of the moral sense in the same manner that some individuals are born

without the ear for music or harmonies of sound or that others are totally devoid of the sense of color. These unfortunate individuals are "as flowers without perfume and dogs without scent," and from the very nature of their constitutions they must be continually at war with the conventions and morals of ordinary society. They can, in general, assent to the abstract proposition of right and wrong, and they may delight to exploit their powers of language and casuistry to confuse and deceive those who are unaware.

#### ANTHROPOLOGY.

Anthropology has thus far failed to establish a distinct criminal type, but marks of constitutional inferiority are exceedingly common in prison populations. Among the anatomical defects are to be found malformations of the skull, teeth, and palate, the Darwinian tubercle, and Morell ear and prognathism; all of which may be interpreted to mean reversions to more primitive types. These same evidences of stigmata are, of course, frequently found in normal individuals, but they so often appear in our defective, dependent, and delinquent classes that they may be considered as marks to distinguish the normal from the abnormal, and they at least suggest the causes which produced corresponding defects in the psyche. The physiological abnormalities encountered are perversions of the sexual instinct, uncontrollable desire for liquors, migraine, disorders of the nervous system, insensibility to pain, defects of speech, and reduced physiological tension. The psychic stigmata are more clearly defined here; we find exaggerated egoism, eccentricities, ill balanced mental activities, irritability, inability of continuous application to mental or manual labor, emotional poverty, brutality, and fatalism. Disagreeable as it may be, we are nevertheless forced to believe that criminality rests as much upon a biological as a sociological basis, and unless we combine medical care with our mental and moral instruction, our efforts will be in vain.

#### RELIGION OF CRIMINALS.

Out of 10,538 prisoners admitted to the New York State Reformatory at Elmira, N. Y., only 246, or 2.34 per cent., failed to profess any religion. Convicts as a whole are professors of religious faith, and I have found the following classes from personal study:

1. Chronic offenders of the law or veterans in criminality who profess religion to impress their keepers with an idea of reformation.

2. There is a class of prisoners who resort to religious exercises and professions of faith to secure a moral narcosis to appease emotional instabilities and the *wanderlust* of their superstitions.

3. The third class is composed of those individuals who are normal men and who earnestly and sincerely seek a reformation in character. This last class is sadly in the minority.

We must cease the manufacture of idiots, of epileptics, of insane and criminally predisposed persons, in the name of humanity. We must cease to permit the debauchery of the innocent, we must prevent the marriage of the syphilitic roué with the chaste virgin, the tuberculous with the tuberculous, the insane, the epileptic, and the degenerate

with the criminal; for there is no logical reason why society shall not demand the same right that the child shall be well born, or why custom shall not require the same careful attention to the breeding of the human species as it has for the propagation of its cattle, horses, and dogs. Eugenics is not against our religion, it must be a part of it, and in conclusion the wonderful words of Victor Hugo may be added: "So long as there shall exist, by reason of law and custom, a social condemnation, which, in the face of civilization, artificially creates hells on earth and complicates a destiny that is divine with human fatality; so long as the three problems of the ages—the degradation of man by poverty, the ruin of woman by starvation, and the dwarfing of childhood by physical and spiritual night—are not solved; so long as, in certain regions, social asphyxia shall be possible; in other words, and from a yet more extended point of view, so long as ignorance and misery remain on earth, books like this cannot be useless."

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## DIABETES MELLITUS.

*Treatment with Bacillus Bulgaricus Cultures.*

By J. WALLACE BEVERIDGE, M. D.,  
New York.

(Concluded from page 76.)

CASE VI. Mr. G. H. S., New Brunswick, N. J., aged thirty-five years, married. Weight 111½ pounds; greatly emaciated; slightly neurotic; mentality medium. Slept well; arose four or five times to void urine; polyuria; severe chronic constipation; habits moderate. Family history negative. Previous history negative; known diabetic state four years. Heart, mitral regurgitation; liver, not palpable; stomach dilated; abdomen, tense, rectus muscles rigid, some fluid. Complained of excessive thirst, drank from six to eight quarts of water daily; very weak; severe pains in legs, localized in knees; headache; dimness of vision; inability to work. *Treatment*: Six tubes culture daily; sodium bicarbonate, five grains every three hours; diet modified. Patient for a time apparently improved greatly; the fluid disappeared from his abdomen, the pains and cramps in his legs became less, his thirst abated, and the polyuria subsided, but, unfortunately, this favorable progress has not continued, and to-day his condition is about the same as when he was first observed. Other treatment: Fluid diet, sodium cacodylate by hypodermic injection; pancreatic ferments; glandular extracts. Last weight 112½ pounds. Prognosis grave.

CASE VII. Mr. J. S., aged forty-eight years, married. Weight 170 pounds; stout; pendulous abdomen; mentality high; no neurosis; slept well, appetite good; bowels regular; habits moderate. Family history negative. Previous history negative; known diabetic state three years. Heart normal; stomach somewhat dilated; liver palpable; abdomen, slight ptosis. This case presented one of the most interesting diabetic conditions under our observation. The patient's general condition was excellent; no symptoms had as yet been noticed, although upon several occasions acidosis was present. He was a very hard working man, took plenty of exercise, used a cold shower every morning, and did just about as told in reference to diet and mode of living. He had gained a little weight, felt in splendid physical and mental health, never would know he had diabetes if it were not for the urine analyses. *Treatment*: Regular diet, two tubes culture daily, sodium

bicarbonate only when first observed; ferments for two months, then discontinued. Glandular extracts during acidosis; these would always cause a favorable reaction and the condition would immediately clear up. At present had the same proportion of sugar in urine as observed at time of first analysis; no apparent change was noticeable from first chart to last one. Although patient certainly did feel in excellent health and gave every manifestation of enjoying the same, no true benefit could be ascribed to treatment in this case. Weight 178½ pounds. Prognosis—should be guarded.

CASE VIII. Mr. W. B., aged forty-one years. First seen July 27, 1912. Tall; thin; weight 154 pounds; slightly neurotic; mentality high; slept well; appetite good; constipated. Urine, amount increased; 100 ounces in twenty-four hours. Family history negative. Rheumatic attack three years previous; typhoid fever at age of eighteen; indigestion during last three years; known diabetic condition three years; refused by insurance company. General physical condition good; heart somewhat dilated; pulse 72; blood pressure 120. *Treatment*: Sodium bicarbonate, five grains every four hours; two tubes *Bacillus bulgaricus* daily, then increased to three tubes; modified diet. September 7th, weight 158½ pounds; condition good. September 21st, weighed 160½ pounds; on general diet.

CASE IX. Mr. C. B., aged fifty-seven years, married. First seen July 26th. Stout; pendulous abdomen; weight 194 pounds; slightly neurotic; mentality high; slept well; appetite good; constipated. Urine, amount voided increased—115 ounces. Family history negative. Rheumatic attack five years previous; malaria for seven years; diabetic condition known two years. Heart normal; liver hypertrophied; lungs, chronic bronchitis; stomach dilated; arteries soft; pulse 79; blood pressure 145. *Treatment*: Modified diet; three tubes of culture daily, then one tube; sodium bicarbonate, five grains every four hours. Last seen November 16th. Diet regular; condition normal; discharged.

CASE X. Mrs. L. A., aged fifty-six years, married. First seen September 10th. Short, stout, pendulous abdomen; neurotic; slept poorly, arose two or three times to void urine, urine greatly increased, 120 ounces; bowels regular; appetite poor; coffee and tea six to seven cups daily; complained of severe headaches, malaise, severe thirst and loss in weight, cramps in the calves of legs; pulse 100; blood pressure 160; heart, mitral regurgitation; weight 137 pounds. *Treatment*: *Bacillus bulgaricus* two tubes three times daily; pancreatic ferments; diet modified; began to improve at once; last seen January 29, 1913; weight 141½ pounds; urine voided in twenty-four hours, sixty-two ounces; all apparent symptoms had disappeared; appetite good; slept all night, able to do her housework; sugar still present; discharged.

CASE XI. Mr. M. W., married, aged fifty years, referred by Dr. James G. Dwyer on March 10, 1913. Family history negative. Previous history: bronchitis, rheumatism, upon examination; heart, mitral regurgitation, compensating; liver, easily palpable; stomach, no dilatation; weight 142½ pounds; general bodily nutrition fair; had lost considerable weight; complained of severe headaches, vertigo, cramps in legs, muscular weakness, excessive thirst, chronic constipation, and polyuria, arising three and four times during the night to void urine. Doctor Dwyer reported glucose findings, three and four per cent. Patient was given six tubes of culture, eighteen c. c. daily, and the glandular extracts; diet modified. After seven weeks' treatment all symptoms disappeared. Patient gained eleven pounds in weight, and last three urine analyses, taken at weekly intervals, proved negative. Referred back to Doctor Dwyer as a positive recovery.

The urine analyses were made by the Bendiner and Schlesinger Laboratory and the Higgins Laboratory, the blood examinations by Dr. J. C. Welch and the Higgins Laboratory, and the stomach contents' examinations by the Higgins Laboratory.

The patients under observation might be divided into two great classes, the glycosurias without acidosis and the glycosurias with acidosis.

*Glycosuria without Acidosis* (First Class).—During the early period or onset there may be a total absence of any classical sign which would direct either the patient's or the physician's attention to a beginning glycosuria, unless, perhaps discovered by an insurance examination. These patients may go for a considerable length of time

those with acetone, those with a trace of acetone and diacetic acid, and those with marked acetone and diacetic acid, a condition always accompanied by the production of beta oxybutyric acid. The symptoms in this class are similar to glycosuria with acidosis, but the increasing weakness and malaise are more pronounced. One symptom always pres-

## URINE ANALYSES

	Sp. Gr.	Reaction.	Indican.	Diacetic acid.	Acetone	Albumin.	Urea.	Sugar.	Renal casts.
July 24	1.048	acid, normal	small amount	none	present	none	0.9%	7.5%	none
August 1	1.039	acid, normal	small amount	trace	present	none	1.1%	5.8%	few granular
August 7	1.049	acid	normal	present	present	none	0.7%	8.6%	few granular
August 10	1.046	overacid	normal	trace	present	none	1.2%	5.8%	few fatty
September 2	1.047	acid, normal	normal	none	present	trace	1.8%	7.3%	few hyalin
September 18	1.038	overacid	normal	present	present	none	1.2%	4.9%	none
October 12	1.038	acid, normal	normal	none	present	present	0.10%	5.9%	frequent granular
November 2	1.037	acid, normal	normal	present	present	trace	4.10%	5.2%	none
December 13	1.041	acid, normal	normal	present	present	trace	0.6%	7.4%	none
1913.									
January 9	1.031	acid, normal	normal	present	present	trace	1%	5.5%	frequent
January 31	1.037	acid, normal	normal	present	present	trace	1%	7.4%	occasional
February 20	1.041	acid, normal	normal	present	present	trace	1.6%	8.1%	none
March 17	1.040	acid, normal	small amount	present	present	trace	1.4%	5.9%	none

without noticing any untoward symptoms, possibly complain a little of constipation, heartburn, or indigestion after eating. Then, as the disease progresses, a severe shock such as worry, exposure, overindulgence, or a rheumatic attack will cause the first unpleasant symptoms to appear, which are generally described as weakness in the legs, cramps in the calves and knees, loss of weight, polyuria of varying intensity, pruritus, a sense of burning when the urine is passed, constipation, indigestion, head-

ent is drowsiness, while vertigo and headache, if accompanied by other indications of digestive disturbance, such as vomiting, obstinate constipation and severe heartburn, or by acute gastritis, are always forerunners of grave sequelæ which often end in coma. If seen before the disease has advanced to a degree in which the involvement and systematic changes have become so great that nothing can be done, patients will, as a rule, readily improve under treatment. The patients observed

## URINE ANALYSES.

	Sp. Gr.	Reaction.	Indican.	Diacetic acid.	Acetone.	Albumin.	Urea.	Sugar.	Renal casts.
1912									
August 2	1.034	acid, normal	normal	none	absent	none	1.2%	3.4%	none
August 10	1.042	acid, normal	small amount	none	absent	none	1.3%	3.9%	none
August 27	1.041	overacid	normal	none	absent	none	1.0%	4.4%	none
September 7	1.031	acid	normal	none	absent	none	1.6%	3.5%	none
September 27	1.036	overacid	normal	none	absent	none	2%	2.9%	none
October 28	1.041	overacid	normal	none	absent	none	1.0%	2.6%	none
November 21	1.038	overacid	small amount	none	absent	none	2.2%	3.1%	none
December 14	1.034	acid, normal	normal	none	absent	none	3.6%	2.7%	none
1913.									
January 3	1.034	acid, normal	small amount	none	present	none	1.3%	4.8%	none
January 27	1.032	overacid	small amount	none	present	none	2%	2.6%	none
February 18	1.043	overacid	small amount	none	present	none	3.4%	5.5%	none
March 1	1.040	overacid	normal	present	present	trace	1.2%	5.3%	none
March 8	1.036	acid, normal	small amount	none	present	trace	1%	3.0%	few hyaline
March 15	1.031	overacid	normal	none	absent	none	1%	3.4%	none

ache, impaired vision and hearing, dryness of the skin with brittleness of the finger nails, and falling out of the hair. These symptoms may gradually increase in severity, while in others the tolerance for considerable quantities of sugar is acquired with the subsequent abatement in many of the unpleasant physiological reactions. The patients who do poorly are the ones who lose weight rapidly, and the sugar index continues above five

range from nine to seventy-four years in age and the cases include glycosurias from those with very small amounts of sugar up to the most severe types of acidosis with dropsical effusion.

The treatment of diabetes requires more time and consideration on the part of the physician than most diseases that come under his care. The difficulty of keeping the patient upon a strict diet and making him understand the necessity for following

## URINE ANALYSES

	Sp. Gr.	Reaction.	Indican.	Diacetic acid.	Acetone.	Albumin.	Urea.	Sugar.	Renal casts.
July 22	1.031	acid, normal	small amount	none	absent	none	2.7%	0.4%	none
July 23	1.016	overacid	small amount	none	absent	none	1.7%	0.1%	none
July 26	1.031	acid, normal	small amount	none	absent	none	2.4%	0.8%	few hyaline
August 6	1.022	normal	large amount	none	absent	none	2.1%	0.2%	none
August 12	1.014	acid	normal	none	absent	none	1.1%	none	none
September 9	1.019	overacid	small amount	none	absent	none	2.1%	none	none
September 23	1.016	acid, normal	small amount	none	absent	trace	1.7%	none	none

per cent. Such patients should be placed under strict observation and a special effort made to prevent the loss of weight and the continued excessive production of sugar; otherwise, at any moment a severe acidosis with coma may involve the patient.

*Glycosuria with Acidosis* (Second Class) should be divided, for convenience, into three stages:

any good therapeutic procedure is almost insurmountable, because the moment diabetic patients begin to feel an improvement or notice the symptoms disappearing, the desire to eat forbidden food and do things that are inadvisable seem to overcome their better judgment and they submit to these inordinant desires. The cases under ob-



servation are divided, as already indicated, into two classes. The first class present the widest field for scientific work, especially by preventing this disease from a progressive development. Chronic constipation with intestinal putrefaction is the major difficulty encountered requiring correction, and a systematic examination should be undertaken to determine whether the intestinal tract, through a mechanical fault, or a chemical derangement during digestion is responsible for the condition. This we do first by an analysis of the stomach contents after a test meal and by examination of the urine and feces. The intestinal tract is then radiographed and a general summing up made of what

beans; bread. The prepared flours are mostly untrustworthy. The one most acceptable is the jirah, but we have suggested using crusts of plain French rolls and toasted bread, permitting three or four slices daily. Desserts: These may be prepared with a little sugar, enough to just sweeten; the most nutritious are cup custard, junket, and jellies made from gelatin. Liquids: One cup of coffee or tea, buttermilk; no beer under any circumstances. Cheese: Unfermented, such as American and Swiss cheese. This diet may be added to from time to time as the patient's condition warrants. The alimentary tract should never be overloaded and the peristalsis must be watched. The use of the cul-

## URINE ANALYSES.

	Sp. Gr.	Reaction.	Indican.	Diabetic acid.	Acetone.	Albumin.	Sugar.	Urea.	Renal casts.
1912.									
July 27 . . . . .	1.027	overacid	large amount	none	absent	trace	1.4%	1.9%	hyaline and granules
August 6 . . . . .	1.027	overacid	large amount	none	absent	trace	0.3%	2.4%	none
August 12 . . . . .	1.024	acid, normal	small amount	none	absent	none	0.7%	2.4%	hyaline and granules
August 21 . . . . .	1.031	overacid	large excess	none	absent	none	small trace	2.9%	hyaline and granules
October 2 . . . . .	1.024	acid, normal	small excess	none	absent	none	0.2%	1%	hyaline and granules
October 21 . . . . .	1.026	overacid	large amount	none	absent	none	0.5%	1.8%	hyaline and granules
November 18 . . . . .	1.028	acid, normal	large amount	none	absent	none	none	2.6%	hyaline and granules
1913.									
April 22 . . . . .	1.016	acid, normal	normal	none	absent	none	none	2.2%	none

may be wrong. Knowing the fault causing intestinal putrefaction, our efforts are then directed toward giving relief. Should this condition be due to gastric or liver inactivity the usual, accepted drugs are given, with from four to six tubes (equal to twelve or eighteen centimetres) of the bulgaricus culture each day. The action by this culture, as shown, begins at once to stop intestinal putrefaction. The culture is continued until an indican free urine has persisted for five weeks, then the culture is gradually diminished until one tube (three c. c.) every other day suffices. Not until every trace of sugar has been absent from the urine for a period of three months do we entirely discontinue using the culture. The mechanical defects, unless very serious, may be greatly aided by abdominal exercises, daily massage, and the galvanic current. In ptosis, always seen when the patients are obese, with pendulous abdomen, special braces and supports should be worn.

It is necessary to ascertain in the very beginning what the carbohydrate tolerance of each patient

ture permits of the stated diet above, without any untoward effects. Should the patient have a secondary anemia, sodium cacodylate is given every third day by subcutaneous injection.

Those patients whose pancreas, liver, or small intestine is not seriously damaged by a chronic lesion will recover. Every case of glycosuria without acidosis in this series, except two, has responded to the treatment described and all the symptoms of discomfort have permanently subsided. When acetone bodies form as a complication to glycosuria the beginning of a more serious condition is indicated, and our efforts should be directed toward overcoming this evil chemical derangement. Acetonuria is found in hyperglycemia when the elimination of the excess of sugar falls below the usual daily output and an excessive amount of sugar enters into the circulation. This we must always guard against, especially in diabetics whose sugar index is above five per cent. After acetone has once begun to form other deleterious substances follow, such as diacetic acid and beta oxybutyric

## URINE ANALYSES.

	Sp. Gr.	Reaction.	Indican.	Diabetic acid.	Acetone.	Albumin.	Urea.	Sugar.	Renal casts.
1912.									
October 17 . . . . .	1.031	overacid	small amount	none	absent	none	0.6%	3.4%	none
October 31 . . . . .	1.032	acid, normal	normal	none	absent	none	0.4%	4.2%	none
December 4 . . . . .	1.032	acid, normal	large amount	none	absent	none	1.4%	4.4%	none
1913.									
January 4 . . . . .	1.034	overacid	small amount	none	absent	none	1.8%	2.4%	none
January 30 . . . . .	1.028	overacid	large amount	none	absent	none	1.2%	2.4%	none

may be, and then, by a gradual increase of starch in the daily diet we find exactly what the capacity for the daily production of sugar during the twenty-four hour elimination is. If the carbohydrate tolerance is fairly high and the percentage of sugar indicated in the urine analysis moderate, a liberal diet is permitted, consisting of cereals, oat meal and rice, together with the following: Fruit—apples and grape fruit; meats—chops, bacon, ham, roast beef, lamb, chicken and turkey; fish—only fresh fish; vegetables—salads, tomatoes, cucumber, endive, lettuce, celery, cooked spinach, tiny Lima beans, baked potatoes, every other day, and string

acid. But a beginning acetonuria should never be allowed to advance so far as to permit acidosis. If the patient is under control and follows suggestions made acidosis is preventable. The abolishing of carbohydrates from the diet is one of the principal factors in the cause of acidosis. We may be able to greatly diminish the percentage of sugar, but by so doing the changed metabolism of the cell, owing to the absence of carbohydrates, increases the possibility of acidosis. Should acidosis be present we place the patient upon a fluid diet, insisting on milk, clear broths, and fruit juice, suggesting that they remain in bed during this in-

terval for about three weeks. A culture of the *Bacillus bulgaricus* is given up to twenty-four c. c. per day. Sodium bicarbonate or calcium chloride is also used, and if patients complain of great weakness quinine dihydrochloride (which comes put up in ampoules of one c. c., equalling three and three-quarter grains) is injected subcutaneously once every twenty-four hours for a period of ten days. Should the patient be inclined toward obesity the glandular extracts are indicated. The patients so treated responded favorably, losing all signs of acidosis, unless the disease had advanced to such an extent that the involvement had caused marked emaciation and changes in the viscera. Then medicinal treatment was without avail. Exercising or any severe muscular exertion is apt to bring on acetonuria. Seemingly, the rapid breaking down of the muscle cell has a direct bearing upon the formation of acetone bodies. Acetonuria and acidosis may be present in other diseases with intense metabolic changes and is observable in infants suffering from inanition, as in marasmus. The diet permissible following the initial regime in allowed cases of acetonuria without acidosis, is the same as the modified diet for the simple glycosurias, with the exception that no meat is permitted. Great care must be taken that all these patients receive sufficient nourishment and do not lose weight, otherwise trouble will begin.

*Complications* are treated as they arise, but unless the patient presents serious complications in the very beginning they should not be permitted to occur. We have seen seven cases of carbuncles, one demanding incision, the others clearing up after treatment. In gangrene the usual surgical methods are best.

*Prognosis.*—In cases of the first class the symptoms entirely subsided during treatment. Only seven still have traces of sugar and if they are kept under observation from time to time I believe will remain in a fairly normal state. In cases of the second class the results have not been so marked, although all the patients have shown considerable improvement, with most of the major symptoms disappearing. The gain in weight has averaged from three to eighteen and a half pounds, and in many the polyuria has diminished from eight quarts a day to three quarts and one pint. The proportion of recoveries, however, is very small, and out of seventy-nine cases of acidosis we would say that five have recovered and twenty-seven have apparently been greatly benefited; the rest, with the exception of two, remaining about the same as when first observed. These two patients, both under fifteen years of age, have since passed away.

#### Conclusions.

1. The efficacy of this culture in diabetes is undoubtedly due to its power to prevent intestinal putrefaction.

2. The stimulating effect upon the pancreas by its acidity is potent.

3. Its power to convert starch into lactic acid is an imported factor.

4. By relieving autointoxication many of the symptoms in diabetes are stopped.

5. The use of the x ray in diagnosis is most valuable.

6. The necessary analysis of the gastric contents should be made so a consistent method may be followed in treatment.

7. The routine examination of the blood, not only for acetone, but sugar, is advisable.

8. The prevention of this disease and the overcoming of its progress is unquestionably possible, and I believe by systematic, thorough care of all glycosurias in the first class a permanent recovery will be the reward.

9. Glycosurias of the second class do not apparently respond, although the patient's condition seems to be greatly benefited.

10. The use of this culture in diabetes is far superior to that of opium and offers the only rational internal therapy really of value.

7 EAST THIRTY-EIGHTH STREET.

## WORK OF WOMEN IN DEPARTMENT STORES.\*

BY JOSEPHINE GOLDMARK,

New York,

Publication Secretary of the National Consumers' League.

To most persons the employment of women in department stores does not seem to involve exposure to disease, as in other occupations where the workers are subjected to poisons or extremes of temperature. To many, indeed, the work of women in department stores seems like a pleasant occupation by which many young women, while they live at home, are earning pin money, which enables them to buy comforts or little luxuries in which they might not otherwise be able to indulge.

The number of women and girls employed in this city and State in the department stores amounts to many thousands. It is true that in many respects these women and girls have better physical care than other workers. Many of the large establishments have fine rest and lunch rooms, and in some there is a hospital room where medical care is provided free of charge. But, in spite of these remedial measures, the employees of department stores suffer from the same evil as working women in other occupations—an evil which, unless guarded against, becomes in a short time an unmistakable danger to health. This evil is the simple physiological factor of fatigue, well known to all of us. Everyone knows what it is to be weary, to be fatigued at the close of the day, and the standing wonder is that after the night's rest nature has so ordered that we arise refreshed and ready for another day. How does this happen? In its normal form fatigue is of course not a danger to health. It is the perfectly natural result of all activity. Fatigue is rather nature's warning signal, and when the signal is disregarded overfatigue and exhaustion result, and health is threatened.

Now, during the past half century this phenomenon of fatigue has been studied in detail in the laboratory by scientific men and physicians. We must remember that in the living body two pro-

\*Prepared at the request of the Committee on Public Health Education of the Medical Society of the County of New York and read under its auspices at a public meeting held at the New York Academy of Medicine, January 22, 1913.

cesses are continually going on. Physiology teaches that life is a continual change of structure. The life of all tissues consists in chemical combinations of the substance of the tissue cells with the nutritive material derived from food and the oxygen of the air. Two processes are continually carried on: Building up, or assimilation, and dissimulation, or the breaking down of material into simpler chemical forms which are ultimately expelled from the body as waste products. More than forty-five years ago, in 1865, the German physiologist, Ranke, first investigated the action of certain chemical products of muscular action. He showed, for instance, that if an extract of fatigued frog muscle were injected into a second frog, the muscles of the second animal showed evidence of fatigue. About twenty-five years later, the Italian, Mosso, showed that the blood becomes charged with these chemical waste products in the muscles and carries them to all parts of the body. He proved this by injecting the blood of a dog fatigued by long running into the blood vessels of a second dog. Upon this the second animal showed all the usual signs of fatigue. The study of muscular fatigue has been studied in the laboratory in great detail and the general results have proved that in muscular fatigue there are three general stages. During the first stage the activity of the muscle increases more and more. This is known to physiologists as the *treppe*, or staircase. Then the highest point of activity is reached, and after a while the activity of the muscles begins to diminish. These three stages of fatigue, shown in the laboratory experiments, are well known to all of us. Everyone knows that in most work there is a first stage of "limbering up." Then we gradually reach the plane where our working power is at its best, until fatigue inclines it unmistakably downward, and our powers begin to flag. If then we continue to work after real fatigue has set in, our task, whatever it is, becomes more and more difficult. We need a greater and greater effort of will to keep up what we may have done easily before.

Now, all this may seem to take us far away from the girl in the department store, or the girl in the box factory, or the girl who is packing candies until midnight before Christmas, or doing any of the innumerable things in which women are employed in industrial life. It is indeed extraordinary that, until practically within the last few years, all these facts concerning fatigue and exhaustion and their effects, which were studied in detail in the laboratory, have been so largely ignored in the many efforts made in all countries to protect working women against excessive exertions in industrial life, detrimental to their own health and vitality and to that of their future children.

It has been uniformly found by all civilized nations that the only practicable way for a community to protect the health of its women workers from overwork and exhaustion is through the action of the State, by uniformly prohibiting more than a specified number of hours of work in one day and in one week. Labor legislation for women is no new subject. One hundred years of experience have elapsed since the first factory acts were enacted in England, almost a century ago, and in our

own country Massachusetts led the way by the first ten hour law for women, more than a generation ago, in 1874. Yet to-day similar measures are still being successfully opposed in many of our States. The knowledge accumulated by the scientists in regard to the nature of fatigue and the physiological necessity of rest has been too little applied to the prevention of overfatigue and exhaustion in industrial pursuits. If it is necessary to have rest to balance exertion in order that our organism may repair itself from day to day, then such rest between working days is most imperative for people who are subjected to the strain and rush of employment in modern industry. It is therefore imperative that the day's work in factories and stores alike be limited by law, and here we face a surprising fact in New York State. The New York law provides that women may not be employed in factories more than ten hours in one day and fifty-four hours in one week; but for adult women in department stores there is no legal limitation of work whatsoever. New York is almost the only great industrial State which thus discriminates against the girls and women in department stores. In twenty States of the Union the law governing factories governs employment in department stores also. Three States (California, Colorado, and Washington) prohibit more than eight hours' work in one day; other States like Illinois, Louisiana, Kentucky, Maryland, Michigan, Wisconsin, and even our neighbor New Jersey, prohibit more than ten hours in one day. New York provides a limit only for girls under twenty-one years; and, since no proof of age is required, this law is practically impossible to enforce. The consequence is that, as a recent government report on wage earning women in department stores shows,<sup>1</sup> women are employed up to fifteen hours in the day in department stores. Detailed statistics of the hours prevailing at rush seasons in department and retail stores are given in the report of the New York State Factory Investigating Commission,<sup>2</sup> just published. This investigation of department and retail stores covered 216 establishments, employing over 40,000 women and children. The ordinary hours were not long—being under fifty-seven hours in one week; but at Christmas time and in preparation for the holiday season, the hours are greatly lengthened. For instance, in sixty-six large department stores in New York city the employees worked the following hours during the six days preceding Christmas (December 18 to 24, 1912), including Sunday:

In 16 stores there was no overtime (i. e., store closed at 6 p. m.).

In 3 stores the hours were from 60 to 65.

In 5 stores the hours were from 65 to 70.

In 4 stores the hours were from 70 to 75.

In 20 stores the hours were from 75 to 80.

In 18 stores the hours were from 80 to 85.

These are actual working hours, as the time off for luncheon and supper has been deducted. In addition to these excessive hours during the week, girls in certain departments worked also on Sunday, December 24th, varying from five to eight

<sup>1</sup>Report on Condition of Women and Child Wage Earners in the United States. Made by the Federal Bureau of Labor, etc.  
<sup>2</sup>Report of the New York State Factory Investigating Commission, January, 1913, pp. 327-351.



hours. In twenty-eight five and ten cent stores the hours (from December 18 to 24) were as follows:

In 3 stores there was no overtime.

In 1 store the hours were from 65 to 70.

In 12 stores the hours were from 75 to 80.

In 12 stores the hours were from 85 to 90.

Of the effect of these extremely long hours, continuing until late in the evening, the commission says:

There is scarcely a salesgirl who does not complain of the extreme lassitude and lessened power of work experienced as a result of this exhausting toil. From Thanksgiving to Christmas the pressure of work is cumulative. From day to day the crush in the store increases, and the demands upon a girl's time and attention grow more insistent and unremitting. The air of the store is vitiated. There is rarely a moment to sit down and relax. At lunch time comes the only break, and, in the overcrowded condition of most stores, a girl may have to stand in line ten minutes out of forty-five before she can get her luncheon, though her feet may be aching cruelly from long hours of standing. She may thus lose part of her short noon period for recuperation. Moreover, she must return to her counter strictly on time under pain of fine for lateness, no matter what the delay in the lunch room. At 6 p. m. nervous endurance has ebbed, and the tension of added evening work strains the physical and nervous powers almost to the breaking point. Girls ordinarily in good health complain that after the late return home their sleep is broken and unrefreshing. If a girl lives at any distance from the store her night rest is cut down, since she may reach home after 11 p. m., and yet have to return to her post at 8 or 8.30 the following day. Finally, when the rush is over, Christmas Day is often spent in bed, and for weeks thereafter the ill effects to health are still felt. According to the testimony of physicians, subsequent slack time cannot repair the inroads upon health due to such extreme overfatigue.

The discrimination against the women employed in stores is the more unreasonable because the strain of their work is being more and more clearly recognized. It is true that they are not subjected to the speed, monotony, and complexity of machinery, but the girl behind the counter suffers greatly from the constant standing, continuing at any rush season literally throughout the day. Many girls complain of broken arches and varicose veins. There is also a great nervous strain in being always on one's good behavior, and of an even temper, suiting the tastes and whims of customers. She needs the protection of the law as urgently as the factory worker to safeguard her health. Physicians agree that injuries to the female organs result from such long hours of standing, and that they may injure a woman permanently for life.

The report of the government on the earnings of saleswomen also disposes of the theory that this is pin money work and that wages may therefore be very low because they are not actually needed. The report shows that the overwhelming majority of the girls who were studied in department stores handed over all their earnings toward paying the family expenses. They were helping to support families in which the father was either not earning enough to support his wife and children or in which there was no male bread winner. Only 3.7 per cent. were pin money workers.

The same fact was shown in Boston, where a detailed study of women employed in department stores was made by a State commission last winter. There, too, out of 3,000 girls only 3.3 per cent. pin money workers were found. From among 3,000 girls and women whose cases were studied ten per

cent. averaged less than \$5 a week, and thirty per cent. less than \$6 a week; sixty-five per cent. earned less than \$8 a week.

The New York Factory Investigating Commission reports that of nearly 3,000 saleswomen studied throughout the State, one half (fifty-one per cent.) earned less than \$7, and sixty-one per cent. earned less than \$8. In New York city, where living expenses are highest, forty-four per cent. earned less than \$7.

The department store is the only great business in which great capital is invested which admittedly seeks to employ chiefly girls who are living at home. The average pay shown in these reports is so low that it is acknowledged that girls cannot support themselves by what they earn.

Yet someone must pay the difference between the earnings of the girls and the expenses of living. Is it not a fair charge upon the great industry which employs them, rather than upon the girls and women themselves, a large proportion of whom, as we have seen, are helping to support or alone are supporting themselves or their families? For women who are dependent on their earnings the difference between income and unavoidable expenses is made up in one of three ways, says the New York commission.

They may live in subsidized boarding houses or homes for working girls, where charity pays a part of their maintenance, or, secondly, they may live with such excessive economy and upon such short rations that health is shattered and future earning capacity is permanently undermined. Thus the worker herself is made to pay unfairly in strength and vitality, instead of receiving a living wage from the industry that employs her; and, lastly, in some cases the impossibility of living upon the pittance which they are paid leads undoubtedly some women to supplement these earnings by leading an immoral life.

The question naturally arises as to what can be done to help in this situation. The Consumers' League, which now has branches in twenty-two States, has long urged the shopping public to feel and to exert its responsibility as the indirect employers of these girls and women. Just as merchants provide all the commodities which their customers desire, in endless variety, so it is reasonable to suppose that they will provide conditions of employment which their customers approve if the desire is strongly enough expressed. But in this matter the individual customer or consumer can do little alone and singlehanded. Only large groups or associations of shoppers can effectively protect against conditions of employment which they do not approve for the girls and women who serve them in the stores, or whose labor supplies their needs and luxuries. The public, too, is ultimately responsible for the enactment of the laws which are the most just and the most effective means of securing adequate protection for the workers. Such laws are enacted and enforced only when the public demand is sufficiently strong. In New York State the labor department has this year been entirely reorganized, and its powers widely extended by the legislature. It needs now the intelligent support of the community in its new efforts to safeguard the lives and health of the millions of wage-earners of the State.

106 EAST NINETEENTH STREET.

## A SUGGESTED IMPROVEMENT IN THE ALLIS ETHER INHALER.

BY NELSON DU VAL BRECHT, M. D.,  
Washington, D. C.

The form of Allis's ether inhaler that I have seen in universal employment has no handle. It must be held by the stretched left hand, often for hours at a time. The smooth metal sides of the inhaler become slippery in a short while from the grease which is put on a patient's face preparatory to administering ether, and this adds to the difficulty of holding the apparatus. As a rule patients struggle when going under ether, and the inhaler is apt to slip from the anesthetist's grasp. His fingers and hand become cramped and tired during protracted anesthesia. The right hand of the anesthetist is always engaged either in dropping the ether on to the top of the inhaler or in holding the patient's jaw forward. All of these difficulties and inconveniences can be obviated by having a handle attached to one side of the inhaler. This handle can be so constructed as to permit of its attachment to either the right or left side of the inhaler, so that the anesthetist can change hands; or it will be useful for ambidextrous individuals. The handles being detachable, the inhaler need occupy no more space in an instrument rack than the old style.

## Therapeutic Notes.

**Treatment of Pulmonary Emphysema.**—S. I. de Jong, in *Journal de médecine de Paris* for April 12, 1913, states that where emphysema is accompanied by asthma and chronic bronchitis, the treatment of the asthmatic paroxysms should be the same as in ordinary cases of this affection, viz., injections of morphine, inhalation, ethylidiodide, or of fumes or powders containing stramonium. Inhalation of the following solution, sprayed into the nose, is often of advantage.

R Atropinæ sulphatis, ..... gr. ii (0.15 gramme);  
Sodii nitritis, ..... gr. ix (0.6 gramme);  
Glycerini, ..... ʒss (2 grammes);  
Aque destillatæ, q. s. ad. .... ʒss (15 grammes).  
Fiat solutio.

Some degree of caution must be enjoined, however, in the use of strong alkaloids, especially when cardiorenal weakness begins to appear. The use of a spray containing eucalyptol in solution of glycerin might be tried instead.

In the intervals between asthmatic paroxysms these patients often complain of dyspnea due to insufficient expectoration. In this event kermes mineral, with or without tincture of lobelia, may be given. Potassium iodide is sometimes very effectual, more especially in the obese, but in other instances induces excessively copious expectoration as well as gastrointestinal disturbances. Some patients who do not tolerate the iodide do well on oily preparations containing iodine or on the so called organic compounds of iodine.

Again, some patients are distressed by an excessive flow of secretions, particularly at the close of periods of dyspnea. Here terpin hydrate, with or without codeine, is of service. Hirtz advises the

administration of ergot. Sometimes the temporary use of a mineral water containing sulphur proves beneficial.

Where there is emphysema in cases with arrested tuberculosis, the chronic bronchitis should alone be treated, sulphur and iodine being used with caution, however, except in cases where the tuberculous trouble has long preceded, when iodide medication seems clearly useful. Arsenic and strychnine are advised by Robin and Hirtz.

When infectious diseases complicate emphysema, digitalis, camphorated oil, sparteine, Dover's powder, wet cups, wet cloths applied to the chest, and subcutaneous injections of oxygen are useful measures. When arteriosclerosis and chronic nephritis finally supervene in emphysema, and the dyspnea is no longer relieved by stramonium, iodides, etc., rest in bed, mild saline purges, milk or salt free diet, theobromine, small doses of digitalis intermittently, and caffeine, should be prescribed.

**Laxative Preparations.**—Bruder, in the *Pacific Medical Journal* for August, 1912, refers to the following as a suitable formula in prescribing castor oil:

R Olei ricini, ..... ʒi (30 grammes);  
Vitelli ovi, ..... ʒi  
Syrupi zingiberis, ..... ʒss (15 grammes);  
Aque cinnamomi, q. s. ad. .... ʒiv (120 grammes).  
Fiat mistura.

In conditions such as acne rosacea, erythema multiforme, and urticaria, a laxative mixture containing iron may be prescribed:

R Magnesii sulphatis, ..... ʒi (30 grammes);  
Ferri sulphatis, ..... gr. iv (0.25 gramme);  
Sodii chloridi, ..... ʒss (2 grammes);  
Acidi sulphurici diluti, ..... ʒi (4 grammes);  
Infusi quassiae, q. s. ad. .... ʒiv (120 grammes).

M. Sig.: One tablespoonful in a glass of water one half hour before breakfast.

Asafetida is sometimes indicated, but its taste and hitherto its indifferent quality have been objections. Lately, the quality has been much improved, and by specifying the U. S. P. drug, a good article may be secured. Palatability is obtained by prescribing as follows:

R Asafetidæ, U. S. P., ..... ʒv (20 grammes);  
Syrupi tolutani, ..... ʒiii (90 grammes);  
Tincture vanillæ, ..... ʒiii (8 grammes);  
Olei anisi, ..... ʒxxx (2 grammes);  
Aque cinnamomi, q. s. ad. .... ʒxvi (500 grammes).  
M. Sig.: One tablespoonful at a dose.

By combining phenolphthalein with aromatics as in the following prescription a palatable and most active therapeutic mixture is obtained:

R Phenolphthaleini, ..... ʒiii (12 grammes);  
Alcoholis, ..... ʒi (24 grammes);  
Elixir taraxaci compositi, ..... ʒiii (60 grammes);  
Elixir aromatici, q. s. ad. .... ʒviii (240 grammes).  
M. Sig.: One teaspoonful at a dose.

The drug may also be readily prescribed with chocolate syrup, or in a compound pill or capsule with small quantities of the extracts of rhamnus purshiana, nux vomica, and belladonna.

The Syrupus rhei et potassæ compositus of the N. F. is a palatable preparation containing rhubarb, hydrastis, potassium carbonate, cinnamon, sugar, and other flavoring agents, together with alcohol, and is useful as a carminative, stomachic, and antacid. It may be combined with pancreatin, nux vomica, or bromides.

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## EMETINE IN AMEBIC DYSENTERY.

The curative value of ipecacuanha in amebic dysentery has long been recognized, but while some observers have obtained uniformly favorable results, many have reported a relatively large number of failures. On the whole, valuable as the remedy has proved to be, it has failed, even where the identification of cases as amebic dysentery was beyond question, to merit the rank of a specific. Emetine hydrochloride, an alkaloid of ipecac introduced by Leonard Rogers last year, seems, however, to be increasingly proving its rights to this distinction.

Vedder had previously shown that emetine, in high dilution, possessed the power of destroying amebæ in broth cultures; Rogers confirmed this observation by testing the effect of emetine hydrochloride on *Entameba histolytica* in dysenteric stools. When mucus containing numerous active amebæ was placed in a solution of the alkaloid, the pathogenic organism was immediately killed; a solution of one in 100,000 sufficed for this purpose, while a solution of one in 10,000 produced disintegration of the amebæ, or at least material alteration of their microscopical appearances. Clinically, emetine proved greatly superior to ipecac; it did not cause vomiting in patients in whom ipecac had, as it often does, provoked this symptom. Being administered subcutaneously, it is rapidly absorbed

and proves promptly effective. Moreover, it presents the great advantage of affording a reliable agent, thus eliminating a drawback which has often compromised the results obtained with ipecacuanha, viz., marked differences in the activity of its preparations. Emetine hydrochloride being uniform as to its physiological action, its administration can be gauged accurately.

Besides proving curative in amebic dysentery, emetine hydrochloride, administered subcutaneously, will arrest the secondary hepatitis and prevent hepatic abscess. If the latter has already developed, evacuation by means of a trocar and injections of emetine into the pyogenic cavity will arrest the morbid process, especially if the remedy is administered subcutaneously at the same time. Chaufard recently reported a case in which the patient evacuated daily one half pint of pus from a hepatic abscess, through a bronchohepatic fistula. Suppuration ceased in six days, the temperature falling to normal, and complete recovery followed promptly. This is but one example of many now available in literature. The subcutaneous dose is from one third to two thirds of a grain, even the latter dose having failed to produce the least untoward effect.

It is generally believed that amebic dysentery is solely a tropical disease; but this is due to the fact that examination of the stools is neglected in a large proportion of the cases met with in temperate countries. It is common in the United States, especially at low altitudes near the sea level. Up to 1908 Johns Hopkins Hospital, a comparatively new institution, had received 182 cases of dysentery, practically all of which proved to be of the amebic type.

## THE CURE OF MOUTH BREATHING.

The procedure now usually followed in establishing nasal respiration in cases of mouth breathing consists in carrying out operative measures, whenever these are indicated, prescribing breathing exercises, and requiring the patient voluntarily to respire through the normal channels. In some instances, as is well known, mouth breathing persists notwithstanding these measures, especially at night, when volition is in abeyance. Unsatisfactory trial of strapping or bandaging at night in these cases has led W. W. James (*Proceedings of the Royal Society of Medicine*, May, 1913) to devise an apparatus consisting of a wire frame of German silver, gilded after completion, over which thin sheet rubber is stretched. The apparatus is placed at night inside the lips and cheeks, resting upon the outer surfaces of the teeth and gums, and renders mouth breathing quite impossible. An accurate model of the jaws, extending as far back as the first molars on either



side, is essential if the wire frame is to be a success. The frame consists of two horizontal wires—the upper dipping down in the midline to form a depression corresponding with the frenum labii, and five vertical wires, all evenly soldered together. Rubbing of the mucous membranes is avoided by making the frame large enough to be steady and by avoiding bony eminences. A supply of rubber is given to the patient, with directions to change it frequently.

Such conditions as gingivitis and pyorrhoea alveolaris are markedly improved, according to James, by the use of this apparatus. Chronic sore throat and nasal catarrh are also sometimes greatly benefited. The apparatus should be worn until normal respiration is quite established, when it may be left off on alternate nights and later completely.

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### SMOKE AND HEALTH.

The *Monthly Bulletin* of the Department of Health of the City of New York for the month of April, 1913, gives an interesting résumé of the nuisance of smoke, cinders, and gases, and the efforts made for its suppression. The limitations of the Board of Health in combating the smoke nuisance from vessels in the harbor, from federal reservations, and from railroads and large corporations are dwelt upon, and it is pointed out that certain of these offenders are not under the jurisdiction of the board, while in other cases conviction before a magistrate is most difficult, and even after conviction the fines impossible under the law are not deterrent, for, the worst offenders are large corporations and power plants, public utilities, etc.

In the development of industrial efficiency there has been a tremendous centralization of the power producing elements. It has come about likewise that in the great power plants are centralized also the smoke nuisances which formerly were distributed more evenly over the city. Cinders, smoke, and noxious gases seem to be an all too frequent accompaniment of industrial development and centralization. It may well be asked, however, why proper methods of smoke and gas consumption cannot be instituted in these large plants. Of course, to stop the operation of such a plant, even for a short period of time, or to "vacate the premises" for an offense against the smoke ordinance, would be absurdly ill considered, and would react directly on industrial efficiency, public comfort, and general safety. This is particularly true in the case of an electric power plant such as the Waterside Station of the New York Edison Company at Thirty-eighth Street and the East River, which, as the *Bulletin* says, "is eminent both as a public utility and as a persistent violator of the ordinance against

smoke and cinders." To stop the operation of this plant would be to darken the streets, put most of the elevators out of commission, and suspend the operation of some traction lines and numerous factories, as well as to seriously impair the high pressure fire system. This company has been repeatedly warned, summoned, convicted, and fined, according to the *Bulletin*, and the nuisance goes on unabated.

Not alone does the discomfort and esthetic offense caused by this nuisance demand its effective abatement, but of increasing importance is the economic waste and inefficiency involved in dense clouds of factory smoke, to say nothing of the deleterious influence on the public health. Contrary to general belief, the ordinance does not prohibit the use of soft coal, confining itself to attacking the nuisance as such, no matter what the source, and prohibiting the discharge of "dense smoke." The present section of the Sanitary Code reads as follows:

Section 18r. No person shall cause, suffer, or allow dense smoke to be discharged from any building, vessel, stationary or locomotive engine, or motor vehicle, place or premises within the City of New York or upon the waters adjacent thereto, within the jurisdiction of said city. All persons participating in any violation of this provision, either as proprietors, owners, tenants, managers, superintendents, captains, engineers, firemen or motor vehicle operators, or otherwise, shall be severally liable therefor.

The *Bulletin* goes on to say that it is necessary to have an accurate definition of the term "dense smoke." The courts have construed the term "dense smoke," as used in the ordinance prohibiting its emission, in the sense in which it is generally understood, and the courts have also stated that they "will not indulge in any subtle distinction as to what is meant thereby, but will construe it as ordinarily understood by people in general."

The smoke nuisance is no small problem in modern city life, and whether it falls more properly within the province of the police or as at present of the Board of Health, the best interests of this city and of every city demands its abatement.

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### SMALLPOX AND VACCINATION.

In the course of his study of 1,163 cases of smallpox observed by him in the city, and port of Liverpool, Dr. William Hanna, assistant medical officer of health, noted that among 943 cases of smallpox vaccinated in infancy, there had been twenty-eight deaths, or 2.9 per cent., while among 220 unvaccinated, there had been sixty deaths, or 27.2 per cent.; the ratio of deaths to attacks being thus ten times as great in the unvaccinated as in the vaccinated. These figures are, in a general way, confirmatory of the common experience of smallpox hospitals as to the life saving influence of vaccin-

ation. The opponents of vaccination, in order to discredit the statistics of smallpox hospitals, are forced to charge, as they virtually do, a world wide and century long conspiracy among the officers of these institutions to falsify the classification of the vaccinated and unvaccinated groups. The charge is that, being in favor of vaccination, the physicians are so biased that their observations are worthless. If the observations of men of vast experience in smallpox are worthless, what can be said of the observations of the paper statisticians opposed to vaccination?

Doctor Hanna makes an interesting contribution to the study of the mutual influence of concurrent vaccinia and smallpox in cases in which vaccination was performed during the period of varicellous incubation. In consonance with the views of others, he finds that a vaccination performed subsequent to infection with smallpox, will "take" and pass through its typical course, up to the date of onset of symptoms of smallpox. The chances of suppression or favorable modification of the oncoming smallpox are in inverse ratio to the period elapsing between smallpox infection and vaccination; the later the smallpox appears after vaccination the greater is the opportunity for the vaccination to be successful and develop its counteracting immunity. He states that "vaccination requires nine days to develop an immunity which will absolutely prevent or minimize an attack of smallpox."

Some interesting observations on the question of vaccination after the onset of smallpox are also recorded. "The operations performed subsequent to the appearance of symptoms were unsuccessful." Doctor Hanna believes, however, that in some cases the vaccine organisms introduced into the system may have had some modifying effect, although the reaction was not typical.

In patients vaccinated late in the course of the disease, no reaction appeared at the site, except, of course, the usual scarification crust. An erroneous judgment may thus be reached through attributing the increased varicellous eruption about the vaccination site to the effect of vaccination.

#### TONSIL OPERATIONS.

We are evidently drawing near to the end of what seems to have been a veritable removal of tonsil epidemic. Judging from the trend of present opinion and thought on the subject, the wholesale destruction of the tonsil will soon be a matter of the past. Recently the section in laryngology of the New York Academy of Medicine was asked by the Associated Outpatient Clinics of the City of New York to advise them whether the widespread

practice of tonsil extirpation should be continued; whether the medical school inspectors should urge upon the parents of the children the desirability of tonsil operations, and whether such operations should be performed in dispensaries.

The school doctors and nurses have been conducting what virtually amounted to a crusade against the tonsil. They recommended that tonsils be cut out when there was the slightest excuse for it, and, as a result, many ignorant parents insisted that this be done even when the advice of the laryngologist consulted was to the contrary. The dispensaries are swamped with cases of hypertrophied tonsils. The work is often done in a slipshod fashion, very frequently without anesthesia, and in places where no recovery rooms are available. Numbers of cases are known to have been followed by serious hemorrhages, some ending fatally.

The report of the section in laryngology in answer to the above stated questions is significant and instructive. In the first place, the great majority of the members of the section favor tonsillectomy, as against tonsillotomy. Secondly, they have come out strongly against the ill advised insistence on tonsil removal on the part of the school inspectors; and, thirdly, they have taken an unmistakable attitude against the performance of either tonsillectomy or tonsillotomy in dispensaries. Both of these operations are considered major operations which should have the facilities of a hospital.

#### THE LIFE CYCLE OF THE BITING FLY.

In a preliminary account published in the *Philippine Journal of Science* for February, 1913, Dr. M. Bruin Mitzmain duplicates the information prescribed by Newstead in the *Journal of Economical Biology*. We thus read that the age at which *Stomoxys calcitrans* begins egg laying has been determined in bred flies to be nine days. The maximum number of eggs produced by a single stomoxys may be stated as at least 632 and possibly 820. As many as twenty depositions may be made in the lifetime of a female. The incubation period for these eggs is from twenty to twenty-six hours at a temperature of from 30° to 31° C. The larval stage under best conditions is usually from seven to eight days. The imago emerges from the puparium generally in five days. The fly of either sex takes its initial bite in from six to eight hours after emergence. Flies of this species have fed experimentally on seventeen species of vertebrates including mammals, reptiles, and birds. In feeding on live stock, *Stomoxys calcitrans* makes a wound with its labium, from which nonbiting flies suck blood. The female may live at least seventy-two days and the male ninety-four days. The development of *Stomoxys calcitrans* varies considerably, depending upon the environment, under the most favorable conditions.

## Obituary.

### HORACE JAYNE, M. D.,

of Philadelphia.

Dr. Horace Jayne died suddenly at his home in Wallingford, Delaware County, Pennsylvania, on Tuesday, July 8th. Born on March 5, 1850, he received his education at the University of Pennsylvania, taking the degree of A. B. in 1879 and graduating as M. D. in 1882. In 1882 and 1883 he studied biology at the universities of Leipzig and Jena, where he attended the lectures of Ernest Haeckel, and in 1883 and 1884 at Johns Hopkins. At this time he became assistant instructor of biology in the University of Pennsylvania, and soon afterward was appointed professor of vertebrate anatomy and secretary of the faculty of biology; while from 1889 to 1894 he served as dean of the college faculty. In 1895 he became director of the Wistar Institute, which office he retained for several years; when he resigned to become a member of the board of trustees of the Drexel Institute.

Doctor Jayne belonged to a family whose members have been noted not only for their scientific attainments but also for their philanthropy. He was a fellow of the College of Physicians of Philadelphia and of many scientific societies. He was a prolific writer and has contributed many valuable essays to the literature of biology.

## News Items.

**Smallpox on an Ocean Liner.**—A case of smallpox was discovered in a steerage passenger of the North German Lloyd liner *Kohn* as it neared Philadelphia, on July 10th, and as a result the steamer was held at Government Quarantine Station at Marcus Hook until about fourteen hundred passengers were vaccinated and the vessel fumigated.

**Philadelphia Civil Service Commission.**—Among the positions for which this commission will hold examinations in the near future are the following in the medical service: July 30th, chief nurse and nurse, Department of Public Health and Charities; July 30th, chief nurse and nurse, salary, \$75 to \$85 a month; assistant physician, resident, \$600 to \$900 a year, with room and board; assistant physician, resident, \$600 to \$1,000 a year, with room and board.

**New Hospital for the Bronx.**—The Bronx Hospital Association, which for the last year and a half has maintained a well equipped dispensary at 1385 Fulton Avenue, has purchased a site on Crotona Park East and Charlotte Street, on which will be erected an eight-story hospital building, at an estimated cost of \$300,000. The directors of this hospital include Dr. Abraham Jacobi, Dr. Willy Meyer, Dr. Wolff Freudenthal, Dr. Samuel W. Lambert, Dr. H. M. Lyle, and Dr. George W. Jacoby. The new institution will be nonsectarian and will be called the Bronx Hospital.

**A Commission for the Study of Ventilation Problems.**—Professor C. E. A. Winslow, of the Department of Public Health of the American Museum of Natural History, has been appointed chairman of a commission to carry on an experimental study of problems of ventilation. The other members of the commission are: Dr. Frederic S. Lee, professor of physiology, Columbia University; Professor E. L. Thorndike, of Teacher's College, Columbia University; Professor E. B. Phelps, of the Massachusetts Institute of Technology; Dr. James Alexander Miller, of New York, and Mr. D. D. Kimball. An appropriation of \$50,000, to be expended during the next four years, has been placed at the disposal of the commission, this fund being a part of the gift made by Mrs. Elizabeth Milbank Anderson to the Association for Improving the Condition of the Poor.

**The Rockefeller Institute to Receive Patients with Acute Poliomyelitis.**—During the past two summers patients suffering from poliomyelitis in the acute stages have been admitted to the hospital of the Rockefeller Institute for Medical Research for treatment. It is planned to admit such patients again during the coming summer, and after July 15th all such patients applying for admission will be cared for in the hospital. Judging from the reports of the Department of Health, the number of cases during the coming summer and fall is not likely to be as large as it was during the past two years, though a considerable number of cases are occurring and applications for admission have already been received at the hospital. Many physicians will be very glad to know of a suitable hospital where they may send such patients, and if they will telephone to the hospital, an ambulance will be sent promptly for the patients.

**An Exposition of Safety and Sanitation.**—The first international exposition of safety and sanitation ever held in America will take place in New York in December of this year, under the auspices of the American Museum of Safety, of which Dr. William H. Tolman is the director. Safety and health in every branch of American industrial life will be represented at this exposition. It will include exhibits devoted to safety, health, sanitation, accident prevention, welfare, and the advancement of the science of industry. By a special act of Congress, exhibits from foreign countries are to be admitted free of duty. There are twenty-one museums of safety in Europe, and all these museums will contribute to the exposition. In the United States every year 40,000 workers are killed, and 2,000,000 are injured, while 3,000,000 become ill from preventable causes. The main object of the exposition is to point the way to the conservation of human resources.

**Martyrs to the X Ray.**—Dr. Charles L. Leonard, of Philadelphia, chief of the Polyclinic Hospital staff, and an expert in electrotherapeutics, is said to be in a serious condition from the effects of the x rays, with which he has been working for many years. Growths starting in one hand made it necessary some time ago to remove the hand, and recently the whole arm was removed. Every effort is being made to check the further spread of the disease. Doctor Leonard assisted Dr. William L. Clarke, also of Philadelphia, in treating Mr. Burton E. Baker, inventor and manufacturer of x ray apparatus, who died in Hartford, Conn., on July 10th. Mr. Baker began his work in the x rays in 1895, and it was in 1905 that the first signs of disease were noticed. He continued his work, however, and six months ago it was found that his whole system had been affected by the cancerous growth. Radium and surgery were tried, but without stopping the disease. It is said that between thirty and forty scientific men have lost their lives through the continued use of the x ray, about twenty being physicians. These men, however, all used the rays in the earlier years of their discovery and before the danger attached to their use was understood. In these days greater care is exercised, the experimenters being protected by thick lead screens.

**Gifts and Bequests to Charities.**—The Mayor of Hoboken, N. J., has received from the Hamburg-American Steamship Company the sum of \$5,000, as that city's share of the proceeds of the public inspection of the *Imperator*. Of this sum St. Mary's Hospital will receive \$2,500, Christ's Hospital, \$1,000, and the North Hudson Hospital, \$500.

Charitable bequests, aggregating \$65,000, are contained in the will of Mrs. Jane McKee Norris, who died recently in Philadelphia. Among these bequests is one of \$50,000 to the Presbyterian Hospital.

Notice has been filed of the contest of the will of the late Henry E. Rutherford, who left \$200,000 to the Rockefeller Institute for Medical Research for cancer study.

Mr. Arthur James has given to the Middlesex Hospital, London, the income from £20,000, as a memorial to his brother. The money is to be used to carry on cancer research work.

The will of Mrs. Elizabeth M. Newton, of Fredonia, N. Y., who died a few days ago in California, contains a bequest of \$150,000 to establish a tuberculosis hospital in Chautauqua County.

The Pennsylvania Hospital will receive \$5,000, under the terms of the will of Charles M. Morton, who died in Atlantic City on May 18th.



**Personal.**—Dr. John R. McDill, of Milwaukee, Wis., has been appointed associate professor of surgery at the University of Chicago.

Dr. Emil Abderhalden, professor of physiology in the University of Berlin, has declined the call to Vienna as the successor of Professor Ludwig.

Dr. Robert L. Bartlett, of New York, has been appointed superintendent of the Oneida County Hospital at Rome, N. Y.

Dr. Henry Wireman Cook, of Minneapolis, was elected president of the American Association of Medical Examiners, at the annual meeting of the association, held recently in Minneapolis. Doctor Cook succeeds Dr. Frank W. Foxworthy, of Indianapolis, who becomes first vice-president.

**Medical Board of Kingston Avenue Hospital, Brooklyn.**—Announcement is made by the Department of Health of the City of New York of the appointment of sixteen Brooklyn physicians as members of the medical board of this hospital, which is a city institution for the care of infectious diseases. These physicians are as follows: Consulting physicians, Dr. John A. McCorkle, Dr. Jacob Fuhs, Dr. Glentworth R. Butler, and Dr. Elias H. Bartley; consulting surgeon, Dr. H. Beckman Delatour; consulting otologist, Dr. Henry A. Alderton; consulting dermatologist, Dr. James McFarlane Winfield; attending physicians, Dr. Frank M. Sharpe, Dr. Raymond Clark, Dr. Maurice T. Lewis, Dr. Henry G. Webster, and Dr. James S. Waterman; attending surgeons, Dr. Warren M. Duffield, Dr. John A. Lee, Dr. Walter A. Sherwood; obstetrician, Dr. O. Paul Humpstone.

**Maine Medical Association.**—The sixty-first annual meeting of this association was held in Portland on Wednesday and Thursday, July 2d and 3d, under the presidency of Dr. R. H. Marsh, of Guilford. The following officers were elected for the ensuing year: President, Dr. W. C. Peters, of Bangor; vice-presidents, Dr. Eben Marston, of Bath, and Dr. C. T. Emery, of Biddeford; secretary, Dr. John B. Thompson, of Bangor; treasurer, Dr. E. W. Gehring, of Portland; councillors, Dr. Stephen Webber, of Calais, and Dr. T. S. Dickson, of Houlton. The following committees were chosen: Scientific work, Dr. F. Y. Gilbert and Dr. T. J. Burrage, of Portland, and the secretary ex-officio public policy, and legislation, Dr. D. A. Robinson, of Bangor, Dr. T. E. Hardy, of Waterville, and Dr. S. T. Beach, of Augusta; necrology, Dr. James A. Spalding, of Portland. The next convention will be held in Portland early in June, 1914, but the dates were not fixed.

**Resolution of the Board of Health Regarding the Use of the Friedmann Treatment.**—On May 29, 1913, the Department of Health of the City of New York, with the approval of its medical advisory board, adopted a resolution providing for the official supervision of immunization with living bacteria, the result of which was the closing of the recently established Friedmann Institute, pending a decision on the application for a permit under the new rule. On June 17th the board adopted a resolution which forbade the use of the treatment, except in those cases where the patients had already been treated at various hospitals and at the Friedmann Institute, and prescribed very minutely the conditions under which re-injections might be made. The resolution reads as follows:

1. The injection or treatment of human beings within the city of New York with the F. F. Friedmann "vaccine" (which contains living bacterial organisms) is prohibited, except under the following regulations and restrictions:

2. No person may be treated, according to the foregoing, who did not receive one or more such treatments with the same kind of living bacterial organisms, in New York city, previous to May 30, 1913.

3. These treatments may be administered only in the following named hospitals: Bellevue Hospital, Mount Sinai Hospital, Montefiore Home and San Hospital, and any other that the Board of Health may approve when arrangements have been made for proper observation and control of the cases.

4. Only those persons may be so treated who reside in one of the hospitals named above or who agree to return to the hospital in which they receive said treatment as often and at such times as the physicians in charge of said hospital deem it advisable for their proper observation.

5. No person may receive treatment according to the foregoing until he or she has presented to the physician administering the treatment a fac simile of an official form, filled out and signed, in duplicate, by a physician who is duly authorized to practise medicine in New York city and who is not in any way financially interested in the treatment.

No person may be so treated until he or his parent or guardian, in case of a minor, has signed a declaration, in duplicate, stating that he desires these treatments continued.

## Pith of Progressive Literature.

### CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE

May 3, 1913.

#### The Operative Treatment of Floating Kidney.

—Theodor Kocher thought that this operation was "something new under the sun," but finds that it has been performed by others, so far as its essentials are concerned. The kidney is laid bare by an oblique lumbar incision and brought into the wound by pressure on the abdomen, so that its lower pole can be fixed with the fingers. A strip of the fascia lata, from eighteen to twenty cm. long, by about ten cm. broad, is taken from the thigh, and its four corners secured with artery forceps. An incision about four cm. long is made longitudinally in its middle, into which the lower pole of the kidney is introduced, so that the kidney lies in the strip of fascia like a stone in a sling, and is secured in place by sutures passing through the margins of the opening and the capsule. The sling is then fastened in its desired position by sutures. By this means the lower pole can be drawn a little forward, if the upper pole shows a tendency to droop. The advantage of this method is that the kidney is kept in place without depending on any sutures in the kidney itself. He does not think it wise to draw the fascia so far over the kidney as is done by Henschen, for fear that the vessels or the ureter might be compromised, and he thinks the method will prove to be better than the "basket handle" method suggested by Werelius, of Chicago.

**Tumors in the Male Breast.**—Fritz Miescher observed a fibroadenoma of the mamma, in a man sixty-seven years old, which grew slowly, and a tumor of the mamma in a man fifty-two years old, of which he gives quite a detailed description; it seemed to be undergoing a cancerous degeneration, but there has been no recurrence or metastasis in three years. The author has been able to find in literature only two other cases of nonmalignant tumors in the breasts of men.

May 10, 1913.

**A Typical Case of Traumatic Neurosis Persisting during a Long Suit for Indemnity.**—Naegeli reports a case in which fourteen examinations were made by various medical men in the course of eighteen years. He seems to think that the neurosis had been kept active by this means, and that this way of determining the insurance is preposterous.

May 24, 1913.

**Epidemiological Considerations Concerning Diphtheria.**—R. Klinger studies diphtheria from the point of view of prophylaxis, and concludes that in order to make an efficient fight against diphtheria it is very advisable that the bacteriological examination be made extremely extensive, so as to be practised not only in typical cases, but also in those that are scarcely suspicious—sore throats and coryzas. As soon as a case of diphtheria is established bacteriologically, investigation should be made of the surroundings of the patient, in the home, school, or institution. Bacteriological examinations are to be made until there has been a bacteriological cure.

Diphtheria bacilli remain perfectly virulent on the average for from two to four weeks from the beginning of the disease in the throat, and sometimes in the nose of the convalescent. Patients with virulent diphtheria bacilli should be isolated as long as the bacteriological condition is positive. The brothers and sisters of the patient, as well as any other children living in the same house, should be excluded from school, and not allowed to play with other children either in the house or on the street. At the same time these children should be given as much outdoor air and light as possible. The parents should be instructed by the physician how to avoid spreading the disease. The fight against diphtheria cannot be successful without the efficient cooperation of the family physician.

#### MEDIZINISCHE KLINIK.

June 1, 1913.

**Pain as a Symptom of Internal Disease.**—O. Roth states that the exact examination of pain is of great value because it compels us also to take into account ills of psychic origin. Therapeutic results are greatly influenced by these. Fleiner says that the psyche plays an important part, not only in the person's becoming ill, but also in his becoming well. It is generally emphasized by all that the treatment of disease should not be dogmatic; but should always take into consideration the individualism of the patient. This demand can therefore be best satisfied when the psychic condition of the patient is not neglected.

**The Influence of Daily Atmospheric Pressure on Blood Pressure.**—R. Staehelin asserts that, aside from irregular pressure waves on separate days, we may expect to find an atmospheric influence on all patients examined. Only on certain days, however, are noticeable effects seen in the majority. If the patients in a hospital were all confined in the same room, we might not be justified in concluding on the effect of atmospheric conditions on particular days; but since the patients examined were in different wards, the fact that on those days all showed a striking effect in the same direction could be mainly attributed to an influence originating in the weather. The observations must be conducted with great care, so as to exclude physical or other disturbances, and patients should be selected whose blood pressure is not influenced by their own disease. Only one group of cases—patients suffering from tuberculosis of the lungs, in whom the disease showed a stationary character—was selected for examination. Of course, one must not imagine that the atmosphere acts on blood pressure in a mechanical manner. We may take it that in rarefied atmospheric conditions certain radioactive gases emanate from the earth, and thus influence blood pressure, and that lowered atmospheric pressure exerts an influence in lowering blood pressure, a fact which, in spite of limited knowledge, the author regards as being of great importance.

**Occult Glycosuria.**—L. Boros explains how the secretion of grape sugar in the urine is frequently a symptom of various ailments besides diabetes, as disorders of the liver, heart, lungs, and brain, as well as acute infections, syphilis, and also some

cases of poisoning; in all of which this fact has been shown. Again, an excessive carbohydrate diet may lead to an alimentary form of glycosuria. The diagnosis of glycosuria is confirmed by the regular methods of testing for sugar. That sugar may at times be excreted in small quantities without one's being able to demonstrate glycosuria, has led the author to make special urinalyses. These disclosed in the sediment, along with yeast cells, certain materials presenting some debatable characteristics. These suggested diabetes, although all tests tried disclosed no sugar. Yeast cells, frequently present in diabetic urine, are everywhere present in the atmosphere; as soon as they settle in the urine they find many ingredients vital for their existence, especially ferment producing sugar. Oxaluric lime crystals were found considerably increased. He wishes to lay stress upon the vicarious compensatory excretions between sugar and oxaluric acid. When urine is not examined often or thoroughly, the presence of sugar may be overlooked by reason of the action of yeast cells on the spores of sugar. This fact of the action of yeast cells contains enough diagnostic and prognostic value to deserve the attention of the practitioner.

**Dietetic Treatment of Certain Forms of Chronic Diarrhea.**—C. Wegele calls attention to the treatment of diarrhea with milk diet, stating that with from three to seven litres of milk daily no improvement may result in severe forms. It occurred to him that in such patients raw fruits often brought about better results than milk alone. It was van der Scheel who conceived the idea of a combination of lukewarm milk with strawberries pressed through a sieve—one part of juice to three of milk. With this the author brought about remarkably good results. Besides the mixture he allowed only crackers and two eggs daily. Later, milk broth, whole strawberries, and from three to four eggs daily were permitted. About three pounds of strawberries were used in the twenty-four hours. In a few days the patient's general condition suddenly changed for the better. The stools became formed, their permeating odor decreased, and, above all, the prostration and stupor, which gave the picture of autointoxication, became less from day to day. It has not yet been shown how the strawberries cured, though they are said to possess a certain enzyme which greatly promoted digestion. Boiling or sterilizing the fruit deprives it of its healing power. Bananas, peaches, mellow pears, melons, and cucumbers may be used, but are not as efficacious as strawberries, especially in the early part of the treatment. Gradually the patient was allowed *purée* of light vegetables, etc.

June 8, 1913.

**Natural Immunity Dependent on Nourishment.**—Szerny explains that full term, breast fed infants present the highest rate of immunity. He finds that only a small proportion of infants die solely from methods of nourishment. The death of most of those making up the high infant mortality is due to infections. He has up to now dealt only with the nourishment most important to the infant: albumins, carbohydrates, fat, water, and salt. In connection with these important constituents of the diet, nourishment still seems to depend on those food values which are requisite only in

small quantities, but which in the greatest measure govern the vitality of the organism in greatest measure. That which maltose preparations supply to the child of the first year is later replaced by meat. With relative small quantities of this nourishment results not to be explained are attained. In this way children are protected against infection in a manner which could not be accomplished by other methods. From observations on the study of children valuable lessons may be deduced for adults.

**New Discoveries Regarding the Diet of Diabetes Mellitus.**—B. Tausz says that Abderhalden's researches have proved that albumin, fat, and carbohydrates develop protective ferments. Abderhalden and, independently of him, Weinland have shown that when cane sugar is added to the serum of a dog the cane sugar remains unchanged; but if the animal first be given ten c. c. of a five per cent. cane sugar solution intravenously, and then cane sugar solution added to its serum when drawn, a splitting up of the disaccharides follows at once, and this process of splitting is not temporary but continues for about three weeks. As a result of this, it is found possible for the organism to produce protective ferments against the prevalent action of carbohydrates. In diabetes the system is overstocked with carbohydrates, and were it possible to make the protective ferments active, or perhaps increase them, the carbohydrates might be oxydized to a greater extent. The carrying out of this idea is now in progress.

**Experience with Codeonal.**—Lena contributes the following: Codeonal is a compound of 11.76 per cent. codeonum diethylharbituricum and 82.24 per cent. of sodium diethylharbituricum. It comes in tablet form, each containing 0.17 gramme of codeonal. It was used for patients suffering with psychoses of light and severe grades, neurosis, and organic nervous diseases, in all of which neurasthenic difficulties and pain were present. The doses consisted of two, three, or four tablets after the evening meal. The author found that in psychosis and neuropsychosis combined with general unrest and in the severely excited the remedy does not suffice as a sedative. On the other hand, it is very useful as a soporific in patients with general nervous excitement or exhaustion of a milder nature, as well as in organic nerve affections which are combined with pain. In these it is a valuable substitute for veronal. The absence of any bad aftereffects, even following large doses, permits of its recommendation for many patients.

June 15, 1913.

**The Appearance and Significance of Over-tension of the Arteries.**—John has made the following observations: While there are generally, though by no means always, changes in the smallest vessels of the kidneys, the vessels of the same calibre in other organs are not necessarily changed. Macroscopically the kidneys not infrequently appear perfectly normal and microscopically show only isolated connective tissue shreds, or even when they appear as typical red granular kidneys, they also show no marked abnormality clinically, with regard to function. The patients are usually short breathed (sometimes only after exertion), suffer

from headache, dizziness, restlessness, a feeling of fear, and excitement. Impaired ability and uncertainty in the use of the extremities and rheumatic difficulties develop. The blood pressure may be as high as 200 mm. Hg., and there is generally a moderately hypertrophied heart. As to the heart sounds, besides the almost constant accentuation of the second sound, there is later a presystolic, galloping rhythm. In the urine are found traces of albumin, and cylinders will be discovered when searched for in the sediment. In plainly marked incompetence there is edema, with from three to twelve per cent. of albumin in the urine. In isolated cases the ophthalmoscope shows small atrophied spots in the retina.

June 22, 1913.

**Treatment of Acute Lowering of Blood Pressure with Hypophysin Extract.**—Klotz says that by intravenous pituitrin injections the toxic fall of blood pressure is controlled to a moderate degree and that this action lasts for some time. The good effects are generally enhanced by the addition of normal salt solution. The injection should be made at the very beginning of the fall in blood pressure and may be repeated at any time after the effect has worn off, though it should not be delayed more than twelve hours. One need not fear any cumulative effect. Stimulants, such as camphor, digalen, etc., may also be employed. Pituitrin is likewise of service in the toxemia of peritonitis, and the infection of the pneumococcus and diphtheria bacillus and pyocyaneus, as well as in circulatory disturbances. Delille states that he has had good results with pituitrin in both diphtheria and pneumonia.

June 20, 1913.

**Function Test of the Kidneys and Its Significance.**—M. Roth calls attention to a method of testing kidney function by intramuscular injections, in various parts of the body, of coloring matter as indigo carmins and the phenolsulphonphthaleins. The first, introduced into practice by Völker and Joseph, comes in the form of a tablet containing 0.08 gramme. One tablet is to be dissolved in twenty c. c. of boiling water, and this boiled down to even a more concentrated solution. It is best injected into the lateral gluteal region. To prevent painful infiltrations, it is well to inject small quantities in various places. In five minutes, or at the latest, ten minutes, normal kidneys begin to excrete the coloring matter in the urine, which in from twenty to thirty minutes shows a deep blue. Should discoloration of the urine begin markedly later, for instance, in thirty minutes, or if after an hour it is only lightly colored, the case is undoubtedly one of defective kidney functioning. Several other coloring materials, each having some special advantage, are given by the author.

LYON MÉDICAL.

June 1, 1913.

**Effects of Alcohol Injections into Nerves.**—L. Bériel and A. Devic point out that the reactions caused by the introduction of "lytic" agents in nerves are not as yet well known. They report experimental work on rabbits, in which it was found, in the first place, that even with considerable pressure, only a few drops of alcohol could be made



actually to penetrate the substance of the sciatic. Degenerative changes subsequently occurred in the nerve fibres, even at a distance, but total transverse destruction of the nerve trunk never resulted, in spite of special attempts to produce it. The conclusion reached was that alcohol diffuses but little in nerve tissue, and that destructive changes take place only in fibres coming directly in contact with the alcohol.

June 8, 1913.

**Vertigo in Tuberculous Patients.**—C. Lesieur and L. Thévenot found, among one hundred tuberculous patients, fifty-five who experienced vertigo, sometimes sufficiently marked to cause the patients to fall. In twenty-six instances the symptom followed paroxysms of coughing; in twenty-one, various causes such as digestion and exposure to cold air, etc.; in five, meals, and in three, changes of position. The symptom occurred with equal frequency at all ages, and oftenest early in the disease. It appears to be due to abnormal sensitiveness of the pneumogastric nerve and its centres. The sequence of cough and vertigo is thought by the authors to be of considerable diagnostic value. When observed it should suggest to the clinician the possibly tuberculous nature of a bronchitis or tracheobronchial glandular disorder.

**Complications in a Case of Pneumonia.**—A. Lemierre and L. Cotoni report a case of mild pneumonia following traumatism to the chest in a diabetic, complicated on the nineteenth day by bilateral epididymoorchitis, and later by erysipelas. The blood gave a positive culture of the pneumococcus, and the authors look upon the epididymoorchitis as a metastasis of this organism, the result of the bacteriemia.

#### PARIS MÉDICALE

May 31, 1913.

**Cytology of the Fluid Contained in Cutaneous Bullæ.**—M. Villaret, discussing this subject in detail, states that while cytoscopic studies of the fluids obtained from cases of bullous, vesicular, or pustular dermatitis, are of but little clinical interest, they may be of diagnostic value in doubtful cases of pemphigus and erythema multiforme, in which there is an excess of polymorphonuclear leucocytes; in smallpox and herpes zoster, in which altered epithelia are found, and in plantar eruptions of the newborn, in which parasitic organisms may be detected. In Duhring's disease there is a pronounced eosinophilia in the fluid contained in the bullæ, and in pityriasis rosea the minute vesicles surrounding the diseased patches are said to enclose from the outset an excess of multinuclears.

June 7, 1913.

**Bismuth Salts and Their Uses.**—Lion has shown that when bismuth subnitrate is given to patients with excessive gastric secretory activity, either an hour before or during a meal, the drug diminishes both hyperchlorhydria and pepsin formation; lowers the intensity of the digestive process in the stomach, and leads to rapid evacuation of this organ into the intestine. A high degree of total acidity still remains, but this is due in large measure to nitric acid set free from the bismuth salt. The dose advised by Lion for these cases is from ten to

twelve grammes. The drug may also be given five or six hours after the meals, for the purpose of precipitating the chlorine of the stomach contents and placing the organ under conditions in which there is a more marked tendency toward its evacuation. In x ray work Lion disapproves of the use of both the subnitrate and carbonate of bismuth, owing to the danger of bismuth intoxication, and has had prepared an oxide of bismuth which is tasteless, readily emulsifiable, becomes changed to an insoluble oxychloride upon contact with the gastric juice, and is not absorbed into the blood; all risk of either nitrate or bismuth intoxication is thus avoided.

**Gastrocolic Reactions.**—M. Loeper refers to the effects on colonic motility exerted by the introduction of food or fluid into the stomach. X ray observations showed that the ingestion of food resulted within half an hour in well marked motor excitation of the cecum and ascending and transverse colon, but only slightly of the descending colon, and not at all of the sigmoid. Even normally, certain substances, such as coffee and alcohol, and sometimes game, lobster, fish, eggs, etc., will cause a prompt colic reaction. In stomach patients with hypochlorhydria, dilatation, or gastropnoia, as well as in cases of enteroptosis, chronic enteritis, or mere hyperesthesia of the abdominal viscera, diarrhea, or pain, or both, may occur after meals. In enterocolitis, again, constipation due to reflex spasm of the colon, and in appendicitis, pain because of cecal spasm dragging on adhesions, may occur. The chief cause of the gastrocolic reactions is supersensitiveness, either of the stomach, colon, or abdominal nerve plexuses. Surmont and Dubus have shown that the pyloric region is the most sensitive area of the stomach in exciting colic reflexes; yet, colic contractions may begin immediately upon the entrance of food into the stomach. The secretory, vasodilator, and peristaltic hormone existing in the blood during digestion is probably a factor in the gastrocolic reaction, in addition to the purely nervous one. Prophylaxis, as regards this reaction, consists in ordering a nonirritating diet—sometimes in part predigested—slow eating, and peptic ferments. Gastric, appendicular, or cecal disorders, enteritis, etc., should be suitably treated. Sodium bicarbonate or citrate, and carbonate of calcium or bismuth, often act well. Anesthesia of the reflex may be procured by giving lime water, with some analgesic drug added, or by means of chloroform water, taken fifteen minutes before each meal. Intestinal excitability may be overcome with suppositories containing 0.05 gramme of valerian, 0.01 of codeine, and 0.02 of extract of belladonna, with or without ichthyol or tannin. Hot, moist compresses over the abdomen at night, followed by an alcohol compress for an hour in the morning, may prove useful. General tonic measures may also be indicated.

#### PRESSE MÉDICALE.

June 7, 1913.

**Stasis Due to Altered Position of Colon.**—G. Lardenois, after discussing the several possible types of colonic displacement and their causes, advises that where such displacements are marked, causing persistent obstruction, notwithstanding diet,

constant care and massage, and if the kinks in the bowel are shown to be permanent by x ray examination, the patient be subjected to a Y shaped typhlosigmoidostomy, with resection of the fundus of the cecum. This operation is easily performed, in particular in the cases where the cecum is distended. It is especially indicated in stenosis of the hepatic flexure. It overcomes constipation, places the colon at rest, and drains it in the best possible manner.

**Adrenal Glands and Glycemia.**—H. Bierry, reviewing the evidence available to the effect that the secretion of the adrenals is one of the agents regulating the amount of sugar in the blood, refers to experimental work conducted by himself with L. Morel, which proved that epinephrin can exert its action on glycogenesis through a process not involving the cerebrospinal nervous system. Epinephrin probably acts through the sympathetic system, the fibres of which are capable of activating protoplasm, as regards the elaboration of soluble ferments. The secretion of epinephrin itself, on the other hand, which at least in part contributes to keeping constant the amount of sugar in the blood, is undoubtedly dependent upon a regulatory mechanism utilizing the nervous system as its intermediary. An impulse from the medulla can be transmitted through the sympathetic to the adrenals, and alter their secretory function. The route followed by this impulse appears to be the splanchnic nerves, or, at least, fibres from the bulb, the cervical and the upper thoracic cord, which travel down with the splanchnics to the semilunar ganglia, and thence to the adrenals.

June 14, 1913.

**Supertensive Medication.**—Alfred Martinet, after pointing out that the production of increased blood pressure is one of the therapeutic indications most frequently to be met, expresses his preference for strychnine as the chief drug to be employed for this purpose. The initial dose should be from two to three milligrammes, and this should often be increased, according to the susceptibility of the patient. Tuberculous subjects, among others, were sometimes observed to derive the best results from the daily ingestion of from fifteen to twenty-five milligrammes in three doses. The frequently employed combination of sparteine with strychnine seems a useful one. Sparteine acts rapidly, is devoid of cumulative action, and is the type of the cardiotonic drugs suitable for prolonged administration. Its isolated action on the blood pressure seems slight, but the heart effect is useful to prevent the tendency to cardiac overwork existing during the temporary pressor effect of agents, such as epinephrin, with which the author often combines it. The effective dose of sparteine is from three to six centigrammes singly and from five to fifteen centigrammes a day. Epinephrin acts only partially, that is, does not affect the majority of the deep viscera; its evanescent constrictor action is followed by dilatation, resulting, in the kidneys, in polyuria. The initial hypodermic dose should not exceed one quarter milligramme; the patient should be kept recumbent and with the head low for five or ten minutes after its administration, and should also be warned that fugacious palpitation, pallor, slight vertigo, and depression may follow. Extracts of the posterior

lobe of the pituitary and their crystalline principle, hypophysin, isolated by Houssay, of Buenos Ayres, act much like epinephrin, but from thirty to thirty times more persistently. Many observers have used the extracts with favorable results in tuberculosis, and acute infections with cardiovascular weakness, as well as mitral involvements and chronic myocarditis, with insufficiency of circulation. Hypophysin must be used in doses corresponding to 0.15 gramme of the posterior lobe, or 0.34 gramme of the whole organ; smaller doses were found ineffectual by the author. The four pressor drugs referred to may be variously combined or alternated in different conditions.

#### SEMAINE MÉDICALE.

June 11, 1913.

**New Diagnostic Procedure in Pneumothorax.**—V. Mandru refers to the ease and frequency with which pneumothorax is mistaken for pleurisy with effusion, and points out the desirability of having a simple test which will call the physician's attention to the presence of pneumothorax even where such a possibility has been entirely overlooked. His procedure consists merely in the use of a syringe, such as would be employed for exploratory puncture of the pleura. When, after having effected the puncture, and the point of the needle still being in the thickness of the thoracic parietes, one draws out the piston of the syringe and then lets go of it, the piston returns to its former position, owing to the vacuum established. If, on the other hand, the point has entered a pleura containing gas, the latter penetrates into the syringe after the aspiration, and the piston, when let go, does not return to its former position. The objection which might be made to this procedure, to the effect that if the lung were punctured air from the alveoli would enter the syringe, precluding positive detection of a pneumothorax, has been found by the author to be groundless. Alveolar air enters a syringe only with difficulty. Thus, with this method one can tell with certainty whether or not there is gas in the pleura above a collection fluid.

#### BRITISH MEDICAL JOURNAL.

June 28, 1913.

**Amino Acids and Sugars in Rectal Feeding.**—A. Rendle Short and H. W. Bywaters review the more scientific contributions to the literature of this subject and cite their own carefully conducted observations on the absorption of the several food constituents from the human intestine when these are introduced in the form of enemas. Their experiments were made on the basis that the attempt to wash out the unabsorbed food matter was inaccurate. Instead of this, the authors resorted to periods of fasting, followed by periods of feeding, during both of which the urinary nitrogen and ammonia were measured. They conclude as follows: 1. The older observations on the absorption of foodstuffs from rectal enemas, based on the analysis of rectal "washouts," are unreliable. 2. The daily output of nitrogen in the urine of patients given nutrient enemas of milk or eggs peptonized for twenty or thirty minutes demonstrates that almost no nitrogenous matter is absorbed. 3. Modern physiological opin-

ion holds that proteins are absorbed principally as amino acids. The failure of the rectum to absorb ordinary nutrient enemas is largely due to the fact that peptones are given instead of amino acids. 4. Chemically prepared amino acids, or milk pancreatized for twenty-four hours, so that amino acids are separated, allows of a much better absorption of nitrogenous foodstuffs from the rectum, as demonstrated in five cases by the high nitrogen output in the urine. 5. The low output of ammonia nitrogen shows that this high output was not due to the absorption of putrefactive bodies. The rectal washings were not offensive. 6. Dextrose is much better absorbed than lactose, and relieves the acidosis of starvation. 7. Fat is not well absorbed. Scarcely any of the fat of ordinary milk enemas is retained. 8. The best nutrient enema consists of milk pancreatized for twenty-four hours, with five per cent. pure dextrose.

#### LANCET.

June 28, 1913.

**The Dietetic Treatment of Gout.**—Archibald E. Garrod discourses at some length on the conceptions which exist as to the relation of food to the disease, and with regard to diet remarks, "There are certain general principles which must be conformed to if we are to do the best for our patients." The food should be adequate in amount, the main classes of foodstuffs should all be represented, there should be preferably some restrictions of the proteins; the food should be well, but plainly, cooked, and digestible. Twice cooked, rich, and highly seasoned foods should be excluded. Foods rich in purins should be forbidden, and wines and beers avoided. Lastly, the dietary should be adapted to the individual needs of each patient, taking into account any complicating factors. If these main requirements are fulfilled, the regulation of the details may be left in the hands of the individual prescriber. He expresses the doubt as to whether we achieve as much as we think we do by dieting our gouty patients. Garrod finds it "hard to find any scientific basis for the distinction so generally drawn between red and white meats. Any special claims of the latter rest, presumably, upon their readier digestibility."

**A Note on the Preparation and Use of Subgallate of Bismuth Gauze.**—E. A. R. Newman sets forth the following points of advantage of this form of gauze over iodoform gauze: It is stable and can be sterilized; it is odorless, nontoxic; the bismuth has no tendency to dust out; equal if not greater efficiency; cheapness. In addition, it has the advantage of its yellow color over other forms of bismuth gauze, which, being colorless, cannot be distinguished from nonimpregnated gauze. The gauze is prepared quite readily, after washing and cutting into the proper pieces; it is first weighed and the quantity of the bismuth is calculated; this is then emulsified in a mixture of one part of glycerin and two parts of alcohol; the salt is added to the glycerin, and the alcohol is introduced during constant stirring. The gauze is to be moistened in water and immersed in the emulsion, while it is being stirred. Next, the emulsion is kneaded into the gauze, which is hung up to dry. It is then

folded and put up as desired, being sterilized by heat. This method may also be used for the preparation of other antiseptic gauzes.

**Two Cases of Vein Grafting for the Maintenance of a Direct Arterial Circulation.**—J. Hogarth Pringle introduced about two inches of the internal saphena vein into the course of the brachial artery in one case, and four inches of the same vein into the popliteal in another. In each case the vein was removed from the patient on which the operation was made, and in each the graft "took" without any difficulty whatever, and the circulation distally to the graft was completely restored.

**A Practical Method of Growing the Acne Bacillus from the Comedo.**—T. H. C. Benians drops an expressed comedo, from the sterile glass tube used for obtaining it, into a tube of neutral broth medium; on the surface of this he then floats sterile olive oil or lard and incubates for eight to ten days. At the beginning of the period of growth the pus cocci predominate, but soon their growth is inhibited and the acne bacilli take the ascendancy, so that by the end of the required time there are less than ten per cent. of the former in the vaccine made from such cultures. The acne bacilli in these cultures collect in the form of a granular deposit at the bottom and sides of the tube. In the preparation of the vaccine this deposit is removed, washed, and made up with saline solution for use. He believes his method does not depend solely upon the oil for the maintenance of anaerobic conditions of culture, for oil is known to be somewhat permeable to oxygen. The probability is that the growth of the staphylococci at first liberates alkali, which forms a layer of soap under the oil, thus completing the anaerobic barrier. The rationale of the method is the hastening of the growth of the acne bacilli by anaerobic conditions of culture, while such conditions accomplish the further object of killing off most of the staphylococci, thus preventing them from overcoming the acne bacilli. The great advantage of the method lies in its simplicity, to which may be added the shortening of the time required for the preparation of an autogenous vaccine.

#### BOSTON MEDICAL AND SURGICAL JOURNAL.

July 3, 1913.

**Some Abuses in Surgical Practice.**—Homer Gage says that the most significant and important results of the Surgical Congress held in New York last fall seemed to him to be the recognition of the fact that major surgical operations are being advised and undertaken by men with little or no surgical experience, and the call for some action on the part of the profession to safeguard the science of surgery and the public from the practice of untrained and incompetent men. The ability to do major surgical operations and to get by with them because the wounds heal perfectly is, he thinks, a serious menace, not only to the public, but to surgery itself, and he looks forward with great interest and hope to the efforts of the new College of Surgery to so standardize the requirements for the practice of surgery as to discredit, and as far as possible eliminate, the incompetent. He then attacks the type of radical surgeon who frequently performs unnecessary and even unwarrantable



operations, a practice which seems to be too common and to be increasing. "Some operations should be radical, but no surgeon should be so." The surgeon should be neither conservative nor radical, but should hold a middle course between the two extremes of overdelay and overactivity. He urges greater care in diagnosis; "hasty snapshot diagnosis have certainly led to much illadvised and unnecessary opening." It is not necessary to have a fatal result to have the operation fail; in many cases the only result is the substitution of one form of complaint or disability for another, with no definite physical signs, no clearly defined pathology, but many distressing subjective symptoms. The same tendency to operative excess is shown in the different specialties: "Witness the muscles cutting operations of the oculists, the removal of tonsils and adenoids by the laryngologist, of nasal spurs by the rhinologist, and the extraordinary increase in the number of mastoid operations by the otologist—all of these, like the others, are eminently useful and necessary procedures, but the indications for their performance are easily exaggerated by the enthusiasm and zeal of an impatient attendant." Surgical intervention should be undertaken only after a most careful and thorough study of the conditions for which relief is sought, of the methods that may be employed to secure it, and by men whose training and experience qualify them to meet intelligently the dangers and complications that may be encountered. The purely mechanical side of surgery has received too large a share of our attention, but to possess a sound judgment as to the indications and counter-indications for operations is far more important and valuable than the acquirement of mere mechanical skill. Much of our overinterference will seem as absurd to our successors as the overmedication of our fathers seems to us.

**A Case Illustrating the Efficiency of the High Frequency Current in the Treatment of Tumors of the Bladder.**—J. Dellinger Barney reports a case in which a tumor of the bladder was burned with the high frequency current on four successive weeks, and again five times at intervals of two weeks. At the last sitting the tumor consisted of a few small nodules, but for the first time a number of little papules were to be seen clustered around the parent growth on the bladder wall. The diagnosis of infiltration by a malignant growth was made, and operation performed. The entire thickness of the bladder was removed for a distance of half an inch outside the limits of the site of the tumor. Microscopical examination of this piece of tissue failed to reveal any evidence of tumor cells. Nine months later the bladder was normal, except for a somewhat puckered scar and a moderate cystitis. So far as the writer knows, this is the first case in which a bladder tumor treated and presumably cured by the high frequency current has been actually inspected at a subsequent time either at operation or post mortem.

**Separation of the Epiphysis of the First Metacarpal Bone. Report of Two Additional Cases.**—William Pearce Cotes believes that increased care and thoroughness in the examination of injuries

about the carpus in children, with good x ray pictures, will probably show an increasing number of separation of the epiphysis of the first metacarpal bone. This injury may in children take the place of the Bennett fracture in the adult. Union with some displacement of the epiphysis does not seem to affect the usefulness of the hand to any marked degree.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

July 5, 1915.

**Lange's Colloidal Gold Chloride Test on the Cerebrospinal Fluid in Congenital Syphilis.**—C. G. Grulee and A. M. Moody have experimented upon twenty-five cases; ten of clinically congenital syphilis, seven of suspected congenital syphilis, and eight nonsyphilitic cases. They conclude that while from such a small series of cases one cannot show that the gold chloride test gives specific reactions in cases of congenital syphilis, one is justified in saying that the reaction shown in the writers' cases was very suggestive and might prove to be of much more value in the diagnosis of congenital syphilis than any laboratory reactions heretofore presented. They lay stress on the point that, in common with all laboratory tests, the gold chloride reaction must always be regarded only as an aid to clinical diagnosis, and direct that a case showing clinical signs of congenital syphilis should be confirmed by the reaction of the cerebrospinal fluid to the colloidal gold solution of Lange. Although it is possible that treatment will distinctly modify this reaction, it will be to a less degree than with the Wassermann reaction.

**Exposure of the Brachial Plexus with Nerve Transplantation.**—Howard K. Tuttle details the history of a case which illustrates two points: First, the mistake in closing the skin wound at the time of injury without learning the full extent of the damage, with immediate nerve suture, a neglect which is comparable with the suturing of incised wounds of the wrist and leaving the cut tendon undisrupted; second, the results we may obtain in seemingly hopeless cases, and the fact that even a long chance is worth taking.

**The Treatment of Profuse Kidney Hemorrhage by Means of Epinephrin.**—Herman L. Kretschmer reports a case of profuse painless renal hemorrhage in which rather remarkable results were obtained from injections of epinephrin made directly into the pelvis of the kidney through the ureteral catheter. The writer does not assert that epinephrin is a specific in all cases of renal hemorrhage, as many cases are due to tumor, tuberculosis, and stone. The use of this treatment is suggested, however, pending an exact diagnosis of the cause of the hemorrhage.

**Purpura, Urticaria, and Angioneurotic Edema of the Hands and Feet in a Nursing Baby.**—Irving M. Snow reports this case in detail, not because it is unique, but as a clear and full description of a concurrent purpura and angioneurotic arthritic edema developed in a young healthy baby. The patient was a fat infant thriving on its mother's milk. The writer observes that such symptoms might excite unnecessary alarm and false con-

clusions, were not the short, benign course of the malady well known.

**Classification and Treatment of Nephritis According to Functional Tests.**—Milton Goldsmith, referring to Schlayer's tests to determine the activity of renal function, states that in applying the tests to nephritics it was found possible to divide the cases into those with normal elimination of salt and iodine, but with delayed elimination of milk sugar, and those with normal milk sugar elimination but delay in excretion of salt and iodine. By means of these tests, in combination with the clinical features, all cases of nephritis may be classified as tubular, vascular, or azotemic, which classification is an aid in treatment. A combination of the types may exist, but one type will predominate and indicate the line of treatment. Treatment should aim to spare the incapacitated part or function. Exclude chlorides in tubular nephritis; nitrogenous foods in the azotemic variety, and restrict the fluids in the vascular form.

**A Note on the Treatment of Cough in Advanced Pulmonary Tuberculosis.**—J. Douglas Blackwood, Jr., had his attention called by an advanced tuberculosis patient to the fact that when he took acetylsalicylic acid (aspirin) in the evening, his cough was much relieved and his sleep less disturbed. The writer advises patients with advanced pulmonary tuberculosis to take acetylsalicylic acid in doses of five or ten grains, about 8 p. m. when they are troubled with excessive cough at night. The smaller dose is usually sufficient to control the cough, and is not so liable to cause a night sweat as is the larger dose.

#### MEDICAL RECORD.

July 5, 1913.

**Methods of Localization of Spinal Tumors with Reference to Their Medical and Surgical Treatment.**—E. Castelli concludes that the study of neuropathology shows that neurology is asserting itself as a very definite specialty, and that it is gradually creating positive methods of physical examination which will in the future render the diagnosis of the nature and localization of nervous diseases far more precise than the diagnosis of other diseases. The clinician who knows how to find the projection of every square millimetre of the nervous organs on the surface of the body in the form of a motor, sensory, or reflex manifestation, will be compelled to show the relation of cause and effect and localize lesions with a mathematical precision. In the field of neurology the conception of Charcot, and the errors of his school, are fast disappearing. The real progress in the surgical treatment of nervous diseases is found to be closely connected with a more intimate union of surgeons and neurologists in the making of the diagnosis. When the nervous system is involved, the views of the neurologist must be taken into serious consideration by the surgeon, who would be well informed as to the necessity of surgical intervention, since the questions of localization and the opportunities of intervention and technic can be better weighed by the neurologist than by the surgeon. This closer association will lessen the dangers and mishaps that have heretofore

marked the path of the surgery of the nervous system.

**Hexamethylenamine in Surgery.**—A. C. Burnham looks upon this substance as one of the best examples of a product of true chemiotherapeutics, acting as a poison to the infecting organism, as quinine and salvarsan act in malaria and syphilis; that is, it injures the infecting organisms more than it does the body tissues. However administered, it appears, after a short interval, usually less than an hour, in the urine and in various other secretions, imparting in each case an antiseptic property to the secretions. Of itself, it has only a very slight antiseptic action, but when added to acid urine formaldehyde is liberated, and the urine becomes antiseptic. Experiment, however, justifies us in the assertion that this substance has an antiseptic action also in alkaline and neutral body fluids when kept at body temperatures, and that this action is greater in those cases in which stasis allows time for the liberation of formaldehyde to take place. Two important uses are attached to hexamethylenamine: first, as a prophylactic against infection; and, secondly, as a curative agent when infection is already present; the former is an important one, but it is difficult of proof and is too often overlooked. It has been most frequently used in infective conditions of the genitourinary tract, but it has been shown to be of value in septic and purulent types of meningitis and in the prevention and treatment of otitis media and mastoiditis. The dose varies with the object to be attained, from twenty to forty grains daily suffice in bladder diseases, while in gallbladder infection, or purulent meningitis, from two hundred to three hundred grains daily may be required in grave cases. The remedy should always be given well diluted (two grains to the ounce of diluent), and is best administered by mouth, but may, if necessary, be given by rectum or subcutaneously. The three cardinal points are: Give early; give in sufficient doses; always give in sufficient dilution.

**Sexual Periodicity in the Male.**—C. P. Oberndorf calls our attention to the fact that certain carefully kept records on the part of normal individuals of their sexual desires and nocturnal emissions have shown significant indications, not only of a monthly, but also of an animal sexual cycle. The writer mentions the work of Krafft-Ebing, Naecke, Moll, and Havelock Ellis, and refers to the remarks of the latter that "it is in the domain of disease that the most strenuous and on the whole the most successful efforts have been made to discover a menstrual cycle in man." This field seems promising, because morbid exaggeration or defects of the nervous system might be expected to release from inhibition or to magnify fundamental rhythmical processes. The writer records the histories of three cases bearing on this point.

#### ANNALS OF SURGERY.

May, 1913.

**Arthroplasty.**—John B. Murphy discusses the technic and aftertreatment of sixty-two arthroplasties for bony ankylosis of joints. He makes the following comments on the prognosis of arthroplasty in general: 1. Perfectly movable, normally

functioning joints, with sliding and rotary motion of the normal type, can be and have been reproduced. 2. A new synovialoid membrane is produced, with fluid not synovial, but resembling synovial fluid, and lining cells identical with those lining the hygromata, and closely resembling the endothelial cells of normal synovial membrane. 3. These joints support full weight and traction. 4. They are painless once the process of repair is complete. 5. They are not subject to the hematogenous metastatic arthritides of normal joints. 6. A fibrocartilagelike structure develops on the end of the bone, and the latitude of motion increases with time up to the full anatomical limitations in the uncomplicated cases. The production of new joints is not difficult technically, nor is it associated with great danger to life. The many details in the interposition of the flaps are essential, and must be systematically carried out to achieve the best results. Asepsis is essential, though not absolutely necessary.

#### Pathological Data Obtained from Ulcers Excised from the Anterior Wall of the Duodenum.

--William J. Mayo says that at St. Mary's Hospital they have excised fifty-two chronic duodenal ulcers with satisfactory results without performing gastroenterostomy. He believes that the excision of the ulcer should be accompanied by division of the pyloric sphincter, using either the Finney or the Heinecke-Mikulicz method of pyloroplasty in the closure, and that the gastroduodenal opening should be made at least two and a half inches in length. Pathological examination of these ulcers after excision developed the following facts: That, contrary to expectation, many of the duodenal ulcers involving the anterior wall had few of the characteristics of gastric ulcers. Ulcers in the anterior wall of the duodenum with obstruction and callus upon excision will often show a defect scarcely larger than a dimple. In the larger ulcers of the anterior wall the base is not often cleancut and grayish white, like gastric ulcer, but more resembles a moth-eaten patch. Ulcers of the posterior wall of the duodenum present the same characteristics as those of the stomach, that is, a cleancut, definitely punched out area, attached closely to the pancreas and usually completely perforating the duodenum. An anterior contact ulcer will usually be found just opposite the lesion on the posterior wall. They believe that excision of duodenal ulcers should be limited to those occurring on the anterior wall.

#### Acute Perforating Duodenal and Gastric Ulcers.

--John B. Deaver reports twenty-five cases, of which in twenty-one the proximal duodenum was involved, in three cases the anterior wall of the pyloric antrum, and in one case the proximal jejunum. Recently ruptured ulcers of the duodenum and stomach bear surgery well, but after twenty-four hours the prognosis is usually hopeless. In these late cases he believes the patient should have the benefit of immediate operation, with rapid closure of the perforation and institution of pelvic drainage. He advocates, even in the presence of shock, complete operation in all recent cases. In ulcers of the duodenum the perforation is closed with a pursestring suture of linen, the ulcer bearing area infolded, and the duodenum plicated, if possible proximal to the ulcer. The operation is

completed with a posterior gastroenterostomy. If the diseased area is in an accessible position it is excised, and plication of the duodenum and posterior gastroenterostomy performed.

**Resection of One Third of the Colon for Irreducible Intussusception in an Infant Five Days Old.**--Charles N. Dowd presents such a case, which he operated on thirty-seven hours after the onset of the symptoms. The five classical symptoms which presented in this case were: 1. A sudden attack of pain, accompanied by crying; 2, vomiting which could not be controlled; 3, blood from the rectum, which appeared twelve hours after pain; 4, palpable mass within the rectum; 5, mass palpable by external abdominal examination. The writer believes that resection of the intestine is only to be undertaken when other measures have failed. Reduction by irrigation is dangerous. If the abdomen is opened the effort to reduce the intussusception should be made with the utmost patience and care. By pressing from below, the apex of the intussusception can be pushed upward, and the intestine will gradually unfold in about ninety per cent. of the cases. Even if cracks occur in the peritoneum the pressure and manipulation should be continued; peritoneal cracks can easily be repaired by stitches if the intussusception is once relieved. In the few cases in which reduction is impossible resection is the best course. If a resection must be done in babies, a two stage operation is to be avoided when possible. In the writer's case the possible gangrenous spots made resection imperative. This left the cut ends of the colon held in clamps and well out of the wound. These ends were inverted by pursestring sutures, and a lateral anastomosis performed. Healing occurred without incident.

#### PENNSYLVANIA MEDICAL JOURNAL.

May, 1913

#### The Bacteriology of Catarrh and Common "Colds."

--A. Parker Hitchens concludes that "colds" are due to the activity of bacteria always present in the respiratory tract, which become pathogenic as the result of depression of external physical influences or internal derangements causing local venous stasis, and a weakening of the antibacterial properties of the mucous secretions. They may also be contracted by direct contagion from a person in whom the bacteria have become highly virulent through a period of uninterrupted growth. The rational treatment includes the relief of local congestion and the raising of the antibacterial properties of the blood and secretions by the use of a bacterial vaccine containing all the usual bacteria present in acute respiratory catarrh. Prophylaxis should include the control of physical conditions, improvement of general health, and the use of the vaccine as an immunizing agent. The vaccine contains the following organisms, the amounts stated being twice those for a dose:

Staphylococcus .....	100 million
Streptococcus .....	12.5 million
Pneumococcus .....	12.5 million
Micrococcus catarrhalis (group) .....	12.5 million
Bacillus Friedlander (group) .....	12.5 million
Diphtheroid .....	25 million
Bacillus influenzae .....	12.5 million



## SURGERY, GYNECOLOGY, AND OBSTETRICS

H. H. TROUNT.

**Osteoplasty.**—John B. Murphy formulates the following series of laws which must be observed if one would meet with success in osteoplasty: 1. Normal periosteum completely detached from bone and transplanted into a flat or muscle tissue bed in the same individual, if he be young, may produce a permanent bone deposit, but only if osteoblasts remain attached to the lower layer of the periosteum. Normal periosteum rarely, if ever, produces a permanent bone deposit. 2. Strips of normal periosteum raised from the bone, detached at one end but left attached at the other, if turned out into the surrounding tissues, usually have bone produced on the under surface, at the osteoperiosteal angle, but not unless there are osteoblasts attached to it. 3. Normal periosteum transplanted into other individuals and contacting at one end with exposed or freshened bone rarely ever produces permanent bone. 4. When bone, with its attached periosteum is transplanted into fat, muscle, or other soft tissues in the same individual, and free from bony contact, is eventually absorbed except in cases of very young children or infants. 5. Free bone from which the periosteum has been attached, when transplanted into muscle or other soft tissues, always dies and is ultimately absorbed. 6. Bone with or without periosteum transplanted in the same individual and in contact with other living osteogenetic bone at one or both of its ends, always becomes united to the living fragments and acts as a scaffolding for the production of new bone of exactly the same size and shape as the original bone, provided the most perfect asepsis is maintained. 7. The graft *per se* does not possess any osteogenetic power; it merely serves an osteogenetic conductive purpose and is ultimately absorbed. 8. The musculotendinous attachments of the muscles should be sutured accurately around the graft at the point of desired union. 9. A bone covered at the end by cartilage, and at the sides by periosteum, such as the phalangeal bones, even when contacted with living bone dies, and is entirely absorbed.

**Perirenal Hematoma.**—John Speese presents the following conclusions on the subject of perirenal hematoma: 1. Perirenal hemorrhage is caused by tuberculosis, abscess, or tumors of the kidney, necrosis of the adrenal gland, and traumatism, and occasionally arises in hemophilia. The spontaneous form is probably due to chronic nephritis, the only pathological lesion which has been demonstrated. 2. The characteristic symptoms of the disease are sudden pain, the signs of internal hemorrhage, and the formation of a retroperitoneal tumor. 3. A moderate degree of hematuria is present in one third of the cases. Functional tests show diminution in the secretory activity of the kidney. 4. The affection is most commonly mistaken for intestinal obstruction or paranephritic abscess. 5. The disease pursues a rapid course if unrelieved, death resulting from hemorrhage, infection, or pulmonary complications. 6. Medical treatment has been uniformly unsuccessful. 7. Ten of the sixteen patients operated upon have recovered (sixty-two per cent.). The mortality of the twenty-one cases treated by both medical and surgical measures is 52.5 per cent.

**Proctoclysis.**—H. H. Trount presents an experimental study of comparing the effects of plain tap water as against normal saline solution per rectum in a series of over one thousand cases. The method of proctoclysis is the same as described by Murphy, except in place of the hard rubber nozzle he employs a soft rubber catheter, and counts the drops per minute by means of a visible dropper. Extracts of the report are as follows: They have not been able to introduce the large amounts of water or normal saline solution such as Murphy reports (nine quarts in twenty-four hours), except in a few drainage cases. In seven cases of the series the following coincidence has been observed: A transient albuminuria remained in every specimen for two days after an anesthetic when using salt solution per rectum. Water was then substituted and at the end of twenty-four hours the albumin had disappeared. At this time a return was made to salt solution, with the appearance of albumin and a few hyaline casts in from six to twenty-four hours. Patients were then placed on a limited salt diet, and the urine in every case promptly returned to normal, and remained so until discharged from the hospital. Of the entire series 121 complained of thirst, and of this number 112 were salt cases. Furthermore, the water cases have taken one third more fluid by rectum than the salt cases, and the latter have required nearly twice as much water by mouth to relieve thirst.

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## Proceedings of Societies.

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### THE AMERICAN GYNECOLOGICAL SOCIETY.

*Thirty-eighth Annual Meeting, Held at Washington, D. C.,  
May 6, 7, and 8, 1913.*

The President, Dr. HENRY C. COE, New York, in the Chair.

**Uterine Inertia; Its Treatment.**—Dr. GEORGE TUCKER HARRISON, of Charlottesville, Virginia, said that when the uterine muscle showed feebleness in the beginning of labor and during dilatation, this condition of atony was called primary uterine inertia. It might be due either to anatomical changes in the uterine muscle or to disturbed innervation. Secondary inertia was a condition of exhaustion which, from various causes, came on during the period of expulsion. Before rupture of the membranes, in primary inertia, there was no indication for active intervention. After rupture, if there were danger to life of the child from the discharge of liquor amnii, or the mother's life were imperiled from danger of septic infection, dilatation should be brought about by the metrecryster (rubber bag), and version followed by extraction then employed. In secondary inertia a too protracted labor was dangerous to the mother and child, and active intervention was indicated; if the head was well down in the pelvis and resting upon the perineum, the forceps should be applied. It recently had been proposed to perform Cesarean section in certain cases of uterine inertia, especially in the interests of the mother. The obstetric resources at our command were amply adequate, and there was no indication for such operative procedure in inertia *per se*. In primary inertia a combination of morphine, atropine, and strychnine often had an excellent effect when given hypodermically. After dilatation pituitary extract had found favor with some obstetricians. The exact field of application awaited further investigation.

**Pituitary Extract in Uterine Inertia.**—Dr. J. CLIFTON EDGAR, of New York City, reported seventy cases of which records had been kept, and these cases were from two hospital services, Bellevue and the Manhattan Maternity, and

from private practice. They included in the first and second stages of labor, thirty-nine cases; immediately after the third stage, nineteen cases; in Caesarean section six cases; and for the induction of abortion six cases. He drew the following conclusions: 1. Ampoules or vaporales of the drug should alone be employed, as, in his experience, constant results failed when the pituitary extract in bulk solution was used. 2. There were three reliable proprietary preparations of the drug now on the market; all of these were used at different periods in his cases. 3. For decided action, 0.4 gramme of the drug was usually called for, although in ordinary cases, with little obstruction, half that dose was found sufficient. 4. As the effect of the drug lasted but thirty minutes, repetition of the dose was often called for. 5. Intramuscular injection was usually satisfactory; causing no local reaction or pain. Further, no toxic symptoms were observed from the use of the drug even in maximum doses. 6. Pituitary extract might be combined with ergot with the action of the former failed, and with heart stimulants in shock cases, without compromising the actions of these drugs. 7. Pituitary extract had no place in normal labor; its administration in obstetrics should be confined to instances of primary and secondary inertia, to post partum hemorrhage and Caesarean section; in the last as a substitute for ergot. 8. The drug produced strong intermittent uterine contractions, often prolonged for several minutes. He had never observed true continuous tetanic uterine contractions (tetanus uteri). 9. Although theoretically the uterine contractions were intermittent, practically in the face of resistance, the contractions approached to the continuous in character and clinically might be so reckoned with. 10. Full and even small doses of the drug in the first stages of labor had caused in his cases fatal compression of the fetus, premature separation of the placenta, and deep tearing of the cervix. 11. In the first stage, or where some obstruction existed in the second stage, he gave small tentative doses of pituitary extract, not with complete delivery by means of the drug in view, but to bring the head in easy reach of a simple forceps operation. Seven of his thirty-nine cases were thus treated. 12. Pituitary extract acted promptly and efficiently in most of the thirty-nine cases of inertia in the second and first stages. Its actions were more positive in multiparæ than in primiparæ; it acted better at full term than in premature cases; also better in the second than first stage of labor, and when administered shortly after the spontaneous artificial rupture of the membranes. In the eighteen cases in which the drug had been used immediately after the third stage, for post partum hemorrhage due to inertia, his results were disappointing. So much so that he considered its action here most unreliable and not as positive as the ergot preparations. In eighteen post partum cases he found no effect of the drug in two cases; it was necessary to use ergot in two instances; hot acetic acid douche in two more; to pack the uterus in seven cases, and in the remaining six cases only were good uterine contractions observed. 13. In Caesarean section he could not observe any advantage of pituitary extract over ergot, aside from the observation that the former acted more promptly, and hence need not have been administered so early in the operation. 14. In induction of labor the drug failed to initiate contractions, but apparently initiated them after the use of gauze, the bougie, or hydrostatic bag for inducing labor. His belief was that the drug strengthened already existing contractions not yet apparent to patient or physician. 15. For primary inertia in abortion cases his results with the drug were disappointing. 16. For atony of the bowel and bladder and as a galactagogue his results were frankly negative. 17. The dangers to mother and child in the indiscriminate administration of this drug for primary or secondary inertia of the first or second stage of labor must be reckoned with. Only a few of the thirty-nine cases of inertia were actually in the first stage of labor, and these were earlier cases. The remainder were of the second stage or borderline cases just merging into the second stage. He considered the use of the drug in the first stage a dangerous practice, liable to cause death or deep asphyxia of the fetus, separation of the placenta, uncalled for laceration of the cervix, and possible uterine rupture. 18. He had to report of his thirty-nine cases of inertia in the first and second stages, two and probably four stillborn children, a

result due, in his opinion, to the use of pituitary extract, before full dilatation, and three instances of deep laceration of the cervix requiring suture to control the bleeding. 19. He looked upon the use of pituitary extract before full dilatation or by dilatability of the cervix as equivalent to the use of ergot at this time. In fact it was probably more harmful than ergot, by reason of the more powerful contractions produced, and the uncertainty of its action. 20. He had repeatedly observed prolonged tempestuous contractions, when the drug was given in the face of too much resistance, closely simulating tetanic contractions of the uterus (tetanus uteri). 21. The action of the drug was most uncertain. One could never predict in a given case, either from the amount of the drug administered, or from the character of inertia and the obstruction to be overcome, how powerfully the drug would act upon the uterus. 22. He had repeatedly observed both in private and hospital practice that 0.2 gramme of pituitary extract, half the usual dose commonly employed, produced such prolonged and powerful uterine contractions that uterine rupture was imminent and anesthesia was required to control the action of the drug on the uterus. 23. In his opinion the drug should never be employed for inertia in any stage of labor unless anesthesia was at hand for immediate use and preparations complete for immediate operative delivery if necessary, to avoid uterine rupture. 24. Finally, with due regard to its action and possible dangers, pituitary extract was a most valuable addition to the resources for the treatment of primary and secondary inertia.

#### Under What Conditions Should Uterine Inertia Be Treated by Artificial Delivery?—Dr. EDWIN B. CRAGIN,

of New York city, said uterine inertia was of greater importance in the second stage of labor, especially if the membranes were ruptured and the pressure of the uterus came directly upon the child, than in the first stage; yet in several Caesarean sections performed during a prolonged first case the presence of meconium in the liquor amnii and the marked slowing of the fetal heart prior to the operation had convinced him of danger to the fetus from uterine inertia even during the first stage of labor. Uterine inertia associated with fetal heart sounds indicating danger to fetal life was one of the first types of inertia indicating artificial delivery. His plea was for studied, skilled, artificial assistance in the delivery before the mother and child were exposed to these dangers. There was one condition not usually classed as uterine inertia to which the speaker called attention in closing. This was the long delay which sometimes intervened between the rupture of the membranes and the uterine contractions of the first stage of labor. Patients sometimes presented themselves at the hospital with a history that their membranes had ruptured three, four, or even five days before their labor began. An unfortunate experience several years ago in which the fetal heart ceased before the labor was completed, and a study of the temperature charts of a number of these cases, had convinced him that in many particulars they resembled cases of uterine inertia during actual labor: that there was fetal danger from interference with fetal circulation from prolonged pressure, and that maternal morbidity was common from sapremia, if not from bacteriemia. For these reasons he had made it a rule in recent years both at the Sloane Hospital and in his private practice to introduce an elastic bag into the cervix if uterine contractions had not started at the end of twenty-four hours from the time of the rupture of the membranes. The elastic bag as a rule not only brought on uterine contractions, but lessened the further escape of the liquor amnii, and the results both fetal and maternal had seemed to justify the procedure.

Dr. EDWARD P. DAVIS, of Philadelphia, stated that, from the accumulated experience of the profession, it seemed that pituitrin came into practical competition with strychnine, opium, and ergot, and Doctor Edgar had given very valuable hints as to the danger of pituitrin. We all recognized the fact that in many cases opium, to the point of lessening nervous excitability and securing rest, was of the greatest value in bringing about the development of the physiology of labor, and we were all aware of the very frequent experience of the unexpected and rapid delivery of multiparæ to whom we had given opium to secure rest, and how frequently the woman surprised herself and us, most of all, when we were caught napping; but certain it



was that opium in the general experience of the profession was the one sedative which was a stimulant to the ganglion which controlled the action of the uterus. As regards strychnine in comparison with pituitrin, it seemed to him that the difference between the two might be stated in this way, that strychnine, given in moderate doses, was a physiological stimulus to the ganglion supporting and maintaining uterine action, while the action of pituitrin, especially as indicated by Doctor Edgar, was a matter of more brief and more stormy result, and hence much more uncertain; and personally, he had not felt that he could substitute it for strychnine as a physiological stimulant or aid in labor. The use of ergot was a thing to be carried out with great caution, and he still adhered to the belief that this drug should be given in the case of emptied uterus only, and in Cesarean section one might oftentimes lay aside ergot entirely with advantage. As to contrasting the dilating bag with the bougie as an inducer and promotor of labor in connection with strychnine or pituitrin, the former was of advantage in that it decidedly stimulated the mucous secretion of the cervix and was less apt to alter the mechanism of labor.

Dr. JOHN O. POLAK, of Brooklyn, New York, stated that no discussion of pituitrin in this society should go out without sounding a word or two of warning. He had had within the last three weeks a case of rupture of the uterus from the use of pituitrin. He had also seen within a month a woman that was thrown into such violent uterine contraction that anesthesia and morphine had to be used to control the spasm of the uterus; consequently from his experience, which was comparatively limited, only seventy-six cases, he had drawn the conclusions (which were, however, merely tentative) that pituitrin had little or no place in the first stage of labor; that it was dangerous, in the light of present experience, unless there was absolute knowledge of the pelvis, particularly in outlet contractions, and particularly in borderline contractions. Furthermore, in order to get the best use from pituitrin we should have a dilated or at least a dilatable cervix, because injuries to the cervix had been just as Doctor Edgar had stated. He had found, in addition, that it had no value, as far as his limited experience had gone, in establishing uterine contraction, in emptying the uterus in cases of incomplete abortion. Another observation he had made was that where it was used in the third stage labor, he had gotten secondary relaxation in a sufficient number of cases to warn him that when he used it in the third stage it should be combined with ergot.

Dr. WILLIAM E. STUDDIFORD, of New York city, said that one of the most important points in these three papers was that of calling attention to the dangers of pituitary extract. Enthusiastic reports sent around by the manufacturers had led to the promiscuous use of pituitary extract, with many unfavorable results. His own experience had been very much the same as that of Doctor Edgar. The pituitary extract was so uncertain in its action in the first stage of labor and was so apt to cause such bad results in the cervix, that the cervix, it seemed to him, should either be fully dilated or dilatable before it was employed. Where, however, the diagnosis was positive, and there was no obstruction, delivery could be brought about promptly by means of it. Therefore, the question of diagnosis, as well as the indication for treatment, was important in the management of these cases. An accurate diagnosis should be made before any line of treatment was followed out.

Dr. CHARLES N. GREEN, of Boston, stated that these radical papers were going out to influence general practitioners, and in the subsequent discussion something ought to be said as to what should be done in the way of prevention of uterine inertia. The average woman who was going to have a baby should be trained to go through the ordeal just as men on a football team would be taught by a good athletic trainer. If this were done, in a large proportion of cases there would be no inertia. Furthermore, there were a great many women who were benefited during the last two months of pregnancy by systematic treatment with iron, arsenic, and strychnine. If a woman were in fairly good shape physically, was not tired, if she had a fair nervous system, she would go through labor pretty well if she kept moving around.

**Demonstration of the Infant Pulmotor with Remarks on Its Use in the Treatment of Asphyxia Neonatorum.**—Dr. HENRY D. FRY, of Washington, D. C., said the in-

troduction of the infant pulmotor into obstetric practice was so recent that he had not been able to collect any statistics of the value of the apparatus. Certainly, it was vastly superior for resuscitation to the ordinary methods of artificial respiration. He had no opportunity to test it in a serious form of asphyxia, the so called asphyxia pallida, but in the livid form it had acted promptly and resuscitated the infant in about five minutes. Edgar had used the apparatus six or seven times in both asphyxia pallida and livida. The results were good, much better than he had anticipated, because, at first, he was doubtful of its value. The use of the pulmotor in five cases had been reported from Rochester. In case 2, of these, it was unsuccessful. There was no heart action detected when the infant was born. In case 4 it was likewise unsuccessful, but there was no mention made of the heart action. In case 1 the infant was born with marked asphyxia, but cardiac pulsations were detected. The labor had been prolonged and was terminated by forceps delivery. The ordinary methods of resuscitation was employed for ten minutes without results, but the pulmotor restored life in ten minutes and the infant survived. Case 3 was one of pronounced asphyxia with heart action. After failure to resuscitate by ordinary methods the infant breathed after three or four minutes' application of the apparatus. In case 5, where a labor of thirty-six or forty hours' duration had been terminated by a difficult, high forceps application, the infant had deformities of the extremities and had been born forty minutes before the pulmotor was employed. The heart action was slow, from eighty to ninety per minute. After some fifty or sixty minutes' use of the pulmotor the infant breathed, but it died two hours later. The condition of the infant strongly suggested the existence of intracranial pressure. Efforts to resuscitate, he thought, should not be abandoned as long as there was any heart action.

Doctor EDGAR stated that he believed he had the first infant Draeger pulmotor that came into this country. This was more than a year ago. At first, he looked upon the machine with more or less skepticism, thinking it was more of a plaything than anything else, but having used it for some time he found there was some value to it. They had one at the Manhattan Maternity which was kept ready for use in every operative case. They had had several cases which demonstrated the value, but, as Doctor Fry had said, the inspiratory force should not be run up to twenty-five. He thought ten or twelve centimetres of force was sufficiently high. Although he had made no autopsies to prove it, he believed there was some likelihood of rupture of vessels when they ran the inspiratory force up to more than this degree.

**Factors in the Formation of Skin Striations during Pregnancy.**—Dr. FREDERICK J. TAUSSIG, of St. Louis, Missouri, said only thirteen out of a series of sixty primiparae observed were free of skin striations. Skin striations occurred most frequently at several points, and usually made their first appearance about the sixth or seventh month of gestation. In girls under twenty years of age they were decidedly more pronounced and more frequently found than in older women. Obesity, and, particularly, rapid increase in weight during pregnancy, predisposed to the formation of striae, especially about the breast and thighs. Lack of abdominal support during pregnancy, as in those who wore no corsets, favored the formation of abdominal striae. On the other hand, the tense and inelastic skin in which such striae were found was to some extent a factor in subsequent abdominal relaxation. At any rate, abdominal muscular relaxation and abdominal skin striation went hand in hand. Perineal tears had apparently no relationship to skin striation. Finally, the persistent employment of proper skin massage would, in the great majority of cases, prevent the formation of the slightest skin striations.

**Uterine Carcinoma; Another Hypothesis as to Its Cause and Prevention.**—Dr. A. F. A. KING, of Washington, D. C., spoke first of the conversion of somatic epithelial cells into reproductive cells by the abnormally rapid cell proliferation produced by continued irritation. Second, he referred to the fertilization of these transformed cells by spermatozoa, and, third, of the pseudoeubryonic structures of cancer produced by segmentation of these fertilized epithelial cells. Fourth, clinical facts and observations were advanced in support of the hypothesis. Speaking of prevention, he said that there should be an



avoidance of contact of the sperm with irritated, senescent tissue. Finally, he considered the question of whether we should amputate the cervix before the cancer, and whether or not we should advise against marriage after the menopause.

**The Menace of Cancer.**—MR. FREDERICK HOFFMAN, statistician of the Prudential Insurance Company of America, made an address on this subject in which he summarized the results of his investigation as follows: On the basis of trustworthy official data, it was safe to estimate the annual mortality from cancer in the United States as 75,000 and in the civilized world at half a million. The cancer death rate in the United States was increasing at the rate of 2.5 per cent. per annum, and a corresponding increase was taking place practically throughout the civilized world. The average age of death from cancer in all forms was fifty-nine years, or, respectively, 60.4 years for males and 58.2 for females. Cancer was largely a disease of adult life, and of the total mortality from the disease, 90.7 per cent. was at forty and over. The male cancer death rate in the United States in persons of twenty-five and over had increased twenty-nine per cent. during the last decade, and the female death rate, twenty-three per cent. On the basis of past experience, the distribution of cancer deaths in the United States during 1913 would be about as follows: Cancer of the stomach and liver, 30,105; of the female generative organs, 11,235; of the rectum, intestines, and peritoneum, 9,608; of the breast, 6,817; of the mouth, tongue, etc., 2,880; of the skin, 2,670; and of other organs and parts, 11,685. These statistics fully sustained the conclusion that cancer was a most serious menace to the American people, and that the tendency was toward an increase in the mortality, regardless of the cancer deaths prevented by early surgical operation. The cancer death rate of large American cities had increased from 37.2 in one hundred thousand population, during the five years ending with 1876, to 80.5 during the five years ending with 1911. The cancer death rate of the city of New York had increased from 37.5 in one hundred thousand of population, during the three years ending with 1872, to 81.4 during the five years ending with 1912. The corresponding increase in the cancer death rate of Philadelphia during the same period of time had been from 41.3 to 80.3. At the ages of sixty and over, in the State of Massachusetts, the mortality from cancer of the external organs for males had greatly increased during the five years ending with 1910 from a rate of 65.1. The corresponding increase for females, ages sixty and over, had been from 85.60 to 122.3. Aside from the observed increase in the mortality from cancer, there had been an increase in the mortality from biliary calculi in the registration area of the United States from 1.5 in one hundred thousand of population, in 1900, to 3.0 in 1911. All the facts available for the different sections of the country and the principal cities throughout the world sustained the conclusion without qualification, that the menace of cancer was much more serious at the present time than it had been in the past. The cancer problem, as thus stated, emphatically suggested the intelligent coordination of all possible agencies for the control of what had properly been called a national scourge and the deliberate reduction of the death rate of what was stated to be a preventable disease when subjected to early operative treatment. There was, therefore, urgent need for a national society for the study and prevention of cancer, and it was a gratifying fact that such a society was in course of formation.

**President's Address: Pathology the Basis of Gynecology.**—DR. HENRY C. COE, of New York City, said our knowledge of tubal disease had made rapid strides through the aid of bacteriology. The etiology and treatment of pelvic suppuration, so familiar to every medical student, had been long obscured by the famous pair, pelvic cellulitis and peritonitis. But however crude might have been the old pathology, we should not forget that the treatment was sound—to incise and drain a pelvic abscess through the vagina. When, with increasing boldness, they began to open the abdomen in acute inflammatory affections, they paid for their experience at a fearful cost. Even the general practice of drainage did not avail, and in fact they now knew that probably the majority of the patients who recovered did so in spite of it. The necessary association of pain, of a so called lancing character, with internal malignant disease was an idea so firmly established that it was difficult to eradicate it from the minds of the pro-

fession, as well as of the laity. How many women with cancer had been allowed to reach the inoperable stage because of the absence of this symptom one dared not conceive. We were still in the dark as regards the etiology of various pelvic pains, when an opportunity was not afforded by exploratory section to verify a doubtful diagnosis of localized adhesions, twists of pedicles, or minor degrees of cystic and other changes in the ovary. More intelligent study of the parametria had shown that many cases were rejected as unfavorable for operation when the disease was really confined to the uterus, inflammatory exudate being mistaken for cancerous nodules. The limits of the radical operation had been greatly extended by Wertheim, whose experience and technical skill enabled him to deal with cases formerly regarded as inoperable. We could not be indifferent to the earnest efforts of pathologists to discover the ultimate cause of cancer, and by careful experimentation to find a cure, either a serum or some metallic compound analogous to salvarsan. It could not be possible that the efforts of the many devoted workers in the laboratory would not eventually be crowned with success. While we pinned our faith at present to surgery, so far from any antagonism existing between the laboratory and the operating room was concerned, these were essentially interdependent.

(To be concluded.)

## Letters to the Editor.

### RIGHT SIDED OVERTENSION AND PROLONGED TRENDELBURG POSITION, EXCESSIVE ETHER, AND RAPID INTRAVENOUS SALINE INJECTION.

PITTSBURGH, PA., July 3, 1913.

To the Editor:

In the abstract of the chairman's address, delivered before the Section in Obstetrics, Gynecology, and Abdominal Surgery at the recent session of the American Medical Association, which appeared on page 1366 of the NEW YORK MEDICAL JOURNAL of June 28, 1913, I am quoted as calling "attention to the greater operative risk of the patient whose heart muscle is weakened by various causes, such as hyperthyroidism, various toxines, anemia, etc. There is a possibility of such a heart being dilated by prolonged anesthesia; in which case the Trendelenburg position is to be resorted to and intravenous saline injections practised."

The use of the Trendelenburg position or intravenous injections of salt solution under such circumstances would be most reprehensible. They would very likely prove fatal. Kindly substitute my own summary of the paper which follows:

"Right sided overtension does occur as a postoperative complication. It is usually slight and causes no symptoms. It occasionally causes circulatory disturbances always with a rapid pulse. It rarely goes on to right auricular or cardiac dilatation. It is more likely to occur where the myocardium is weakened by disease. It may readily be precipitated or intensified by excessive ether, prolonged extreme Trendelenburg posture, or by the rapid intravenous injection of large quantities of salt solution while the heart is already embarrassed. It should be promptly recognized and treated by slight elevation of the head of the bed, a little morphine, and cardiac stimulants."

F. F. SIMPSON, M. D.

### TREATMENT FOR RECTAL FISTULA.

ST. CHARLES HOSPITAL, FORT PIERCE, FLORIDA.

July 5, 1913.

To the Editor:

Inject a one per cent. aqueous solution of formaldehyde. I. Tell patient this will cause extreme pain for from three to five minutes, followed by local anesthesia.

II. See that external opening of fistula allows free drainage. This will be necessary for a few days only.

III. In case of complete fistula one finger should apply

pressure on intestinal opening during infection, as this solution in the intestinal tract would cause unnecessary irritation, which, although not of great duration, would be extremely annoying for the time. In the dissection colored with aniline dye, the intestinal opening is readily found.

Remarks: This method has been satisfactory in all varieties of fistula; single or multiple; complete or incomplete; also in one case of perirectal and multiple fistula resulting from an infective process in the seminal vesicles. Here three treatments, with one week intervals, were necessary.

(G. R. R. M. D.)

## Book Reviews.

[We publish full lists of books received, but we do not pledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*Studies in Smallpox and Vaccination.* By WILLIAM HANNA, M. A., M. D., D. P. H., Assistant Medical Officer of Health for the Port of Liverpool, Visiting Physician to the Port Isolation Hospital. New York: William Wood & Company, 1913. Pp. 52. (Price, \$3.)

The author presents a monograph containing twenty-four full page half tone illustrations devoted to the influence of vaccination as based on an analysis of 1,163 smallpox cases observed by him in the city and port of Liverpool. It will prove of particular value to vaccine physicians, health officers, and others specially interested in the subject. Some of its interesting features are referred to editorially in the present issue. (See page 139.)

*The Examination of Water and Water Supplies.* By JOHN C. THRESH, D. Sc., M. D., D. P. H., Honorary Diplomat in Public Health, Royal College of Physicians and Surgeons, Ireland, Late Examiner in State Medicine, University of London, etc. Second Edition. With fifty-three illustrations. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. xx-644. (Price, \$5.)

The first edition of this book showed its value, and this second appearance establishes its important position even more firmly than before. Much has been added to its worth by the addition of new material and the revision of that which had become old. The same emphasis has been put upon the great importance of an examination of the sources from which the water has come, and warning has been given of the danger of laying too much stress upon the chemical and bacteriological analyses. Part one, consisting of six chapters, contains much of interest concerning various ways by which objectionable materials have gained entrance to the water supply. The chapter on the bacteriological examination is very good. Attention is called to the necessity of using standard media and methods in order that uniform results may be obtained. Note is made of the fact that the nature of the medium, its reaction, the duration of incubation, and the temperature are all important factors in the development of water bacteria. Twenty-five plates are given which represent deposits found in water. This book can be recommended in every way to all those who are interested, directly or indirectly, in matters relating to water supplies.

*Epidemic Cerebrospinal Meningitis.* By ABRAHAM SOPHIAN, M. D., Formerly with the New York Research Laboratory. Twenty-three illustrations. St. Louis: C. V. Mosby Company, 1913. Pp. xv-272. (Price, \$3.)

As a result of both his laboratory and clinical experiences, Dr. Sophian occupies a position that well fits him to write upon this disease. A careful perusal of this volume shows the great thoroughness and care that have been expended in reviewing the literature and presenting the subject. The first chapter deals, generally speaking, with the organism of the disease. The following chapters take up symptomatology, laboratory diagnosis, complications, studies of blood pressure, and treatment. Much value is added by the interpolation of illustrative cases and summaries of cases. Then, too, the methods of technic, both in the diagnosis and the treatment, are given in the detail that is essential for their proper performance; nothing of importance seems to have been omitted. Consequently, this

volume can indeed be highly recommended as a very complete treatise on this serious disease.

*Suggestionen und Hypnose, ihr Wesen, ihre Wirkungen und ihre Bedeutung als Heilmittel.* Von Dr. med. A. Somp. zu Frankfurt a. M. Würzburg: Curt Kabitzsch. 1913. Pp. vi-72.

The object of this work has been to present in elementary form an explanation of the phenomena of suggestion and hypnotism, to eliminate the misconceptions and prejudices commonly associated with them, and to emphasize their value as means of diagnosis and treatment of disease. This aim has been well attained, and the result is a well correlated primer on the subject, which does not, however, consider the psychic states responsible for the conditions which are benefited by suggestion and hypnotism. It is as necessary for the physician employing these measures to understand psychology and psychogenic influences as for the surgeon to understand physiology and pathology, and it is to be regretted that the scope of the work was not sufficiently enlarged to include at least an outline of the psychogenic origin of disease.

*An Atlas of the Differential Diagnosis of the Diseases of the Nervous System.* Analytical and Semiological Neurological Charts. By HENRY HUN, M. D., Professor of the Diseases of the Nervous System in the Albany Medical College. Troy, N. Y.: The Southworth Company, 1913. Pp. 290. (Price, \$4.)

Departing from the usual arrangement of textbooks on diagnosis, this one is essentially an extensive tabulation of the entire subject of differential diagnosis of diseases of the nervous system, with the addition of many excellent drawings and plates. A complete index serves as a key to the charts, rendering easily available the tables of differential diagnosis for each condition and disease, which can thus be compared or contrasted with associated or similar conditions, and the true relationships appreciated at a glance. What is lacking in descriptive text is compensated for by the correlations, and the result is a book which should be of much value, especially to the student, as an aid to the study of clinical neurology.

*Krankheitsentstehung und Krankheitsverhütung und geheimnisvolle Lebensäusserungen des Körpers.* Öffentliche im hamburgischen Vorlesungsgebäude in den Wintern 1911 und 1912 gehaltene Vorlesungen. Von Dr. HANS MÜCH, Oberarzt am Eppendorfer Krankenhaus. Mit 22 Abbildungen im Text. Würzburg: Curt Kabitzsch, 1913. Pp. 117.

This pamphlet of 117 pages is made up of seven lectures, on the origin of disease and methods of prevention, delivered in the high school in Hamburg. As they were not given to a medical audience, they are of a somewhat popular character, but are well presented. In the first lecture, one dealing with the factors of disease and immunity, the author takes the stand that our great knowledge concerning the causative agents of disease has come entirely from the scientific side, and not at all from the clinical. He also adds that the public has the laboratory worker to thank for the newer methods of opposing disease. Of course, in so limited a space—no very detailed exposition of many subjects could be given, but these lectures present a good and interesting general review of the various topics.

*Practical Guide to Diseases of the Throat, Nose, and Ear.* For Senior Students and Junior Practitioners. By WILLIAM LAMB, M. D., C. M., M. R. C. P., Honorary Surgeon to the Birmingham Ear and Throat Hospital. Third Edition. New York: William Wood & Co., 1913. Pp. xvi-352. (Price, \$2.45.)

The new edition of Lamb's Diseases of the Throat, Nose, and Ear contains 328 pages of matter, a list of formulae for use in the diseases studied, and a very complete index. It is illustrated with fifty-seven figures and diagrams in the text; there is an increase of twenty-eight pages over the second edition (published in 1909), and the book has been brought well abreast of the times. It is a work confessedly "for senior students and junior practitioners," and makes no pretense to being exhaustive. It is, however, written in so pleasing a manner, and the subject matter is considered in so natural a sequence, that it is a pleasure to go through it

for purposes of review or of brushing up one's memory on this subject. It is an admirable book for the general practitioner; it will make his nose, throat, and ear cases more of a satisfaction to himself, and will show him when they had best be referred to his confrère the specialist in this line. For the physician just from his internship and starting in a special clinic of this branch, Lamb's book will be of great help in telling what to look for and in explaining the meaning of what he actually sees in the examination of the patient. It is of decided merit and an extremely practical book.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service, for the seven days ending July 9, 1913:*

**Altrec**, G. H., Acting Assistant Surgeon. Granted two months' leave of absence, without pay, from July 15, 1913. **Clark**, T., Surgeon. Relieved from duty in charge of the Marine Hospital, at Evansville, Ind., and directed to proceed to Washington, D. C., and report to the director of the Hygienic Laboratory for temporary duty preliminary to field investigation of trachoma and other diseases. **Eager**, J. M., Surgeon. Designated as representative of the government of the United States on the International Committee charged with the duty of organizing and conducting the International Office of Public Health in Paris. **Gardner**, C. H., Surgeon. Granted one month's leave of absence from August 1, 1913. **Lavinder**, C. H., Surgeon. Directed to proceed, or to instruct Passed Assistant Surgeon R. M. Grimm to proceed on same duty, from time to time to such places in Georgia and South Carolina as may be necessary to collect data and material regarding pellagra. **Lloyd**, B. J., Surgeon. Detailed to represent the Service at the meeting of the Washington State Medical Association, at Everett, Wash., July 17, 1913. **Tarbett**, R. E., Sanitary Engineer. Directed to proceed to Cincinnati, Ohio, and report to Passed Assistant Surgeon W. H. Frost for duty in the investigation of the pollution of the Ohio River. **de Valin**, Hugh, Passed Assistant Surgeon. Relieved from duty at the Marine Hospital, Chicago, and directed to proceed to Roanoke, Va., for duty in the investigation of typhoid fever in rural communities.

#### *Boards Convened.*

Board of commissioned medical officers convened to meet at the Bureau to grade the examination papers of assistant Surgeon C. M. Fauntleroy to determine his fitness for promotion to the grade of Passed Assistant Surgeon. Detail for the board: Assistant Surgeon General L. E. Cofer, chairman; Assistant Surgeon General W. C. Rucker, member; Surgeon B. S. Warren, recorder.

Board of medical officers convened to meet at the Marine Hospital, Buffalo, N. Y., at the call of the chairman for the reexamination of an alien, Charles George Grainger. Detail for the board: Surgeon C. H. Gardner, chairman; Acting Assistant Surgeon W. L. Savage, recorder.

Board of Medical officers convened to meet at the Marine Hospital, Buffalo, N. Y., at the call of the chairman for the examination of an alien, Anna Mikolyak. Detail for the board: Surgeon C. H. Gardner, chairman; Acting Assistant Surgeon W. L. Savage, recorder.

Passed Assistant Surgeon H. J. Warner and Assistant Surgeon R. A. Kearny detailed as members of a Revenue Cutter Service Retiring Board to meet Monday, July 7, 1913, at 10 o'clock a. m., at the Division of Revenue Cutter Service, for the examination of Captain George M. Daniels.

### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending July 12, 1913:*

**Armstrong**, John M., First Lieutenant, Medical Reserve Corps. Ordered to active duty from July 14 to August 22, 1913, and will report on July 14th to the commanding officer, Fort Snelling, Minn., for duty

until August 22d, when he will stand relieved from active duty in the Medical Reserve Corps. **Baker**, C. R., First Lieutenant, Medical Reserve Corps. By paragraph 7, Special Orders No. 121, Headquarters Eastern Department, ordered to Washington Barracks for temporary duty. **Banister**, W. B., Lieutenant Colonel, Medical Corps. Left Texas City on July 2d on one month's leave of absence. **Beaven**, C. L., First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Howard, Md., and will proceed to Fort Wadsworth, N. Y., for duty. **Boyer**, P. L., Major, Medical Corps. Left Gettysburg Camp on July 9th on leave of absence. **Brooks**, John D., First Lieutenant, Medical Reserve Corps. Ordered to active duty from July 10 to July 20, 1913, and will report to the commanding officer, Fort Meade, South Dakota, for duty until July 20th, when he will stand relieved from active duty in the Medical Reserve Corps. **Brooks**, William H., Major, Medical Corps. Having been found by the Army Retiring Board incapacitated for active service, and such finding having been approved by the President, the retirement of Major Brooks from active service under the provisions of Section 1251, Revised Statutes, is announced; he will proceed to his home. **Christie**, Arthur C., Captain, Medical Corps. Will proceed to New York, N. Y., for Dr. Andrews and Fort Strong, Mass., on business pertaining to the investigation and installation of x ray machines at these stations, and on completion of this duty to return to his station in Washington, D. C. **Howard**, D. C., Major, Medical Corps. Leave of absence extended five days. **Keller**, W. L., Captain. Left West Point on July 7th on twenty-one days' leave of absence. **Kendall**, W. P., Lieutenant Colonel, Medical Corps. Arrived at San Francisco, Cal., July 1st, for duty as Division Surgeon, Third Division. **McCulloch**, C. C., Jr., Lieutenant Colonel, Medical Corps. Relieved from duty at Fort McDowell, Cal., and will repair to Washington, D. C., and report in person to the Surgeon General of the Army for assignment to duty as librarian of the Surgeon General's Office; the travel directed is necessary in the military service. **Nichols**, H. J., Captain, Medical Corps. Left the Army Medical School on July 10th for fifteen days' leave of absence. **Scudder**, J. H. H., First Lieutenant, Medical Reserve Corps. Ordered to active duty and will proceed to Fort Howard, Md., and report in person to the commanding officer of that post for duty.

## Births, Marriages, and Deaths.

### *Married.*

**Bigaman—Beard**.—In Birdsboro, Pa., on Wednesday, July 2d, Dr. C. E. Bigaman and Miss Florence Beard. **Newcomb—Brown**.—In Newark, N. Y., on Saturday, June 28th, Dr. C. A. Newcomb and Miss Minnie D. Brown.

### *Died.*

**Armfield**.—In Mena, Ark., on Saturday, June 28th, Dr. J. M. Armfield, aged sixty-six years. **Bohannon**.—In Greenville, Ky., on Friday, July 4th, Dr. Jethro G. Bohannon, aged sixty-two years. **Cornell**.—In Lockland, Ohio, on Monday, July 7th, Dr. J. W. Cornell. **Hyde**.—In Chicago, on Friday, July 4th, Dr. Edward Everett Hyde, aged thirty-eight years. **Jayne**.—In Wallingford, Pa., on Tuesday, July 8th, Dr. Horace Jayne, aged fifty-four years. **Lavenson**.—In Los Angeles, Cal., on Sunday, July 6th, Dr. R. S. Lavenson, of Philadelphia, aged thirty-six years. **La Bell**.—In Deerhead, N. Y., on Monday, June 30th, Dr. Martin J. La Bell, of Elizabethtown, N. Y. **Newell**.—In Craf-ton, Pa., on Friday, July 4th, Dr. Albert Arthur Newell, aged fifty-nine years. **Rogers**.—In Cincinnati, Ohio, on Wednesday, July 2d, Dr. Coleman Rogers, aged sixty-eight years. **Sauer**.—In Jersey City, N. J., on Tuesday, July 8th, Dr. Ferdinand N. Sauer, aged thirty-nine years. **Smullyan**.—In Salt Lake City, Utah, on Monday, June 30th, Dr. Isidore Clarence Smullyan, aged thirty-five years. **Weeks**.—In Portland, Me., on Saturday, June 28th, Dr. Ambrose Herbert Weeks, aged forty-five years.



# New York Medical Journal

INCORPORATING THE

## Philadelphia Medical Journal <sup>and</sup> The Medical News

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WHOLE No. 1808.

### Original Communications.

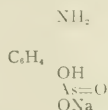
#### THE QUANTITATIVE AMINO (NH<sub>2</sub>) NITROGEN CONTENT OF SYPHILITIC AND NONSYPHILITIC SERUMS.

*Second Communication.*<sup>1</sup>

BY D. M. KAPLAN, M. D.,  
New York,

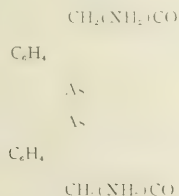
Director of Laboratory, Neurological Institute.

The studies in the treatment of diseases caused by the spirochetes and allied organisms proved to the immunotherapeutists that in order to be able to produce a toxic effect upon this group of microorganisms the drug must contain a molecule for which the spirochetes display a definite positive chemotaxis. The substance used by Koch in his work on the trypanosomes was atoxyl, which, chemically speaking, is paraamidophenyl sodium arsenate and presents the following formula:



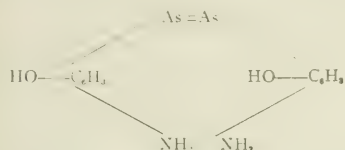
Before the pentavalent As can act, it has to be reduced in the body to a trivalent As.

Another substance that proved of much greater utility than atoxyl was arsenophenylglycine, in which the As is trivalent before it is used in the infected organism. The chemical constitution is:



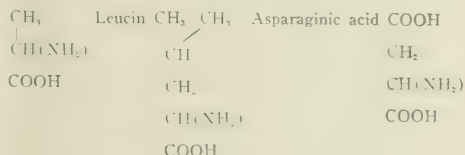
Still further study of the manner in which these drugs exert their influence on the invader prove that it is invariably necessary to have an amino (NH<sub>2</sub>) molecule before the organism will take up the entire As carrying substance. In this connection the amino molecule may be regarded as the haptophore group of the drug, while the As represents the toxophore group.

In salvarsan we possess an ideal chemical compound which has little effect upon the host, while at the same time exerting a most toxic influence upon spirochetes. In this substance the As is also trivalent, each arsenic molecule interchanging two valences with its partner. Its constitution may be expressed as follows:

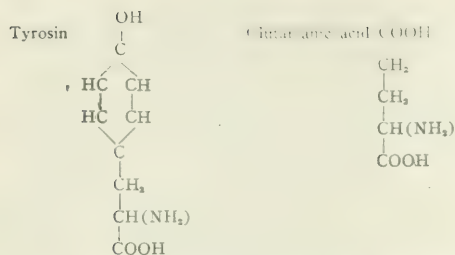


The substance mentioned above is an insoluble base, and before it could be utilized it had to be made soluble. The introduction of two ClH molecules to the amino side chain makes the drug soluble and is the form in which it appears for use. This addition makes the entire chemical molecule a dioxidiaminoarsenobenzol dichlorhydrate.

As the avidity for amino (NH<sub>2</sub>) is fairly definitely established by the observations of the action of the chemical compounds mentioned above on spirochetes it is not unreasonable to assume that the microorganisms have to have amino for their life and development. It is no more than natural that the invaded host has to supply this substance at its expense, and consequently suffers a loss of amino. It is also permissible to conclude that as the spirochetes are destroyed by the introduction of As, the amino content is permitted to increase and give greater quantitative results upon analysis. The nitrogen molecule that suffers in the infected organism is the amino (NH<sub>2</sub>) attached in the (A) position to a primary aliphatic amino acid, which nitrogen is given off *in toto* in five minutes according to the method elaborated by Donald van Slyke. With the exception of glycocol and cystine, which also part with some of their CO<sub>2</sub>, the amino nitrogen of the following aliphatic acids are given off quantitatively. Alanine, or alphaaminopropionic acid, has the following formula:



<sup>1</sup>See NEW YORK MEDICAL JOURNAL, June 7, 1913, p. 1072.



The deazotizing influence of the *Spirocheta pallida* is apparent in most serums from syphilitic individuals. This fact is offered only as another means of laboratory diagnosis, to be used in conjunction with the tests already in use. The ensemble of facts that establish the full fledged picture of syphilis in a neurological disorder are acceptedly the following: Somatic neurological signs of syphilis, a history of infection (these are the clinical evidences of the disease); the laboratory factors are, a positive Wassermann reaction in the serum, a positive reaction in the cerebrospinal fluid, an increased cell count, an excess of globulin and a normal reduction of Fehling's solution. I wish to introduce the quantitative estimation of the patient's serum for amino nitrogen as an additional corroborating measure, especially where the spinal fluid is normal and the Wassermann reaction in the serum positive. I would, in case the amino nitrogen content of the serum is normal, reserve decision until some other signs offer themselves before accepting the Wassermann result as significant of a previous infection. This is, of course, in cases where there are insufficient clinical evidences of lues. In a preliminary communication entitled, A Quantitative Chemical Reaction for the Control of Positive Wassermann Results (New York Medical Journal, June 7, 1913), the technique and the apparatus were described. In the studies of the present report the latest model of the Van Slyke aminometer was used, and, I must admit, with very little difference from the previous analyses, *i. e.*, the syphilitic serums in the great majority of instances showed a marked diminution in their content of amino nitrogen, as compared with nonluecic sera. At present the following quantitative differences offer themselves: Manifestly positive individuals, clinically showing evidences of lues, with or without a positive Wassermann reaction in the serum, gave the following quantity in 100 c. c. of serum, 0 mg. to 2.8 to 2.9; patients clinically negative and in the majority of instances (only one exception) also negative serologically, 4.0 to 15.7. The intermediary figures of 3.0 to 3.9, inclusive comprise luecic patients reacting negatively and positively in the Wassermann test who were more or less vigorously treated, as well as patients who presented no signs of lues. If we should offer, for example, a patient whose serum resulted in a positive Wassermann reaction and who presented no physical or historical evidence of syphilis, and whose serum gave an amino content of over 4.0 milligrammes of amino nitro-

gen in 100 c. c. of serum, I would, on the strength of 472 corroborative analyses, exclude syphilis on that ground. Of course, it would require many thousand analyses before the value and the significance of this quantitative method could be established; at present I would advise the use of the method in instances like the one cited above. The clinical material, taking into consideration the results of the Wassermann reaction and the amino ( $\text{NH}_2$ ) nitrogen content of the serum may be conveniently arranged into the following groups:

Group:	Wassermann reaction:	
(A) Lues clinically present.....	+	Amino diminished
(B) Lues clinically present.....	+	Amino diminished
(C) Lues clinically absent.....	+	Amino normal
(D) Lues clinically absent.....	+	Amino normal
(E) Lues treated.....	+	Amino diminished
(F) Lues treated.....	+	Amino diminished
(G) Lues treated.....	-	Amino normal

## GROUP (A).

Case.	Diagnosis.	Wassermann reaction.	Amino nitrogen in 100 c.c.
Shn.	Systemic syphilis .....	+	0.227
Mer.	Lues five years ago .....	+	1.136
Pen.	Cerebrospinal lues .....	+	2.835
Flrn.	Florida lues .....	+	1.133
Nar.	Tabes .....	+	1.113
Nop.	Stemic syphilis .....	+	0.9
Swt.	Cerebrospinal lues, endarteritic.....	+	2.140
Slt.	Secondary lues .....	+	1.786
Kln.	Cerebrospinal lues .....	+	2.353
Cay.	Cerebrospinal lues .....	+	1.136
War.	Cerebrospinal lues .....	+	2.076
Gog.	Cerebrospinal lues .....	+	2.286
Nou.	Systemic lues .....	+	1.128
Had.	Neurological lues .....	+	0.565
Miy.	Florida lues .....	+	0.00
Nin.	Tabes, exudative .....	+	0.702
Rac.	Tabes .....	+	1.559
Thn.	Tabes .....	+	2.244
Onl.	General paresis .....	+	1.123
Trr.	General paresis juvenile .....	+	2.261
Cha.	Systemic lues .....	+	1.131
Lat.	Secondary lues .....	+	1.131
Mph.	Cerebrospinal lues .....	+	1.821
Pal.	Systemic lues .....	+	1.662
Ryn.	Lues five years ago .....	+	1.330

## GROUP (B).

Case	Diagnosis.	Wassermann reaction.	Amino nitrogen in 100 c.c.
Lhh.	Spinal spastic paraplegia luetica.....	-	1.131
Mas.	Tabes .....	-	1.059
Gog.	Dermatological lues .....	-	2.242
Lin.	Luetic joint disease .....	-	2.248
Mul.	Congenital syphilis .....	-	0.0
Neo.	Lues six years ago .....	-	1.234
Por.	Wife of luetic .....	-	1.234
Bei.	Tabes .....	-	2.225
Ber.	Tabes .....	-	1.122
Kia.	Argyll Robertson pupils .....	-	2.242
Smh.	Wife of general paretic .....	-	1.700
Poz.	Congenital lues .....	-	1.680
Can.	Visceral lues .....	-	1.110
Ste.	Sluggish and irregular pupils .....	-	1.029

## GROUP (C).

Lav. Virgin, twenty-six; headaches; no lues.. 1.066  
This last case is the only instance that I am able to offer at present where the Wassermann reaction was most likely faulty. I do not hesitate in the least in confessing to wrong reports on a small number of innocent individuals, which I hope will be cut down to zero with the use of the quantitative amino nitrogen method.

## GROUP (D).

Case	Diagnosis	Wassermann reaction	Amino nitrogen (mg. per 100 cc.)
Wye	Lumbago	—	8.868
Cro.	Vertigo and epileptiform attacks	—	11.086
Lih.	Epilepsy	—	13.318
Kig.	Epilepsy	—	12.044
Ryn.	Epilepsy	—	12.394
Moz.	Muscular rheumatism	—	11.131
Lez.	Osteoarthritis	—	6.789
Adi.	Sore throat	—	8.224
Key.	Rheumatic arthritis	—	7.158
Wrt.	Senile dementia	—	6.895
Alu.	Progressive muscular atrophy	—	6.724
Din.	Dementia præcox	—	6.765
Mer.	Gonorrheal joint	—	7.355
Shg.	Constitutional inferiority	—	12.496
Aba.	Constitutional inferiority	—	5.686
Ren.	Constitutional inferiority	—	8.668
Abn.	Constitutional inferiority	—	3.349
Wod.	Overacidity, nervous	—	7.216
Kia.	Cardiorenal disease	—	3.408
Koz.	Gastric anacidity	—	3.877
Ben.	Pes planus	—	7.216
Vag.	Neuritis diabetica	—	7.943
Tra.	Traumatic neurosis	—	7.216
Moa.	Chorea	—	13.682
Rog.	Cortical tumor	—	8.668
Ise.	Postinfluenzal neuritis	—	7.305
Rome.	Tuberculosis, incipient	—	10.204
Osy.	Tuberculosis, second stage	—	13.015
Buh.	Tuberculosis, advanced	—	13.332
Rea.	Tuberculosis, advanced	—	12.135
Osk.	Tuberculosis and hemiplegia	—	11.302
Urh.	Malignancy	—	12.250
Fat.	Brain tumor	—	11.004
Mae.	Dementia præcox	—	10.106
Din.	Malignancy	—	8.256
Gog.	Aortic disease	—	15.710
Ren.	Compulsion neurosis	—	9.452
Rir.	Meniere's disease	—	11.546
Klr.	Dyspituitarism (Fröhlich syndrome)	—	10.546
Had.	Wife of luetic	—	7.025
Bra.	Brachial neuritis	—	7.172
Arz.	Pontine tumor	—	14.573
Hez.	Rheumatic arthritis	—	9.951
Shn.	Gastric ulcer	—	4.848
Are.	Hyperthyroidism	—	6.000
Bry.	Psychogenic depression	—	8.978
Shd.	Torticollis	—	6.776
Won.	Arteriosclerosis simplex	—	6.874
Deo.	Arteriosclerosis general (pressure 256)	—	9.511
Luz.	Congenital hydrocephalus	—	12.448
Sht.	Involution melancholia	—	7.950
Cuo.	Disease of cauda equina	—	9.144
Mam.	Hemiplegia	—	7.842
Roh.	Physical examination negative	—	5.655
Lil.	Spondylitis	—	9.482
Scr.	Simple arteriosclerosis	—	12.342
Ohy.	Dementia præcox	—	10.980
Wyf.	Lumbago	—	8.868

## GROUP (E).

Cay.	Luetic meningomyelitis (four 914)	+	1.136
Thm.	Chancre four years ago (three 606)	+	2.272

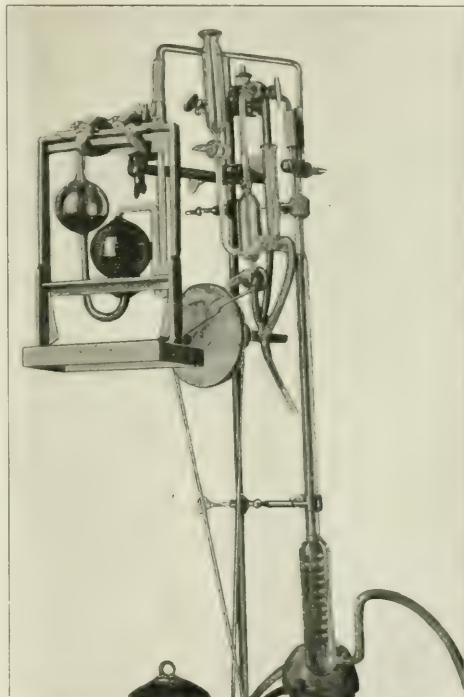
## GROUP (F).

Por.	Tertiary lues (many mercurial inunctions)	—	2.217
Ben.	Tabes (three 914 intravenously)	—	2.286
Shn.	Tabes (many mercurial inunctions)	—	2.808
Can.	Visceral lues (four 606, five 914)	—	1.119
Ode.	Luetic hemiplegia (mercurial inunctions)	—	2.834

## GROUP (G).

Stt.	C. S. syphilis (much mercury)	—	3.967
Dek.	General paresis (thirty mercurial inunctions, three 606)	—	11.225
Toe.	Tabes (three 606 and mercurial inunctions)	—	10.143
Key.	Tertiary lues (much mercury)	—	6.651
His.	C. S. lues (many mercurial inunctions)	—	7.216

A glance at the tables given above is sufficient to establish the usefulness of the amino nitrogen determinations in serums where syphilis is suspected or where a positive Wassermann reaction is contrary to clinical findings. The differences between tables (A) and (B), on the one hand, and those of table (D) on the other, are convincing and need no comment. Tables (B) and (F) show us that the amount of amino nitrogen in the serum of a syphilitic remains diminished regardless of the negative Wassermann reaction. The factors necessary for the amino nitrogen to return and be present in a normal quantity as in table (G) are not known at present. A very important conclusion, however, can be arrived at from the observations stated above, i. e., that whereas the



Amino apparatus according to Van Slyke used by author; the barometer and the thermometer are not shown in the photograph.

amount of amino nitrogen in the serums of syphilitics is quantitatively diminished in a larger number of instances than the presence of a positive Wassermann reaction in such serums, it is safe to argue against syphilis where the amino nitrogen is normal and where there are no clinically suspicious signs of the disease. Such is the case presented in group (C). We have in these determinations, among other things, a very important method in weeding out unexpected positive Wassermann results. In the study of the quantitative relationship of the amino nitrogen in cerebrospinal fluid I am at present unable to give any useful data, as the



amount of this substance present in the fluid is very small and inconstant. The amount varies from 0.3 in the nonlucetic and may be present in the lucetic to the extent of 3.6 in 100 c. c. It seems to me that no definite conclusions can be offered regarding its significance in the study of cerebrospinal fluids. Happily, we have other factors besides those stated above, and the Wassermann reaction to determine the lucetic nature of a fluid. Before closing this communication I wish to present an analysis of a patient with an anxiety neurosis, who gave a positive Wassermann in the serum and a markedly diminished amino nitrogen content 1,136 mg. in 100 c. c. of serum.

30 BECKMAN PLACE.

## PREVENTION OF DEATH AND RESUSCITATION.

By A. L. SORESI, M. D.,

New York.

(From Doctor Soresi's Laboratory of Experimental Surgery.)

The following brief notes are only an account of the work done in relation to "prevention of death and resuscitation," preceded by some considerations which will make the subject clearer, and may stimulate others to work along the same lines. It is generally admitted that there are organs, such as heart, liver, brains, etc., essential to the maintenance of life, severe injury or loss of which would cause death; while the loss or severe injury of other organs would not cause a fatal end. This assertion must be taken *cum grano salis*, and with the consideration that what we are compelled to admit to be a fatal injury at the present time may not be so in the near or distant future. So, if it is true that the loss, for instance, of the arms or legs, or of both, might not cause death, and the person who suffered the loss might live as long as if there had been no loss, this is due, in addition, to the development of our surgical technic, to social conditions. The same loss would prove fatal to a person isolated from other human beings, as he would be unable to gather food or to carry it to his mouth, and as a consequence would starve to death. Years ago it was thought that the stomach or the urinary bladder were organs essential to life; now we can safely remove or exclude these organs without immediate loss of life, although the person who suffers the loss is predisposed to immature death from poor digestion or ascending infection of the kidneys. Asphyxia, wounds of the heart, etc., were considered fatal only a few years ago, and are so now where the emergency facilities are not at hand. Up to the present day, a stab wound of the abdominal aorta, with its sudden and appalling hemorrhage, is considered fatal, but below experiments will be described in which life was restored, although for as long as nine minutes, the heart had already stopped beating.

When a person is declared dead, and is really so, it does not mean that all his organs are individually dead; the great majority of them could be transplanted to other individuals and under favorable conditions would live indefinitely. Life must

be understood as the result of the *harmonious automatic* work of the organs constituting the body. The word automatic has to be emphasized, because the phenomena occurring when life is kept on artificially cannot be considered as life; for instance, a decapitated animal cannot be said to be alive, although it is possible to maintain circulation, respiration, and the digestive function for a certain time after the head has been severed from the body. This proves that each organ can live an independent life for a certain length of time, but that life is present only when the organs of the body are working automatically in a harmonious way, because each accomplishes certain functions which supply energies and stimuli to the others. It also shows the rôle of the nervous system to be that of the great coordinator of all the organs.

In certain respects the living body can be compared to an automobile. The automobile has in itself the potentiality of moving about, but unless it should move about independently it would not be considered to be a *living* automobile. To explain the comparison between the automobile and the living body better, it cannot be said that an automobile is functioning as an automobile should, if, instead of being driven by its own power, it is pushed or driven by a horse or another automobile. The machine is moving about just the same, but as an automobile it is *dead*; as soon as the outside driving power stops the car will also stop in exactly the same way as when the functions of the body are kept up artificially in headless animals. The automobile would also be *dead* if some essential parts were out of order. Suppose that the carburetor, the magneto, any part of the motor, driving shaft, etc., were not functioning properly, the machine might get along for a certain time, but sooner or later would come to a stop, and if the damage could not be repaired the automobile would be *dead*. All parts of the automobile might be in good condition, but the chauffeur intoxicated, or the steering gear not working properly. In such case the automobile is *alive*; it can be driven by its own power, but very likely it will come to a sudden *death*, because it will hit against something and be demolished; the coordinating power failed to make the machine work as it should have done. The rôle of the nervous system in regard to the functions of the body corresponds to those of the chauffeur, steering gear, brakes, and wires in the automobile. A serious damage to the nervous system causes definite death, because the organs, if they work at all, do not work harmoniously, each disturbing the other, until the harmonious automatic work ceases, and thus ends life. The importance of the nervous system can be well understood in cases of asphyxia for instance; there have been numerous cases of gas poisoning where the patient was brought back to life, with almost normal respiration, circulation, etc., but failed to live because the nervous system was damaged to such an extent that its coordinating power was lost. A very interesting case occurred to the writer while serving as a medical officer in the Italian army. A young man hanged himself with a piece of wire; when he was discovered there was no sign of life, neither respira-

tion nor heart pulsation could be detected. A piece of rubber tubing connected with an oxygen tank was passed through his nostrils, and rhythmic movements to induce artificial respiration were started. After about an hour respiration and heart action were almost normal, and to all appearances the young man was alive. If pricked with a needle he would react, but there was no consciousness and no pupillary reflex. Artificial respiration was stopped, and the patient put in an ambulance to be removed to the hospital. On the way there he was seized with convulsions, his body grew warmer and pulsations increased until they could not be counted. After he reached the hospital the convulsions stopped for a few minutes, but the pulse rate still increased and the temperature rose till the thermometer registered  $43^{\circ}$  C., the highest point it could register. The patient had several other attacks of convulsions, and his body grew warmer until he died, about three hours after having been found hanged. An autopsy, very poorly performed, did not reveal any special lesion.

This case is interesting because it shows that, although respiration and circulation had been reestablished, the patient failed to live because the nervous system (very likely the vagi nerves) had been so injured that it failed to coordinate the functions of the different organs, and the heart ran wild. In cases of this kind death results, and is caused by serious damage to one or more of the organs essential to life, or by the lack of control of the nervous system; the termination of life occurring when such damage cannot be repaired before the other essential organs have been injured too seriously, or the control of the nervous system be reestablished. Death occurs only when the heart is incapacitated for functioning, and the heart stops beating because the coronary vessels do not supply it properly, or the blood they supply is not fit to maintain in working order the cells constituting the heart. The ultimate cause of death is always asphyxia, anesthesia, or anemia of the heart.

In studying the subject of resuscitation, we will take into consideration only those cases where the heart has stopped beating. Resuscitation must be divided into two classes, temporary and permanent. Temporary resuscitation is obtained when, in order to keep up life, the essential organs must be artificially stimulated; as soon as the artificial stimulation stops, life also stops. Permanent resuscitation is obtained when the essential organs are stimulated artificially, but their lesions can be repaired, and at the stopping of the artificial stimulation they reassume their automatic harmonious work. From the considerations now mentioned, it is evident that permanent resuscitation is not possible when there is an important discontinuity or degeneration of the nervous system.

The most difficult problem to be met in resuscitation is the reactivation of the heart's function. The technical difficulties concern the impossibility, at the present time, of entering the left heart without producing irreparable damage. If the left heart could be entered with some stimulating liquid as easily as the right, life could be reestablished without much difficulty. The reason is that the

coronary arteries supplying the heart have their origin in the left side of the organ, and death being considered as asphyxia, anemia, or anesthesia of the heart, it is evident that better results than those now met with could be obtained if a technic of directly supplying the heart with a fresh, stimulating liquid which would wash out all the waste products and supply new stimuli could be developed. It is not an exaggeration to state that all cases of poisoning from morphine, cocaine, ether, chloroform, etc., as well as from asphyxia and hemorrhage, could be revived after the patients had been pronounced dead for a certain length of time, if the coronary vessels of the heart could be flushed with stimulating solutions. In these cases there is really no organic lesion, there is only a narcosis, asphyxia, or anemia of the elements of the heart. When there is also present an organic lesion this must be repaired, and success depends upon how well and quickly this is done.

In his numerous experiments, which will be given in detail in a later paper, the author found that the liquid that best stimulates and reactivates the heart action is blood. The most gratifying results have been obtained up to the present time in reviving animals dead from hemorrhage. A brief résumé of the results obtained may be of interest. Animals were bled to death by severing the femoral artery; artificial respiration was maintained by pumping air or other gas through the trachea; the thorax was opened and the heart exposed; when all heart beating had stopped artificial respiration was also stopped at times, and at other times kept up; direct transfusion of blood was resorted to through the external jugular vein; heart beating and life could be restored up to seven minutes after heart beating had completely stopped; no result could be obtained if instead of blood other stimulating liquids were used. Other animals were bled in the same way, but the thorax was not opened, and here heart beating and life could be restored after nine minutes after heart beating, respiration and all other signs of life had completely disappeared. The abdominal aorta and the ventricles of the heart were stabbed, and the animals allowed to die from acute hemorrhage; then the wound was repaired and the animals brought back to life as late as nine minutes after all signs of life had disappeared. Rapid repair of bloodvessels and heart were accomplished by a new technic devised by the author and not yet published. The technic is as follows: Small gold wires are bent so as to form an arc with two very small points in the inside of the arc; the intima of the cut bloodvessel is brought into perfect contact by squeezing the little gold wire, as is done for skin clippings; for the heart the clippings are double, so as not to cut the tissues during contractions. This technic is extremely simple, easy, and safe, because the points of the wire enter only the outer coat of the bloodvessels and do not penetrate the intima, so that there is no foreign body in the lumen of the vessels. Artificial respiration has been made either by simple traction on the tongue and pressure over the chest, or by a special pump, so constructed that the tube going into the trachea is airtight, and thus not allowing any escape of air between the tube

itself and the trachea. By a system of double pumping a given amount of air or any gas, alone or in combination, can be forced under a given pressure into the lungs and aspirated from the same.

In the prevention of death, the heart is always the important element to consider, as there can be profound coma or apnea without loss of life. The question is not one of stimulation of the heart as much as of saving its strength. In pneumonia, for instance, death could be prevented if the heart action could be kept up for a few days, the problem here being one of heart action only, because the disease exhausts itself in a few days. The heart is flushed with blood loaded with poisoned products, and while its stimulating and nutritious element (the blood) is nourishing it poorly and poisoning it, it has to work harder, because of the resistance met from the consolidation of the lung tissue. With these considerations in view, the author has in two cases resorted to direct transfusion of blood into the external jugular vein after having bled the patients, and in another case, to continuous dropping of physiological solution into the external jugular vein. The results were very gratifying, but on account of the limited number of observations no definite conclusion will be made. In severe cases of hemorrhage death can be prevented if direct transfusion of blood, or at times even of saline solution, through the external jugular vein, is resorted to in time.

75 WEST FIFTY-FIFTH STREET.

## CHRONIC APPENDICITIS IN ITS RELATION TO HYPERACIDITY OF THE GASTRIC JUICE.

### A Clinical Study.

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#### I. CHRONIC APPENDICITIS AS A CAUSE OF HYPERACIDITY.

At the time when I published my first studies upon hyperacidity<sup>1</sup> my suspicion as to the relation of the two to each other had already been aroused in the course of the observation made, but as it was my earliest observation, I regarded the pain in the appendicular region rather as a consequence of the hyperacidity than as the expression of an independent pathological process that had given rise to these self same digestive disturbances.

Further and much more extended studies upon hyperacidity, with more numerous observations of chronic appendicitis in connection with it, have convinced me that the latter is in many instances the etiological factor in the production of the former. The following cases clearly demonstrate this:<sup>2</sup>

CASE I. January 16, 1898. S. L., clothing peddler, aged thirty-six; married; children. Weight 185 pounds (about 175 pounds net). Height five feet, six inches (short necked). Voice somewhat husky. Does not smoke. Does not drink (alcoholic liquors) at all. He en-

joyed good health till about three years ago, when his bowels, which had hitherto been regular, became constipated, and, subsequently, other digestive disturbances followed. Now he complains that he becomes bloated immediately after eating and somewhat later feels a pain in the epigastrium that gradually extends downward into the abdomen below the umbilicus and into both hypochondria. He has always more or less burning in the stomach, and has a sour taste in his mouth. His appetite, on the whole, is good. He is a moderate eater, taking only two meals a day; he enjoys what he eats. His breakfast, taken about 9 a. m., consists of coffee, oatmeal mush, and bread and butter; his supper, of boiled meat and grits. Occasionally he takes a cup of coffee at noon. His bowels, as stated, are constipated, but he has periods of a week, or even two weeks, in which they act spontaneously, regularly. He is much troubled with flatus. Occasionally he gets a pain in the right half of the abdomen, which runs up over the ascending colon and on to the right half of the transverse colon. He is of a nervous disposition and, when his bowels do not move as expected, he is very much upset. At times palpitations may set in, and they are more likely to occur when he is much bloated. He has a chronic laryngitis.

*Examination.* Epigastrium, nothing abnormal to inspection or palpation. No sensitiveness anywhere. No splashing (*plätschern*). Water six ounces, no splashing, no sound. Liver and spleen normal. Abdomen, nothing abnormal to inspection or palpation. No sensitiveness to day over the right half of the abdomen, either to percussion or to pressure. Heart and lungs normal.

January 18th. Ewald and Boas test breakfast; one hour; tube; when it had gone down about thirty-five cm. he became blue, cyanotic, his eyes bulged, he coughed incessantly a hoarse cough, and I was compelled to withdraw it. I succeeded, however, in obtaining six c. c. of stomach contents, consisting of bread and fluid, the bread well worked up and the whole presenting the normal appearance. Reaction to blue litmus +, reaction to congo + (strong), reaction to resorcin (Boas) + (markedly); filtered, total acidity (calculated on the residue for ten c. c.) sixty-nine.

*Diagnosis.* Hyperacidity of the gastric juice (possibly also a degree of subacute gastritis) and constipation. As to the pain in the right half of the abdomen (which, today also, was not at all sensitive), this may be due to distention of the cecum and appendix by flatus.

*Treatment.* Dietary directions in accordance with the above findings; water, vegetables; toilet rule; cold sponging; massage of the abdomen. Medication, a tablet of one minim of tincture of nux vomica four times daily. January 23d. The massage is proving effective. Bowels move twice daily; stools like pap. Directed to have boiled rice with his dinner (in the evening), so as to thicken up the contents of the intestines and make them more consistent. February 6th. Has been getting along fairly well. Since three days mild attacks of intestinal colic. Yesterday, after his dinner at noon (he happened to be at home) he was very much bloated and his stomach quite puffed out. Some soreness in the epigastrium on percussion. Directed him to take two pancreopepsin tablets with each meal, and for the cramps I prescribed a teaspoonful of the *mistura rhei et sodæ* with fifteen drops of Hoffman's anodyne. February 24th. Since a day or two he again feels very much bloated after eating. Complaints of pain over the transverse colon; has attacks of colic followed by diarrheal stools. Directions: Repeat the medicine prescribed at the previous visit and take only milk (warm), rice, and zwieback for the next two days. February 27th. His bowels are better; the stools are natural and formed. He complains that when he takes anything hot it causes pain; it burns him the whole length of the esophagus, till it gets into the stomach. Cool drinks or food cause no disturbance. There is some tenderness about the epigastrium, especially at and about xiphoid cartilage, on firm pressure and also, and more marked, over the right half of the transverse colon and over the ascending colon down to the *linea spina umbilicalis dextra*. On the whole, however, his pains, he says, are not so severe as they were formerly, before he began treatment with me. The bloating is now more in his bowels. I prescribed an emulsion of spirit of turpentine, four drops to the dose, to be taken three times a day, and also a tablet of arsenic trioxide, grain 1/100,

<sup>1</sup>NEW YORK MEDICAL JOURNAL, May 25 and June 1, 15, and 29, 1901; *Archiv für Verdauungskrankheiten*, 1902.

<sup>2</sup>I have reported the cases in full, because an excerpt cannot show either the real development of the cases or their subsequent course. Moreover, an excerpt can be made to prove almost anything the reporter chooses.



three times daily; the patient to drink a glass of Vichy Celestins morning and afternoon; to eat nothing very hot and nothing very cold—all food to be only moderately warm. Breakfast, oatmeal, milk, bread and butter; lunch (at 12 noon), two soft boiled eggs, a cup of milk, bread and butter; dinner (6 p. m.), soup, broiled steak or broiled lamb chops; after dinner, a cup of chamomile tea. March 23d. Feels bad again, for the last four days; burning in his stomach; stools are offensive. He does not bloat as much as before. March 24th. He came again this morning, as I had intended to give him another test breakfast for another examination of his gastric chemismus. However, looking at him somewhat more closely, I detected a yellowish tint in his sclerotics; his tongue had a yellowish white coat; his temperature was somewhat elevated (100° F.), and there was marked tenderness over the epigastrium and the right half of the transverse colon. Since yesterday, the burning in his stomach is quite severe and he has a heavy pressure in this region. I did not introduce a tube, but sent him home, directing him to go to bed. A gastroduodenitis, involving the ductus choledochus communis, had been set up. I prescribed an alkaline cooling mixture and ordered cold compresses to be applied over the abdomen (from the xiphoid cartilage to the pubes), and to have only milk and vichy and thin oatmeal gruel. March 25th. Saw him at his house this morning. He is feeling somewhat better; his bowels moved this morning, the stool being partly light yellow and partly clay colored. Temperature normal. Prescribed a teaspoonful of the *mistura rhei et sodæ*, to be given every three hours. March 27th. Last night about 11 o'clock he was seized with severe pain. There is marked tenderness over the whole appendicular region. Stools still a very light yellow. No burning in stomach. There is a light yellow tint over the whole body. Prescribed a pill of morphine, camphor and ipecac, to be taken every three or four hours, until the pain has ceased altogether; to have also a teaspoonful of the *liquor ammonii acetatis* (recently prepared) every two hours. March 30th. He is doing well; all pain and soreness have gone from the abdomen. The yellowish tint of the body has entirely disappeared. His only complaint is now great pain in the lumbar muscles (rheumatic most likely; has had such attacks before; gets them more in the month of March than at any other time of the year). Prescribed sodium salicylate, ten grains, three times a day. To keep in the house for two or three days longer, after which he may go out.

He got along very well after this, and the last week in July he went to the country. About the middle of August he was seized one night with an acute attack of appendicitis, and was at once brought back to the city. The following morning he was taken to the hospital, where an appendectomy was performed. A careful reading of the history shows at once, what was not as clear to me at the time, that the whole trouble really lay in the appendix, and that the various intercurrent conditions related were all due in one way or another to the chronic appendicitis that was present. Two years later I had occasion to see one of his relatives, and learned that he had since been free from digestive disturbances.

CASE II. August 30, 1905. M. P., private teacher; Russian Israelite; a resident of E., a small city in the vicinity of New York. Aged thirty-five; married; children. Height, five feet, four inches; weight, 120 pounds (eight weeks ago, 132 pounds). He smokes from ten to fifteen cigarettes a day; drinks a little whiskey two or three times a week. Up to eight weeks ago he was in excellent health. One hot day, about that time, he was in E., pursuing his calling; about 1 p. m. he took his lunch, consisting of several corned beef sandwiches. Later in the afternoon, when he got home, feeling very hot and thirsty, he drank nearly a whole bottle of very cold water, and then lay down on the oilcloth covered floor and went to sleep. He woke up after some hours with a headache and a severe pain in his epigastrium, more in the right half (as described by him) and in the lower segment of this. He at once took a dose of Epsom salt, repeated it every morning for three days, and, not getting better, sent for a physician, who gave him a hypodermic injection of morphine. The pain over the right half of the epigastrium, over the hepaticothoracic region, and in the right hypochondrium, down to the line of the umbilicus, continuing, he sought admission to the hospital. He re-

mained there for ten days and, not improving, he left. It is now eight days since he came out. The pain is still present, as before. Appetite good. (Breakfast, eggs, coffee, bread and butter; dinner, soup and crackers; supper, same as dinner.) Bowels constipated.

**Examination.** Heart and lungs normal. Epigastrium, nothing abnormal to inspection or palpation. On hammer percussion, some pain in right half of epigastrium, about the region of the gallbladder and in the right hypochondrium, over the right colic flexure. No sensitiveness in the left half. Spleen, normal in size and position. Liver, normal in size, some sensitiveness to percussion over the hepaticothoracic region. Tongue, lightly covered with a thin, yellowish white coat. General appearance good. Color of face dark, but not the slightest trace of a yellowish tint anywhere. Questioned as to the color of his stools, he said he did not know, as he had never looked at them. August 31st. After he left here he took some capsules of castor oil, and had a movement this morning. He reported the color of the stool as normal—that of a healthy individual.

**Diagnosis.** It is difficult to say at this date what the original seizure was. Inquiry did not elicit any satisfactory replies, as already indicated in the preceding history. He avers that the treatment he has received has not benefited him and that his pains are as bad as before. Comparing again the complaints with his general appearance and the results of the examination, the conclusion was almost forced upon me that the pains complained of at present were imaginary, the reflection of the pains he had eight weeks ago. Moreover, I am inclined to believe from what he said as to the indifferent character of the treatment he received at the hospital, that the physicians of that institution were of the same opinion nearly three weeks ago. However, in view of the location he assigned to the pain, and from the sensitiveness to percussion over the liver, I assumed as a basis for treatment a mild hepatitis.

**Treatment.** Smoking and all alcoholic liquors of whatever kind absolutely prohibited. Diet strictly vegetarian, with the exception of milk and soft boiled eggs, which were allowed. To drink four or five glasses of water a day. To apply cold compresses (Priessnitz), renewed every half hour, to the lower part of the chest and the upper half of the abdomen. As he must continue to teach during the day, he is to apply the cold compresses for three or four hours in the afternoon and evening. Medication indifferent.

September 25th. Though to judge by his demeanor and his answers to certain questions, his pains must be relieved, he still complains of them, stating that he has pains on his right side (pointing to hypochondrium and region just beneath it). On percussion of the region described with the hammer, he winced and made a grimace as of pain, saying it felt sore; a few minutes later, when I was going over the same region, he did not seem to notice it—at least made no complaint, as he had done before. He does not eat enough, and is directed to arrange his meals as follows: 7 a. m., two soft boiled eggs, a cup of milk, and one or two slices of graham bread with butter; 10 a. m., a glass of milk; 12:30 p. m., soup (vegetable) and rice or noodles; between 3 and 4 p. m., a cup of milk and one or two slices of graham bread and butter; 6 p. m., two soft boiled eggs, a cup of milk, bread and butter. To continue the cold compresses, applying them for two hours in the morning (6 to 8 a. m.), in the afternoon (3 to 5) and in the evening (8 to 10). **Medication.** Compound syrup of hypophosphites, a teaspoonful three times daily, and two pills of five grains of *asafetida*, three times daily.

March 16, 1906. Patient came in again to-day, and reported that, after his previous visit, he had been well for about two months, when the attacks of pain came on again and would continue for two or three weeks, and then disappear. For the last five weeks he has had pain continually. The attacks are preceded by dyspeptic manifestations, nausea, bloated feeling after eating, as if filled up with gas, and an ardent desire to belch. He has pains in his back, about the shoulders and the lumbar muscles. Appetite good and bowels regular. Says he does not smoke. Reexamination. He has a sensitive spot (A) at a point six cm. above the umbilicus and nine cm. to the right of the median line, and another (B) on the linea spina umbilicalis dextra, in its lower third. When firm

pressure is made over the point B, it hurts him very much, he says. Drawing a deep breath also hurts him. When firm pressure was made over point A, he at first said it caused pain in the epigastrium (about the pit of the stomach); however, on repetition of the pressure a little while later, when his attention was diverted, it did not seem to affect him—at least, he said nothing. March 28th. Test breakfast; one hour; tube; 160 c. c. of stomach contents, bread and fluid. Bread well worked up. Reaction, blue litmus +; reaction, congo +; reaction, phoroglucin vanillin +; free hydrochloric acid thirty-one; total acidity fifty-one. Pepsin normal; rennet normal. From another patient who came from the same town I learned that P. had smoked almost incessantly; he thought he must have smoked at least twenty cigarettes a day. Though this examination did not clear up the case positively, it did suggest a solution of the problem, namely, that the first attack was one of appendicitis with the pain located, as occasionally happens, elsewhere than over the classical McBurney's point; that this appendicitis had become chronic, and that in consequence of the irritation resulting therefrom, a hyperacidity of the gastric juice, with all the irritative conditions frequently attendant thereon, had developed. *Treatment directed.* Repeated the prohibition as to smoking; dietary directions appropriate to hyperacidity and also to his constipation; impressed upon him the necessity of drinking freely of fresh water, at least four or five glasses daily, and recalled to him the rules for the toilet.

April 9th. In the past two days he has again had pains in the epigastrium. They shoot up into his right shoulder. He bloats after eating. Complains of feeling stiff; he cannot bend over; to do so causes pain in his back. When, palpating his epigastrium, I went over the region of the gallbladder, he said it hurt, but in the same region some few minutes later there was apparently no pain on pressure, and, when I questioned him, he said it did not hurt at all; did not even feel sore. He says it hurts when pressure is made about the centre of the median line; he feels the pain about the ninth or tenth left ribs. Advised him to continue the directions previously given, and prescribed the following powder: Bismuth subnitrate, five grains; sodium bicarbonate, two grains; pepsin pancreatin, ten grains. To be taken every two hours, and when the pain is relieved, every four hours. April 13th. Complains of pains in his back about the lumbar muscles; he feels as if he had an iron band around him. Is still constipated. Directed him to take a cold sponge bath in the morning on arising, followed by friction with a coarse towel. At night, before retiring, to apply a liniment of chloroform with the addition of spirit of turpentine. Salol, ten grains, night and morning for two days. For the constipation, half an ounce of olive oil shortly before retiring.

May 8th. The pains in the back and shoulders and under the right costal arch have all disappeared. The bowels are regular. The only complaint is pain in the epigastrium (about the centre, as described before). He is told to strictly adhere to the diet as directed (which he had not done), hard boiled eggs, roast meats, etc. If the pains continue, repeat the salol.

October 17th. Till within a short time has done very well. Has been free from rheumatism, and the pains in the epigastrium and the appendicular region have troubled him only when he has made a sudden and more than usually forcible movement. In the last two weeks, however, he has had much more pain, and now the pain in the appendicular region is very severe. *Examination.* The whole right half of the abdomen, from the line of the umbilicus down, is decidedly sensitive, especially the anterior third of the linea spina umbilicalis dextra. When flexing the knee upon the thigh, and the thigh upon the abdomen,<sup>2</sup> he has very much pain. Directions: To go home and take to bed; apply an ice bag and keep it on for three hours, then to leave it off until the skin has resumed its natural color. To have only very light food: milk (warm), soft boiled eggs, white bread. If bowels do not act, take an enema of one quart of lukewarm water. October 28th. Reported to-day. He did as he was directed. He applied the ice bag that night and the next day, and has been better since. No pain or even

sensitiveness about the abdomen; no pain on flexion or extension of leg. Can walk and run without the least discomfort. The only complaint he has to-day is an uncomfortable feeling, when he turns in bed, about the transverse portion of the right costal arch border. Ordered to continue the application of the ice bag for two hours in the morning and two hours at night for the next four days; then at night only. Continue the same diet. Report again in one week. November 22d. An attack of lumbago; salol, fifteen grains, three times a day. Again some soreness, though not marked, about region of appendix; feels it more when turning quickly on to his side.

December 18th. He complains again of the old pain at the point nine cm. to the right of umbilicus and  $1\frac{1}{2}$  cm. above it; it reaches to the costal arch border. To take olive oil, half an ounce in the morning and one ounce at bedtime. Examine the stool daily.

January 15, 1907 (8 p. m.). Patient has had another and very severe attack of pain in the region of the appendix. The whole right half of the abdomen is very sensitive to the touch; he has marked pain on flexion and extension of the leg. I directed him to go home and apply an ice bag and to-morrow to visit a surgeon with reference to operative intervention, which, in view of the number of recurrences, I strongly advised.

I did not see him again nor hear from him till June, 1910, when, becoming desirous of knowing the outcome, I had him looked up. I learned from him that, when he left my office at the time recorded above, he had gone home, taken to his bed and applied ice bags for a period of two days; then felt better, and has continued well ever since, attending to an extensive grocery business, which he set up shortly after his last visit.

CASE III. July 2, 1906. Mrs. J. C., aged twenty-eight, married; three children. Height, five feet, three inches; weight, a year ago, about 125 pounds; now 108 pounds. She was in good health till six months ago, when one day she was suddenly seized with a severe pain in the abdomen. She was sent to a prominent hospital here, was kept there for eight days, and then discharged. She was told that she was afflicted with gallstones. She has grown much worse since and says she is now more yellow than ever. She vomits frequently, and when she does not vomit, belches much and regurgitates much of her food. The vomit is always very sour. She is on a light diet, soup, soft boiled eggs and toast. She drinks but very little water. Her bowels, always regular before, have been very constipated since her first attack. She has headaches. Her sleep is bad. As she is too poor to keep help, and owing to her condition cannot do any housework, she has been compelled to break up her home and live with relatives nearly as poor as herself.

*Examination.* She is not yellow at all, only sallow. Her tongue is clean, but has a small "strawberry" tip. From xiphoid cartilage to umbilicus, ten cm.; to crease (inscriptio tendinea), eight cm. Stomach: Left gastro-thoracic region dull; the whole epigastrium dull, sunken in; more or less pain on percussion with the hammer over the whole left of the epigastrium and in the median line, at a point  $2\frac{1}{2}$  cm. above the umbilicus. No splashing; water, eight ounces; no splashing, no sound. Liver: Normal, no sensitiveness over any part of it; nothing abnormal about the region of the gallbladder. Spleen, normal; kidneys, examination negative; abdomen, flat; no panniculus. Slight pain on percussion with hammer and on deep pressure in the right inguinal region. The pain is felt mostly around and about the umbilicus. She says the pain radiates from the left epigastrium downward. Test breakfast; one hour; tube; sixty c. c. stomach contents, bread and fluid: bread in quantity about one fifth of the height of the contents of the glass; is well worked up; shows two layers, the lower and larger one very finely pulverized; the upper, a thin layer, like fine grits. The fluid has a greenish tint. Reaction, blue litmus +, congo +, phoroglucin vanillin +. Free hydrochloric acid, twenty-seven, total acidity fifty-one, pepsin slightly deficient, rennet normal.

*Diagnosis.* Hyperacidity of the gastric juice, giving rise to the gastric disturbances of which she complains. The constipation is but the natural consequence of living mainly on concentrated foods—foods leaving but little indigestible residue. Chronic inflammation of the appendix, with probable involvement of the ovary.

*Treatment.* Dietary regulations in accordance with the

<sup>2</sup>Elloway: A Pathognomonic Symptom (or Sign) of Appendicitis Hitherto Not Described, *Archives of Diagnosis*, July, 1908.



above noted conditions. Toilet rules. Spasms and cold water every morning. Medication. Pepsin tablets with meals; five drops of tincture of *China* *china* after each meal and before retiring at night; *asafoetida* (in pill form), ten grains three times a day (for its carminative action upon the intestines and to cause free discharge of the flatus).

July 10th. The bowels move daily. The pain in the epigastrium and right half of the abdomen are unchanged; flexion and rapid extension of the right leg augment the pain.<sup>2</sup> Directed to keep as quiet as possible; apply an ice bag over the affected half of the abdomen; continue the directions previously given. July 22d. *In statu quo*. In view of the fact that she did not have a home or even a proper lodging of her own, and therefore could not have the necessary attention and treatment, I advised her to have the appendix removed.

She was operated on July 27th. The appendix was found adherent to the cecum by numerous bands.

September 26th. Patient came in to-day to report that she is feeling well; is able to eat and work. Her husband has again taken a home, the family is reunited, and she is able to care for it.

The further history of this patient may not be without interest. October 3, 1908. Patient came in again to-day. Has not been well for the last eight months; had an attack of gripe, which has left her in an enfeebled condition. About four months ago she expelled a tapeworm. For the last three months she has had a cough, and expectorates thick mucus. Has a peculiar appearance, anemic, and still withal not so pale; has more of a yellowish color. To go to the Board of Health dispensary to have her lungs examined. She complains of pains in her stomach. The bowels are alternately constipated (with feces so hard that not infrequently they cause fissures in the anal mucous membrane, with consequent bleeding at stool), and loose, the diarrhea lasting a few days. Test breakfast; one hour; tube: 120 c. c. stomach contents, bread and fluid; bread well worked up. Reaction blue litmus +; congo +; phoroglucin vanillin +. Free hydrochloric acid thirty-three, total acidity forty-seven. A deficiency<sup>3</sup> in the hydrochloric acid element.

CASE IV. February 19, 1911. Mrs. E., aged thirty-seven years, married; three children (three miscarriages); five feet, 5 inches; 195 pounds. Has muscular rheumatism; occasionally attacks of migraine. Chronic rhinitis, pharyngitis, and laryngitis (giving her voice a slight hoarseness). Marked astigmatism and myopia, and right eye very much weakened. Since the birth of her son nine years ago, she gets cramps in her calves. For ten years has had occasional attacks of stomach cramps, which for some years she succeeded in relieving by drinking hot tea with a few drops of lemon juice in it. About two years ago she had an attack like the present, when she went to Mt. Sinai Hospital Dispensary and was told that she had appendicitis, and that she should go to the hospital and have the appendix removed. About a year ago, on a similar occasion, she was again told that she had appendicitis and that she ought to have her appendix removed. Last summer, while up in Sharon Springs taking the baths for her rheumatism, she had frequent attacks of sour stomach and would vomit up her food. Two weeks ago she ate some herring and was seized with cramps. She treated herself with home remedies, and the cramps abated; but she continued to "feel bad in her stomach." No appetite; nausea; bitter taste in the mouth. She went to a physician, who prescribed some medicine which she was to take through a straw; it was very sour. Soon after taking it she began to vomit, and since then vomits frequently. The ejected matter is very sour. On the night of the 14th she vomited so violently that she threw up bile, and so continuously that she had to call a physician, who gave her at once a hypodermic injection of morphine. The night before last she had two soft boiled eggs and a cup of milk for supper, and after a while vomited them. Last night she ate some rice boiled in milk and water, and retained it, but the cramps came on after this also. They seem to "draw her stomach together"; starting on the left side and passing over to the right. Her appetite is good and she generally eats every

thing to which she and her people have been accustomed, especially much pickled and spicy foods. Lately, however, she cannot take anything sour (oranges, lemon juice) or anything sharp, like brandy; if she does, it at once burns or sours her stomach. Tongue, covered with a white dyspeptic coat; bowels constipated; takes enemata to move them.

Examination. Epigastrium, nothing abnormal on inspection or palpation; not particularly sensitive anywhere. No splashing; water, seven ounces, faint splashing, more marked in the left half of the epigastrium. Liver, spleen, and kidneys in normal position; abdomen, good panniculus. Nothing abnormal on inspection or palpation. Marked sensitiveness to percussion over the linea spina umbilicalis dextra, especially about the middle; likewise on flexion and extension.<sup>4</sup>

Treatment, temporary, to relieve the distressing gastric symptoms: A powder of bismuth subnitrate, five grains, sodium bicarbonate, two grains, cerium oxalate, two grains; to be taken every two hours. Nourishment, only milk and lime-water, equal parts; one half cupful, eaten with a spoon, every hour; if well borne, increase to a cupful every two hours.

February 21st. Patient feels better, does not vomit, only regurgitates a little of the milk. Still has some cramp, but not nearly so severe, nor so frequent. Gave her eight ounces of water, and then introduced a stomach tube; it brought up some of the water and a small milk coagulum. Reaction of the fluid to blue litmus +, to congo —. Continue the powders, one every four hours now. In addition, ten grains of *asafoetida*, in pill, three times a day. Nourishment, a cup of milk (warm) with one third lime water every two hours; eat it with a spoon, as before directed. February 22d. Test breakfast, Ewald and Boas; one hour; tube: obtained fifty c. c. stomach contents, bread and fluid; bread well worked up, all of ordinary appearance. Reaction, blue litmus +; congo +; phoroglucin vanillin +. Free hydrochloric acid, fifteen. Total acidity forty-five. Though the range of free and total acidity was not high, I nevertheless, from the history of the case as here recorded, made a diagnosis of hyperacidity. I attributed the present depression to the free use of the milk and lime water, and also of the powders mentioned.

Directions. Diet: Milk and soft boiled eggs, no bread, but can have a soda cracker. Medication: A powder of bismuth, magnesia and belladonna, every four hours. Continue the *asafoetida* pills. These relieve her of flatulence and in this way add to her comfort. February 24th. Yesterday violent cramps; still some to-day, but not so severe. Ordered a powder of camphor and codeine, to be taken every two or three hours, as required. February 27th. Night before last she had for her supper a cup of milk, a soft boiled egg, and one zwieback; about two hours later she was seized with a violent cramp. She placed a hot water bottle over her stomach, and the pain gradually subsided and she fell asleep. Yesterday morning she had milk with some chamomile tea; this was followed by a slight cramp. About 11 a. m., feeling hungry and weak, she took a cup of milk and two zwiebacks, and very soon thereafter was seized with a most severe cramp, which lasted for half an hour. Throughout the rest of the day there were slight seizures. This morning about 8 a. m. she had a cup of milk with a little chamomile tea, and an hour later was seized with a violent cramp. No rise of temperature. Slight soreness in epigastrium at xiphoid cartilage; marked soreness over the linea spina umbilicalis dextra, especially in the anterior half. She says the pain starts in the stomach and spreads from there downward. She feels a sort of "pick pick" in the appendicular region (as she described it is like the beating felt in a finger in which an onychia is developing). Directed her to go home, go to bed, and put an ice bag over the appendicular region. Leave off the eggs; take only milk, chamomile tea, and barley juice (Schleim). February 28th. Her sister came in and reported that when she has the ice bag on she feels the pain in the appendicular region, but after it is off for awhile, she feels it again in the epigastrium. Passed flatus and had a very costive movement. February 29th, 5:30 p. m. This morning she had the cramp again and again felt the sticking, pricking pain in the appendix; an hour or so later she had a small movement, passed two hard fecal masses; after which the cramp subsided. The appendicular region is very painful

<sup>2</sup>Archives of Diagnosis, loc. cit.

<sup>3</sup>See Hyperacidity (Superacidity, Hyperchlorhydria; Superciditas chlorhydrica). A Clinical Study, by H. Hiloway, M.D., NEW YORK MEDICAL JOURNAL, May 25, June 1, 15, and 29, 1901.

<sup>4</sup>Archives of Diagnosis, loc. cit.



on pressure. Temperature in mouth, 100.1° F. As she had not improved under treatment, and in view of the increasing sensitiveness of the appendicular region, the beating in it, as mentioned above, and the slight rise of temperature, I advised her to have herself admitted to the hospital and have her appendix removed.

March 8th. I was informed that the appendix had been removed and that it was found to be in a state of chronic inflammation. March 15th. Patient came in to-day, and stated that after the operation she at first felt no acidity, but when she was allowed to eat and was given tea with lemon, sardines, etc., her acidity returned at once and she began to vomit again. On the ninth day, after a cup of black coffee and an egg, at 7 a. m., she began to vomit and continued doing so until 12 o'clock noon. An examination of her stomach chemismus was made and a hyperacid condition of her gastric juice found. Still has some cramps about the left epigastrium, under the costal arch border. Does not vomit so much, but regurgitates a considerable part of her food; it comes up very sour. Diet: Milk and soft boiled eggs. Medication: A pepsin-pancreatin powder with the eggs. Vichy (Celestins) with milk (half and half) at night before retiring. Bismuth subnitrate after meals. March 19th. Still slight cramps occasionally about the left epigastrium. Belches much; Bowels very constive. Ordered bismuth subnitrate, five grains, and tincture of nux vomica, half a drop, after each meal. A tablet of phenolphthalein at bed time, as required by the state of her bowels. March 24th. Feels very well. Though she was out of the bismuth powders last evening, she had no flatulence, and did not feel any this morning; can leave them off. Continue the pepsin-pancreatin. Can have dry rice, the white meat of chicken, or a little plain boiled fish (pike or perch). March 28th. On the morning of the 26th she had a cup of milk about 8 a. m., and two soft boiled eggs about 9 a. m. She drank a glass of water and immediately afterward began to vomit and threw up the eggs and milk—all very sour. At 1 p. m. she ate some dry rice and white meat of chicken; at 6 p. m., a cup of milk with an ounce of lime water and one soft boiled egg; about 9 p. m. she threw up again a little sour water. Slept well that night. Yesterday, the 27th, had a slight cramp in the morning. At noon she had for dinner dry rice and white meat of chicken. In the afternoon she took an enema (one quart of lukewarm water), and with that she was seized with severe cramps over the lower half of the abdomen, from which they passed up to the epigastrium. She put on a hot water bag and took a grain of codeine (which I had previously prescribed for such an emergency); but the cramps did not abate till morning. Though the region of the sigmoid flexure seems to be the seat of the spasm, it is felt more or less over the whole abdomen. The abdomen is not at all sensitive now to percussion or palpation. To-day she is to take only warm milk (with a pinch of salt) or warm milk with one third or one half Vichy water, a cupful every two or three hours. Ten grains of asafetida, in pill, every four hours. If the cramps should recur with any severity introduced a suppository containing one third of a grain of morphine sulphate. March 29th. Her sister brought the following report: She has some cramps still, but they are very much milder now. They come on only after the milk and Vichy. Directions: Leave off the Vichy. In place of the ordinary milk, use condensed milk.\* (the fresh condensed, as it is delivered here every morning), 2½ teaspoonfuls in six ounces of warm water. Continue the asafetida.

March 31. Patient is getting along well since taking the condensed milk. Yesterday, feeling that she needed an evacuation, she took two phenolphthalein tablets. They had the desired effect, and also relieved her of the feeling of pressure she had had about the rectum when constive. Still some pain about the epigastrium. Continue treatment. April 2d. Again complains of the sourness of her stomach and mouth. Has no cramps in abdomen, but feels some about the left epigastrium. Vomited again, and the matter thrown up was intensely sour. She had tried a little chicken soup, and it came up at once. Directions: Milk (as before directed), soft boiled eggs, fish (pike, perch, plain boiled). A powder of bismuth subnitrate, sodium bicarbonate and extract of belladonna every four

hours. April 4th. No more cramp. No sour stomach since taking the powders. April 9th. Doing very well, though she still has a slight sourness of stomach occasionally. As the fish have agreed with her, can now have white meat of chicken. Ordered a powder of bismuth subnitrate, calcined magnesias, sodium bicarbonate, and extract of belladonna three or four times daily. April 21st. Doing very well. Take the powders only twice a day now, about 10 a. m. and 9 p. m.

May 21st. Patient has continued to do well, and at this time her stomach appears fully recovered. She can take some vegetables, such as carrots and potatoes, and they agree with her. Her sole complaint now is constipation. Leave off all powders. Continue the olive oil, one drachm three times a day (I had ordered this a few days before), drink every day four or five glasses of fresh water, and observe the rules for the toilet.†

CASE V. February 25, 1906. Mrs. S. M., aged thirty-one years, widow; no children. Works in a store; 132 pounds, 5 feet, 3 inches. She remembers that as a girl, she had nervous indigestion, i. e., would feel hungry after large meals. The attacks would usually terminate in a hysterical outbreak. After that, dizziness. About the time of her marriage, at twenty-two years of age, all these phenomena had disappeared, but she still had to be careful in eating. Sometimes a little whiskey would settle her stomach, and she could eat well. For a year and a half she has had heartburn continually. At first sodium bicarbonate or aromatic spirit of ammonia relieved her. Later on they failed, and only salt (ordinary table salt) relieved her (and quickly). The heartburn is now getting worse than ever, and she has it whether she eats or not. Whenever she is nervous or anxious it is especially severe. Occasionally her stomach will feel sore. Appetite moderate. Breakfast, a glass of cold water, a glass of milk and water and a roll; lunch, a chop and potato or fish and potato. She finds lately that fish disagrees with her. Dinner, the usual menu. After cocoa, she will have a 'sort of hair oil taste' in her mouth. After other articles, a taste of hops. One day, on the recommendation of her dentist, she used milk of magnesia. The next day, she found her tongue black and stiff. She has omitted it since. Her bowels are regular, moving once every morning. No headaches. Sleep good, when not disturbed by heartburn.

Examination. From xiphoid cartilage to umbilicus, thirteen cm., to crease, eleven cm. Stomach: Left gastro-thoracic region dull; left epigastrium resonant to crease; median line resonant to crease; right epigastrium dull; no sensitiveness; whole crease dull; left crease about two cm. to left of umbilicus, somewhat sore. No splashing; water, eight ounces, no splashing. Liver, spleen, and kidneys, in normal position. Abdomen, nothing abnormal on inspection or palpation; good panniculus. She has a peculiar sensation in the right half of the abdomen, about the appendicular and inguinal regions; not a soreness, but a feeling as if it were distended by gas. She states that at times, when walking, she puts her hands to her side to relieve this. There is a similar sensation, but less marked, in the left half of the abdomen. *Flexing thigh on hip and extending it again rapidly do not cause any pain.*‡

February 26th. Test breakfast: one hour; tube; eighty c. c. stomach contents, bread and fluid; considerable bread, well worked up. Reaction, blue litmus +; congo +; phoroglucin vanillin +. Free hydrochloric acid, forty-seven, total acidity sixty-nine. Pepsin, in four hours complete digestion. Rennet, ten c. c. eleven minutes; twenty c. c. seventeen minutes.‡ *Diagnosis*, hyperacidity; chronic appendicitis.

February 27th. Treatment as usual: Hard boiled eggs and milk. Milk and Vichy between meals.‡ March 4th. Last Wednesday and Thursday she suffered greatly. Friday she felt a little better, and Saturday still better. She feels well when she eats heartily. The milk (which always has that effect with her) has loosened her bowels. She has four to five pappy movements a day. Directed to put cocoa in the milk in the morning for breakfast; at

\*Described in my book, *Constipation in Adults and Children*, etc. *Archives of Diagnosis*, loc. cit.

†Einfache Methode zur quantitativen Bestimmung der vom Magen ausgeschiedenen Enzyme, *Archiv für Verdauungskrankheiten*, xi, p. 145, 1905. A further contribution to my Simple Method for the Quantitative Determination of Pepsin in a Given Gastric Juice, *American Journal of the Medical Sciences*, August, 1909.

‡See Hyperacidity, etc., *NEW YORK MEDICAL JOURNAL*, loc. cit.

\*For the reasons set forth in my paper on the Reaction of Some Milk Modifications to Rennet, *Boston Medical and Surgical Journal*, October 3, 1907.

other times to add lime water (one ounce to the cup). If she prefers, she can have a hard boiled egg at 10 a. m. and at 3 p. m., instead of milk. To take ten grains of bismuth subnitrate twice to-day to correct the looseness of her bowels. March 7th. Feeling much better yesterday and to-day. On Monday had a little waterbrash. Last evening ate a chop, and it agreed with her. Bowels better; only two movements a day now, and these solid. Continue as before. March 20th. Has a slight pain in the right half of the abdomen. On examination, when a spot about the middle of the right linea spina umbilicalis was touched she said it pained her, but when I went over the same spot again, making even stronger pressure, nothing was elicited. No pain on flexion or extension. Nothing abnormal to be perceived in the rectum. Has a little heartburn occasionally. Continue as before. The pain in the right linea spina umbilicalis is probably ovarian or due to flatulence. Ordered asafetida, ten grains twice daily, and to apply a cold compress (Priessnitz) over the abdomen. She has this pain when she gets excited or when she walks too much.

May 17th. Feeling very well. No heartburn or other trouble. Came in to ask whether she must still adhere to the diet. Told her she must do so for a year. As to the peculiar feeling in the right side, she still gets it when excited or when she walks too much. Continue the asafetida as before. Continue the cold compresses in the evening two or three times a week for the next six weeks.

September 15th. She was very ill all summer at Asbury Park, suffering from what appeared to be hay fever. Her nose is still stuffed, and she has pains in the chest and frequent asthmatic attacks. Cough, dry, harsh; wheezing; dry rhonchi; occasionally a mucous rale. Does not feel rested when getting up in the morning; her knees break under her; gets cramps in her calves. Muscæ volitantes; black rings around the eyes. No elevation of temperature. Nothing abnormal about epigastrium; no soreness. Algesimeter four cm. This pressure excites a peculiar sensation, with a tendency to vomit. Light pressure on third dorsal and the vertebrae below it causes a peculiar tingling sensation extending along the spine to the sacrum; greatest sensitiveness about the fourth dorsal vertebra. Very little heartburn; bowels loose; four stools a day; general debility. Ordered a powder of bismuth subnitrate, cerium oxalate, and tincture of nux vomica, to be taken every four hours. Also quinine sulphate, three grains, twice a day. September 23d. Coughs less. Tongue, coated, pale, flabby; appetite only moderate; bowels in good condition. Pressure on epigastrium still causes the peculiar sensation noted. Ordered the above mentioned powder after each meal. For the bronchitis, five grains of potassium iodide three times a day, and, as a general tonic, strychnine sulphate, 1/100 grain four times a day. September 26th. Doing well; asthma relieved; bronchitis much better. Back also much better; sensitiveness over spine almost entirely gone. Her only complaint now is weakness. Discontinue strychnine. Compound syrup of hypophosphites, one drachm three times a day. Continue other treatment. September 28th. Called up at midnight. Her bowels very loose. Ordered bismuth subnitrate, fifteen grains, and tannic acid, 2½ grains, every four hours. Has a severe coughing spell. Ordered half a grain of codeine, to be taken at once, and repeated in half an hour, if not asleep by that time. October 2. Patient called to-day. Said she had a severe diarrhea on the 29th. She had ten evacuations, and at night, about 11, a chill which lasted over an hour. Directed to discontinue the potassium iodide and the hypophosphites. Prescribed syrup of ferrous iodide and 1/40 grain of strychnine sulphate. Also tonic bath.<sup>11</sup> October 4th. Patient had heartburn after the iron mixture. Ordered potassium iodide in tablets, five grains, three times a day.

October 17th. Does not react well after the cold douche at the bath. (Omit it.) Lungs clear, but nose more stuffed; voice rather thick. Continue treatment.

October 29th. Not feeling so well. Took a fresh cold; her nose stuffed and sore. Quinine sulphate, five grains at bedtime; static current. October 30th. Feels much better this morning, but complains of numbness of legs. Faradization of lower extremities; static current.

<sup>11</sup>As given here in some of the hydrostatic institutes: Hot box (or electric cabinet), followed by rain bath and then the Scotch douche.

December 17, 1907. Has much gas in her bowels, occasional soreness in right half of abdomen; at times tendency to diarrhea. Ordered rice and peppermint tea; asafetida pill (for gas). Tablets of potassium iodide for the asthmatic attacks (which have recurred during the cold weather).

February 28, 1911. Has again trouble with her stomach. One evening four or five weeks ago she ate a hearty dinner followed by ices, and two hours later was taken sick while at the theatre. Since then she has not been well. Last Saturday she became dizzy and was uncertain in her gait. She eats all varieties of food. Examination. Epigastrium: The whole of it very sensitive. Appendicular region: Linea spina umbilicalis dextra very sensitive in lower third; marked pain on pressure; she became dizzy when she lay down on the examination chair. Her tongue has a dirty grayish coat. Directed her to go to bed and take nothing but warm milk, a cupful every two or three hours. Tincture of nux vomica, one drop every two hours. Should she have pain over the appendix, to apply ice bag. Prescribed the following: Sodii bromidi, 5i; aquæ distillatæ, 5ij. M. Sig.: Two teaspoonfuls every four hours. March 6th. Feeling badly; weak; still dizzy when raising her head. Says she cannot take milk; is disgusted with milk food and must have meat. Ate chicken soup and it agreed with her. She looks pale and feeble; pulse very weak; has tendency to nausea. Ordered broths. Strychnine sulphate, 1/40 grain, three times a day. Bismuth subnitrate, cerium oxalate and sodium bicarbonate, every four hours. Suggested appendectomy. March 10th. Feeling better, but still has pain in right half of abdomen. As long as the ice bag is on, she is relieved, but the moment she takes it off the pain reappears. Leave off the powder; continue ice bag and strychnine. March 12th. Telephoned this morning she is very costive. Ordered Rochelle salts, two drachms in half a goblet of water. At 4 p. m. was called to the house. The patient had a fainting spell. Feels nauseated. (She had gone out yesterday at noon, and remained till evening, when she came home completely exhausted). Directed to leave off meats. She eats too much meat—three or four times daily. To take milk with lime water; continue the strychnine, and resume the powders. Again advised operation. March 26th. Patient came in to-day. Still has the same pains: One spot at lower third of linea spina umbilicalis dextra very tender. Still weak. Ordered compound syrup of hypophosphites, one drachm three times a day. She is to have appendix removed.

April 6th. Patient was operated upon to-day; a chronically inflamed appendix, very much thickened, was found. Ovaries normal. May 21st. Met her on Madison Avenue to-day. She was looking and feeling very well. Her stomach is in good condition.

More cases could have been added, but the few here recorded are sufficient, I believe, to prove my contention. It is not at all difficult to understand how a chronic appendicitis can be the cause of a gastric disturbance. It is a matter of every day observation that an irritation of the bowels of any severity can at once produce stomach symptoms—a nausea, if nothing more. In the graver forms of intestinal disease, as in intussusception, volvulus, etc., the gastric manifestations may become the most conspicuous feature of the case. The irritation from the affected portion of the intestine is carried upward and to the stomach through the plexuses of Auerbach and Meissner, through the splanchnic nerves from the thoracic ganglia and the filaments of the pneumogastric in the solar plexus. Whether violent muscular contractions in the small intestine can alone be held responsible for gastric symptoms, as, e. g., the nausea experienced in an attack of colic, is still a mooted question.

There is a peculiar feature about this transmission of irritations in the gastrointestinal tract that is deserving of note, namely, though the normal movement of the digestive tract, peristalsis, is

from above downward, from the stomach down to the very end of the bowel, and even the abnormal, the more hurried, the more violent peristalsis taking that course, pathological irritation is almost always transmitted upward from the intestines to the stomach, scarcely ever from the stomach to the intestines. The stomach may be most gravely affected, and the intestines still continue to functionate normally, apparently undisturbed in the least. This last point is of great importance in the consideration of our second group.

(To be concluded.)

## OBESITY AND EMACIATION.\*

By DAVID BOVAIRD, JR., M. D.,  
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All terms are relative according to the philosophers. Obesity and emaciation are peculiarly so. They would doubtless enjoy an application very different from that of Fifth Avenue among the Moors, whose ladies cultivate adipose as the mark of feminine beauty, or among the Kelowi of Central Africa, whose belles must possess the weight and circumference of a young camel. But the Life Insurance Company of Basle brushes aside any such esthetic considerations and classes as doubtful risks any whose weight exceeds 530 grammes to the centimetre of height, or is less than 340 grammes to the centimetre.

Taking 1,000 grammes as equivalent to two pounds, and the centimetre as quarter of an inch, anyone may quickly determine the individual application of the discussion upon which we enter.

The causes of obesity (to take the larger subject first) may be readily classified as, 1, overfeeding; 2, deficient exercise; 3, alcoholism; 4, deficiency of certain internal or glandular secretions.

*Overfeeding.* Food is commonly spoken of as the fuel of the body, the coal whose burning (oxidation) supplies the energy necessary to maintain thought, action, and the varied internal activities of the body. But food also provides the building materials of the body. In the young a certain portion of the food is regularly consumed in increase of height and weight. In the adult skeletal growth ceases. "Which of you by taking thought can add one cubit unto his stature?" But many of us who take no thought find that growth in one direction is not denied us, and that we slowly but surely approach the model of Wouter Van Twiller, the famous Dutch governor of the New Netherlands, who, Irving tells us, was four feet, five inches tall and five feet, four inches about the waist. If we persistently consume more food than our bodies can oxidize and employ in some form of activity, the surplus is stored away in fat. That is nature's method of taking care of it. Just as long as the food is in excess of our needs, so long must the accumulation of fat continue.

Now, I know very well that in some quarters there will at once arise violent dissent or objection, and this or that person will be cited as evidence of

the fact that one may eat very little and yet be over fat. True! We may even concede that there are certain differences in the physiology of the obese that render it possible for them to keep their weight on a smaller allowance of food than other persons. Indeed, certain experimental studies of the question seem to prove that that is the case. One may eat much less than some one else and still exceed him in weight, because the latter is working up the food he takes in some form of energy consuming activity, while the former is taking more than he works up and must store the excess as fat. But quantity is not the only factor of importance in this relation. The quality of the food must be taken into consideration. The sufficiency of any diet must be estimated on the basis of its chemical composition and the energy equivalent of the several food stuffs. The three great classes of food stuffs are the fats—butter, cream, oil, etc.; carbohydrates—sugar and starches, cereals, fruits, vegetables; proteins (nitrogenous or nitrogen containing)—meats of all kinds, fish, shell fish, poultry, etc. We are not to understand by this that vegetables are all carbohydrate and contain nothing else. All of them contain some protein, and some of them contain considerable quantities. In like manner, all the proteid foods contain some fat and some carbohydrate in the form of sugar. It is only in the general sense that vegetables are classed as carbohydrates and meats as proteid foods. The chemist, however, takes our several foods and accurately analyzes them in terms of the carbohydrate, fat, and protein that they contain. Thus:

	Water.	Albumen.	Fat.	Carbohydrat..
Cream cheese .....	30	2.84	.63	2.03
Egg .....	74	12.5	.12	0.55
White bread .....	35	7.06	0.46	.57, etc

The physiologist, in turn, has worked out the energy equivalent of these several foods, and expresses it in terms of what he calls a calorie, which is the amount of heat necessary to raise one gramme of water 1° C.

- 1 gramme protein = 4 calories.
- 1 gramme carbohydrate = 4 calories.
- 1 gramme fat = 9 calories.

Weight for weight, fat has two and a quarter times the energy of protein or carbohydrate. The physiologist has also calculated the caloric requirements of an individual at rest or at work. These requirements will naturally vary according to the weight and the activity of the individual. The pigmy requires much less than a giant; the thinker or the jeweler much less than a blacksmith. Thus, the physiologist has determined that the man at rest requires thirty calories per kilogramme (two pounds) of body weight each day; the hard laboring man may require fifty, sixty, even eighty calories per kilogramme. The total caloric requirement of an individual man may therefore vary from about 2,000 to 4,000 or 5,000 calories a day. This cannot be supplied by any one kind of food, but means so much protein, fat, and carbohydrate.

Voit's figures are as follows:

Bricklayer or carpenter:	
Protein .....	118 grammes.
Fat .....	56 grammes.
Carbohydrate .....	500 grammes.
	} 3,055 calories.

\*Prepared at the request of and read before the Public Health Education Committee of the Medical Society of the County of New York at the New York Academy of Medicine, March 5, 1913.



## Soldier in maneuvers:

Protein	135 grammes
Fat	80 grammes
Carbohydrate	800 grammes

These in turn are readily translated into so much meat, bread, butter, and vegetables.

The practical point for us is that it is possible for us to calculate with reasonable exactness the dietary needs of any individual and to find out to what extent he is exceeding them. The source of body fat is either the fats of the food or the carbohydrates (sugar and starch). The fats normally present in the food require very little modification to adapt them to body uses. Carbohydrates require somewhat more modification, but the necessary changes are under ordinary conditions brought about in the process of digestion or after absorption in the liver.

Fats formed from carbohydrates are deposited chiefly in the subcutaneous tissues, and therefore play an important rôle in the condition of obesity. For these reasons, as we shall see later on, the reduction of obesity, so far as diet is concerned, must rest mainly upon restriction of the intake of fats and carbohydrates. We have indeed long been taught that fat might under some conditions be formed even from protein, but later studies seem to have disproved this belief; so that physiologists are now convinced that the proteids have no direct part in the formation of fat.

*Deficient Exercise*.—The importance of the factor of exercise has already been made evident in the discussion of the food requirements under different conditions. At rest a normal individual requires approximately thirty calories per kilogramme of weight a day—2,000 calories for a weight of seventy kilogrammes, or 150 pounds. For hard physical labor the same individual may require fifty, or even eighty calories; 3,500 to 5,600 for the day. The difficulty with large numbers of the overfat lies simply in the fact that they are consuming the food needed by a laborer, but doing no physical work.

How often we see young men, who during their school or college life have been noted athletes, become obese in later years! In the period of great physical activity they develop large appetites, which they are accustomed to satisfy with the most nourishing food. Leaving college, they give up their active athletic work, but neglect to curb their appetites or change the character of their nutriment, with the result that a few years serve to put them permanently in the heavyweight class.

*Influence of Alcohol*.—The food value of alcohol is very low, yet the habitual use of alcoholic drinks is one of the important factors in many cases of obesity. This result rests largely upon the stimulation of the appetite by alcohol, leading to habitual overeating. In the case of beer and ale drinkers the large quantities of fluid digested and the food value of the cereal derivatives contained in these beverages increase their unfavorable influence—five or six glasses of Munich beer equal 150 grammes of starch, one half the daily allowance. For many years the nutritive value of alcohol has been debated, some authorities denying it any food value and others vigorously maintaining the contrary opinion. The weight of evidence appears to be that alcohol

in moderate quantities has a definite but limited food value. In large quantities its value in that direction is obscured by its toxic action. It may materially disturb the functions of the liver, increasing notably the excretion of uric acid; it may also produce degeneration of heart, arteries, and kidneys. In these relations it is no longer a food, but a poison. As a rule, therefore, the less alcohol an obese person allows himself, the better off he is. Total abstinence is for him the part of wisdom.

*Influence of Sex*. Women are much more prone to obesity than men, partly from physiological reasons; more largely from manner of life and habits of eating. The influence of child bearing upon increase of body weight is well known. In some cases, though a limited number, the menopause is marked by definite additions to weight and size. But in the large number corpulency results from excessive indulgence in candies and other sweet foods, and lack of sufficient bodily exercise. David Graham Phillips's caustic elaboration of this theme in his *Old Wives for New* was not without adequate basis in fact. Men have been wont to satisfy their appetites with tobacco and alcohol, while women have been the patrons of the industrious manufacturers of sweets; but in these times of change this distinction may soon belong only to the past.

*The Internal Secretions*. There lie within our bodies various organs possessed of special secretions which influence deeply conditions of the organism. Time permits only the briefest reference to them at this point. The changes induced by child bearing and the menopause just alluded to are doubtless dependent upon modification of the functions of the ovaries, but the leading actor in the field of internal secretion has long been considered the thyroid gland, the gland which is situated just above the breast bone, in the median line of the neck, and whose enlargement gives rise to the familiar goitre. Deficiency in the internal secretion of this gland produces impairment of mental activity, sometimes amounting to stupor, and at the same time leads to notable increase of body weight, through changes in the subcutaneous tissues of the body. Under these conditions administration of an extract of the gland (prepared from the thyroid of sheep) will lead to marked reduction of weight, with loss of subcutaneous fat. For this reason the administration of thyroid preparations for the reduction of weight has of recent years attained more or less vogue, whether there are other symptoms of deficiency of thyroid secretion or not. Excessive doses of thyroid preparations may, however, produce very unpleasant symptoms, such as palpitation of the heart, nervousness, sweating, fever, and marked muscular weakness; so that its use should be accompanied by careful supervision.

There are other glands whose secretion influences the nutrition of the body and whose failure may lead to marked increase in flesh—notably the pituitary body, lying on the under surface of the brain and related in part to the thyroid gland we have just been discussing, and in part to the brain itself. Entertaining as the story of the pituitary is (and we are only beginning to know it)—excessive secretion on the one hand leading to enormous overgrowth of

the skeleton, especially the feet, hands, and cranial bones; diminution of the secretion leading to infantilism and adiposity—we can here only refer to it as another illustration of the profound influence exerted upon the body by structures until very recently supposed to have no definite function whatever. The pituitary comes too rarely into consideration, however, to justify more than mention of it at this time.

*Treatment.* The principles upon which rational treatment of obesity must rest have been indicated by the facts already presented. The essence of the problem is to reduce the daily intake of food below the level of the amount consumed by the activities of the body. This may be done in various ways. The diet may be reduced to a starvation ration, so that weight will be lost even by a patient resting in bed. "Leanness is attained by hunger; a treatment to produce leanness and a hunger cure are identical."

Debove's obese patient lost fifty-three kilogrammes (106 pounds) in less than a year on a milk diet alone (147 kilogrammes to ninety-four kilogrammes). Beginning with two and a half litres (five pints) a day, the amount was gradually reduced to one litre a day. This low allowance was persisted in for four months. A diet of vegetables, salad, and fruit was then allowed. Few physicians would have the courage, and still fewer patients the strength, to endure such an experience as that. Reductions to such a degree are rarely to be attempted; but if fat is to be lost the amount of food must usually be radically reduced.

To illustrate this point a table of analyses of standard antifat diets is here given. (Chart shown.) You will note that while they vary greatly in the quantities of the several foods allowed, they agree in that the amount of carbohydrates allowed is in all cases far below par, while protein foods are allowed in normal or higher amounts.

But whatever the composition of the diet, you observe that the total allowance is much below that of a normal individual at rest. If the individual subsisting upon any of these diets is called upon to make any exertion, the deficiency of his food allowance is proportionately increased. The amount of exercise demanded of any person undergoing a reduction cure must be determined by the physical condition of that individual. Some can endure heavy work on a deficient diet; others may be greatly harmed by any exertion. A thorough knowledge of the patient's previous history and a careful physical examination must precede any attempt to lay out a course of exercise for this condition. An athlete may "train off" five or ten pounds in a day without harm; a less vigorous person may be hurt by the effort to lose as much in a month.

Reduction of the amount of fluids (water) drunk is always a valuable aid in reducing weight, although it has little influence upon the amount of fat. In like manner the profuse perspiration induced by hot baths, Turkish and Russian, may reduce weight by withdrawing water. Such procedures are, however, limited in application to the very vigorous. The perspiration induced by healthful exercise is much more valuable, since fat

is burned up in the process that induces the perspiration. Medicines have a very limited application in the reduction of obesity. Glandular extracts may be indicated in some instances. Occasionally thyroid extract may be helpful where there are no distinct evidences of deficiency of the gland, but the usefulness of these remedies is very limited. Often they have no effect whatever; occasionally, as already stated, they may be harmful.

To sum up the matter, we may say that the reduction of obesity must depend, in the main, upon a properly adapted diet and adequate exercise. The issue may be obscured by various devices, but the hard truth remains. For the overfat there is no royal road to leanness. Many strive for it, but fail entirely. Others succeed, but at such a cost of physical discomfort that they give up the fight, content to be fat and happy, rather than lean and miserable. A few succeed, and find the effort required well worth while.

Emaciation is most often the result of chronic disease of one or another type. Progressive loss of flesh should always call for careful investigation as to its cause. There remain, however, a certain number of individuals who persist more or less chronically below normal weight, yet without definite disease to account for the deficiency. In some families, as we all know, leanness is hereditary. Often these thin people are hearty eaters, and it is difficult to see the explanation of their meager weight. Time does not permit adequate discussion of the problem this evening. It is to be approached exactly as in obesity—as a problem in energy exchange, the amount of energy introduced as food, the amount expended in the various bodily activities. A disproportion exists between the two. To correct it we must pursue exactly the opposite policy to that we have just been discussing, i. e., the total amount of food must be notably increased, but more especially the carbohydrates and fats must be increased. Together with such modification of the diet, the bodily activity must be reduced till the point is reached at which accumulation of fat must begin. Once that point is found, it is usually possible by judicious increases in the diet to secure a progressive gain in weight. Here again we meet with individual peculiarities which are difficult to understand and overcome, but the fact remains that, in most cases of emaciation, attention to the relation of diet and exercise will lead to some definite improvement.

137 EAST SIXTIETH STREET.

## ON THE VALUE OF CAUTERIZATION BY THE HIGH FREQUENCY CURRENT IN CERTAIN CASES OF PROSTATIC OBSTRUCTION.

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Since Beer's first report (*Journal of the American Medical Association*, May 28, 1910) of the possibility of cauterizing tissue in a water medium, and *ipso facto* the successful treatment of bladder tumors by means of the high frequency

current, this therapy has become quickly popular in dealing with neoplasms of the bladder. Its ready acceptance and employment by so many surgeons during the past three years is a commentary not only on its efficiency but on the ease of application.

The idea of employing this method to get rid of obstructing tissue in certain instances of prostatic obstruction would seem to be rational, and, indeed, was suggested incidentally in Beer's preliminary report. The absence of reports of such cases in the current literature prompts me to record the following two cases, in which the method was easily applied, with very little discomfort to the patients and with excellent results.

CASE I. This man, forty-six years old, was first seen in January, 1912. He gave a history of moderate indulgence in alcohol, but denied venereal diseases. For over two years he had had frequency of urination with nocturnal enuresis, which conditions had become gradually worse. No blood had been noticed in the urine. For various reasons, he was under observation in Doctor Osgood's service at Bellevue Hospital for weeks before treatment was begun. By actual record, the patient voided every one to two hours, sometimes going three hours, the amount varying from two to eight ounces, the urine being always perfectly clear. Physical examination showed nothing abnormal but in the urinary system. The prostate palpated per rectum was only slightly enlarged; urethral instruments passed easily, but with always a decided jump just before entering the bladder. Residual urine, tested many times, varied from twenty-six to thirty-four ounces, and was never less than the former figure. Because of the failure to easily find cause for this large residual amount, four cystoscopic examinations were made. The mere passage of these instruments, and of large sounds on one occasion, did not decrease the amount of residual urine. The prostatic border, viewed from the bladder side, was slightly irregular, but presented no intravesical lobes. There seemed to be some collarette formation, but this was not marked, as the urethral orifices were situated at about the usual distance from the prostatic border. The bladder was markedly trabeculated, even on the anterior wall. A Wassermann reaction was reported negative. Careful examination revealed no evidence of spinal cord disease. Thus, by a process of exclusion, the diagnosis of probable contracture of the vesical neck was made.

As a preliminary, a group of long villi found attached to the roof of the posterior urethra were quickly burned away by means of the Oudin current. Then, with the same technic employed in cauterizing bladder papillomata, using insulated steel wire in an indirect vision catheterizing cystoscope, with about a one tenth inch spark in the muffler, the prostate at the posterior aspect of the vesical neck was attacked. The treatments were given at rather long intervals, to better note the effects. Four cauterizations, of about three minutes each, were done in three months. There was a more or less steady reduction in the amount of residual urine to nine ounces at the end of these four treatments. After one month it rose to thirteen, but remained constant for the next three weeks. At each cystoscopy, the site of the previous cauterization was clearly marked by the presence of gray and black necrotic tissue, such as is seen in cases of papillomata similarly treated, and a distinct depression in the prostate at this point was evident. On September 25th, and again on October 14th, in addition to making further excavation in the posterior region, I burned a small trough in the right anterior, and one in the left anterior aspect, carrying each about a half inch into the posterior urethra. After the first of these two visits, the residual urine dropped to five ounces, and three weeks after the second it was one and a half ounces. At this time the patient easily held his urine from five to six hours, and did not have to get up at night at all to urinate, or at most once. The wetting of the bed had ceased long before.

Unfortunately all efforts failed to locate this man subsequently. The treatments were all conducted without even local anesthesia, and gave only trifling discomfort to the

patient. They were all given in the office, the patient going about his regular work afterward. He occasionally reported red urine voided after treatments, but there was no bleeding of any consequence. In all, cauterization was done six times, and the total time of application of the Oudin current was about eighteen minutes.<sup>1</sup>

CASE II. This patient was sixty-five years old, had had frequency of urination for many months and enuresis every night for six months, and at the time of the first examination, October, 1912, was voiding from six to eight times at night and every one to two hours in the daytime, always with hesitation and some difficulty. The urine was clear and microscopically free from evidences of infection; the residual amount, measured on several occasions, varied from thirteen to fifteen ounces. The prostate, as shown by palpation by rectum, was not markedly enlarged. Cystoscopy showed a moderate sized, somewhat pedunculated median lobe, projecting far enough into the lumen of the bladder to hide both urethral orifices. The instrument entered the notch between the middle and right lateral lobes, but was easily manipulated over the middle lobe to the notch on its left. The rest of the prostatic border, as viewed through the cystoscope, was regular and apparently projected little into the bladder. The bladder wall everywhere was markedly trabeculated. The treatment of this case was similar to that employed in the other. The Oudin current was applied to the middle lobe on six different occasions; in all about nine and a half minutes. On close scrutiny of the records, I believe the last treatment, or perhaps the last two treatments, were unnecessary. The cautery action was not deep, but by repeated application the obstructing lobe gradually diminished in size. After three treatments the whole of the remaining portion of the lobe came within one field of the cystoscope and one urethral orifice could be seen by the right angle vision afforded; at this time the residual urine was two ounces. During the last treatment it was noted that the middle lobe no longer existed, and that its place was taken by a broad area of white slough. Three and five weeks after the last treatment the residual urine was respectively half an ounce and three quarters of an ounce. The symptoms steadily improved after the second application of the current. There was never any wetting of the bed after the third treatment, and twelve weeks after the last cauterization the patient reported that he never had to rise at night to urinate and could hold his urine in the day time as long as he ever did.

Summarizing, two cases of prostatic obstruction have been relieved symptomatically and objectively by high frequency current cauterization of the obstructing portion of the prostate. The residual urine in the case of contracture of the vesical neck was reduced from twenty-six ounces to one and a half; in the middle lobe case, from fourteen ounces to one half ounce. Both patients tolerated the cystoscopy so well that no anesthesia was used. The treatments were conducted in the office, did not interfere with the patient's work, and were not followed by pain or serious bleeding. Probably the D'Arsonval current would accomplish results in such cases more quickly, but one must be cautious to avoid too deep destruction of tissue. With the Oudin current, after these and other experiences, I should be willing to do more at each sitting; thus requiring fewer cystoscopies.

Although there are but two cases reported herewith, the patients received such complete relief that it does seem that cauterization by the high frequency current must be considered as a possible means of treatment in dealing with certain types of prostatic obstruction—not with the uniformly large prostates, but with those instances in which the

<sup>1</sup>On May 24, 1913, this patient voluntarily, and unexpectedly, appeared at my office. He reported that he never had to rise at night to urinate, and went for long periods without urinating in the daytime. At the office he voided twenty-two ounces at one time, and had but one and one half ounces of residual urine.



offending part is localized and at the vesical neck; cases which are not relieved by prostatectomy or which may be so relieved but do not require this operation. About the same types of obstructions, so successfully relieved by the Chetwood or the Young punch operations, may probably be efficiently treated by cauterization by the high frequency current—namely, constriction of the vesical neck, median bars or lobes, and single lobes projecting into the bladder or urethra from any other portion of the prostate.

While this therapy, as I have used it, requires repeated application and hence would be feasible chiefly for patients tolerating the cystoscope well, it does not involve a skin incision, has not caused subsequent hemorrhage of any consequence, does not interfere with work, and does not require residence in a hospital.

40 EAST FORTY-FIRST STREET.

## THE RELATION OF ELLIS ISLAND TO THE PUBLIC HEALTH.

By ALFRED C. REED, M. D.,  
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A discussion relating to the public health of necessity requires an initial survey of the significance of the term public health itself. The term definitely refers to the sum total of individual and personal health conditions prevailing throughout the country, and connotes the presence of undesirable personal and social elements which are inimical to the continuance or attainment of public health. The modern scientific study of public health thus finds open to it two fields of activity, the one concerned constructively with erecting a barrier of good health against the incursions of disease, and the other seeking to destroy the elements of disease by carrying war to the camp of its causes. Likewise the conditions influencing public health may be divided into two groups, domestic influences, such as endemic disease, social habits, racial, topographical, and climatic conditions, and foreign or external conditions, such as commerce, political relations and immigration.

Immigration ranks easily among the most important influences bearing on the public health. This relationship is many sided, intricately interwoven and inextricably entangled with numerous local or domestic conditions. Out of this great field certain phases of the relation of Ellis Island to the public health are selected for consideration because Ellis Island represents the vortex of the immigration movement. Of the million immigrants entering the United States yearly three fourths come through the gates of Ellis Island. Hence the problems of immigration centre at Ellis Island, and it is here that the question can best be studied and effectual control of the situation worked out.

The opinion is general that unsound aliens should be excluded. How to accomplish this most effectively and humanely is the central problem. The medical examination of alien immigrants devolves by law upon the Federal Public Health Service. Hence it is the duty of medical officers of this

service to study every opportunity for improving the efficiency of their inspection. They should be leaders in the application of the most scientific and recent methods and discoveries to this field. The Public Health Service has no function which is more important than this. The national quarantine system is necessary and valuable, but the most essential feature of quarantine practice is in reality the medical inspection of immigrants, even though the two functions are now separated. At present there is insufficient coordination in the inspection at the different stations around the national boundaries and in the island dependencies. This is a most important point and deserves attention. Its bearing on the situation at Ellis Island will appear later. This condition could be remedied by a different administrative policy, by making the surgeon general of the Public Health Service directly responsible under the law for the efficiency of the examination and by actually requiring a definite system and routine of examination, together with certain definite physical and mental standards to be followed and applied in the medical examination of immigrants at all stations. Ellis Island is peculiarly adapted to serve as a centre for investigating and testing methods of examination. It should be a school of instruction for examiners, a great laboratory for the study of the physical and mental fabric of races and the determination of the actual importance of variations from these normals. It is an axiom of medical science that instruction, research, and skilled clinical practice go hand in hand with the best interests of the patient. So is it here. Ellis Island can only serve the best interests of the future America which will have absorbed the immigrants of to-day and to-morrow, when with the clinical care of its sick and the skilled examination of its immigrants, it combines a strong research department devoted to investigation of diseases and disabilities of immigrants both mental and physical, and the advancement of those lines of science which here may find material presenting of particular value.

The entire subject is new. No appeal can be made to precedent and experience, because precedent and experience are now in the making. It is an untried and very technical department of public health conservation. There are no definite standards whereby the mental and physical fitness of an immigrant may be estimated. These must be worked out at Ellis Island. This is impossible at present for two reasons: The staff is too small and the administrative policy is passive, rather than aggressive, reactionary rather than progressive. These two reasons may have foundation in necessity, but nevertheless the facts stand. Popular recognition of the situation is growing, and with it popular demand that the responsibility be placed. It is not the immigrant aid societies, nor the foreign national societies, nor the exploiters of foreign labor, nor above all the steamship companies, which hold the controlling interest. It is the American people. And the interest of the American people requires that the medical staff at Ellis Island be sufficient in numbers, as it is now in ability, to do more effective work in certain definite directions, and that the administrative policy encourage and accomplish cer-

tain definite objects in the line of scientific medical investigation and the application of the best scientific methods in the examination of immigrants.

It is easy to illustrate the abundance of subjects at Ellis Island awaiting detailed investigation. Trachoma is proving itself a national health problem. A survey of 39,331 Indians last fall showed 22.7 per cent. to be trachomatous. At this rate there are 72,000 cases of trachoma among the American Indians. McMullen found that 12.5 per cent. of 4,000 mountaineers in Kentucky had trachoma, and believes a similar condition to obtain through the mountains of Virginia, Carolina and Tennessee. Foster found seven per cent. of 1,364 Alaskan Indians to have trachoma. The New York city board of health has recognized the undue prevalence of trachoma in school children and has instituted careful investigations to help solve the problem of its control. At Ellis Island there is no feature of the medical examination which is more thorough and painstaking, and where a higher efficiency ratio is maintained than in the examination for trachoma. Rare skill and judgment are exhibited in the detection and treatment of this condition. This excellent trachoma clinic, however, should furnish material for continued investigation directed toward elucidating the etiology, predisposing causes, and positive diagnosis of the disease, as well as the determination of its means of spreading, and of better methods of treatment, prevention, and specific cure. Here is a national health problem of menacing proportions, and the results obtained from the study of the disease at Ellis Island would have a wide field of application.

The hookworm has leaped into prominence, especially since the invaluable surveys and clinical activities of the Rockefeller Sanitary Commission. Here is another public health problem of great importance. Hookworm infection belts the earth in a zone sixty-six degrees wide, extending to thirty-six degrees, north latitude. It is found abundantly in eleven of our own southern States and to a lesser extent in several more. Many immigrants come from the infected zone. How can the infection be eradicated in the United States, no matter what the expenditure of time and money, if a constant stream of fresh infection is pouring in through Ellis Island and the other immigration stations? Manning found that 0.4 per cent. of the hospital patients he examined at Ellis Island harbored the hookworm. If a routine examination were made of a series of cases coming from the infected belt alone it would be justifiable to expect a far higher proportion. It is certain that a survey of the relative prevalence of hookworm in different races and nationalities at Ellis Island would give definite data on questions of incidence and effect, and would incidentally facilitate the cure or exclusion of all cases in immigrants, as the law now very properly requires. There are besides, most pertinent problems in connection with this disease for the solution of which Ellis Island affords advantages. Among these problems may be enumerated the question of the relation of hookworm infection to external and recognizable signs and symptoms, the question of the effect of the infection on the cardiac and other systems and on the susceptibility to other affections,

the question of the association with other parasites, and the question of the elaboration of better methods of diagnosis. A most important question is the determination of a safer and more efficient method of treatment, as also a study of the life cycle of the hookworm and its manner of infection.

It has been the endeavor by these two instances to illustrate the great importance for the national public health of instituting scientific clinical and laboratory study of the diseases of immigrants at Ellis Island. The results of such study would be available for application in two directions. In the first place, these results would be applicable in combating and preventing existent disease in this country. In the second place, they would facilitate and measure a vastly improved and more accurate system of immigrant inspection. These illustrations by no means exhaust the list.

It is recommended in the annual report of the Public Health Service for 1912 that there be established in New York a branch of the Hygienic Laboratory in Washington. This recommendation deserves the fullest support and should eventuate in an ample appropriation by Congress for this purpose. When it is remembered how significant a role the laboratory plays in modern medical diagnosis it is remarkable indeed that the medical staff at Ellis Island, undermanned as it is, should do as effective work as it does. Carriers of typhoid, cholera, hookworm, and other intestinal parasites may be in apparent health. Detection of these maladies rests solely on laboratory evidence. The diagnosis of syphilis without a blood reaction is often most uncertain. Blood cultures and serum reactions in this and other diseases are indispensable for good diagnostic work. Routine uranalysis, blood count, and ophthalmoscopic examination are considered essential in ordinary hospital and private clinical practice. They are even more essential in the examination of immigrants in the primary inspection at Ellis Island. No matter what the reasons for these deficiencies, they ought to be remedied. The Public Health Service is deputed by law to conduct this examination. The examiners should employ every resource of medical science in their work. The work is highly technical and extremely difficult—far more difficult in fact than can be realized by anyone who has not participated in it and experienced the peculiar handicaps and impediments incident to the medical examination at Ellis Island. This peculiar difficulty, as well as the unique responsibility devolving upon the medical examiners, require indeed that he bring to his assistance every needed art of medical and scientific practice, for even then he will no more than fulfil his function of guarding the public health from hostile influences entering in the stream of immigration. Whether the fault lies with Congress, with the administrative bureau, with the superior medical officers at Ellis Island, or with the medical staff, is not in the province of this paper to determine. The medical profession has a responsibility derived from its training, its function and its heritage, to require the very best possible protection of the public health at every strategic point. Hence its necessary interest in securing the very best medical inspection of immigrants at Ellis Island.

Turning to a somewhat different aspect of the medical examination at Ellis Island, there appears an opportunity and, in fact, a necessity for a careful tabulation of a large collection of data on both normal and abnormal individuals of the various immigrant races, with the object of determining practical standards of mental and physical normality for each race. Here again two attitudes are reasonable. We may set a standard of admission based on average normal American characteristics, drawn from studies of native born Americans of native parentage. On the other hand, we may establish an admission standard based on the average normal characteristics of each race seeking entrance. Space forbids discussion of this question further than to say that its settlement can not be arbitrary. Before a decision can be made it is requisite that we have data showing the actual normal standards of each immigrant race. If any importance at all is to be attached in the examination to racial standards of normality this data must be had. Certainly, therefore, it is necessary to make a careful study and record of the physical types, development and mental characteristics of a large number, preferably several thousand, of normal individuals of each immigrant race. From such records can be deduced fairly exact standards of physical and mental normality for each race. By comparison in the actual examination of each immigrant with this standard a more accurate judgment can be more quickly reached as to the relative normality of that individual. Two illustrations may be given of the applicability of such standards, and the facilitation thereby of the immigrant examination.

The immigration act of 1907 contains the excellent provision that certain conditions which are not specifically excluded, but which affect the ability of the immigrant to earn a living, should be certified as such by the medical examiner, and that such cases shall be considered by a board of special inquiry of the Department of Labor, to determine if admission is permissible. Under this class of certificates are many inscribed "lack of physical development corresponding to age claimed," "poor physique" and similar terms. In the fiscal year 1912, of a total of 17,067 certificates issued by the medical examiners at Ellis Island, for all causes, 941 were for lack of physical development, 444 for poor muscular development, and thirty-six for malnutrition. Especially among the Greeks, Macedonians, Armenians, Hebrews, and Italians is this question of relative physical development of importance. No racial standard of normal physical development is available, but such a standard can be obtained by taking a series of from one to ten thousand normal individuals of each race and recording their physical measurements, including height and weight. Such a standard need not be a fixed absolute rule of thumb. But it will afford a quick and accurate means of picking out the physically defective of each race, such as is not available at present, and by using it a larger proportion of the physically defective could be detected than by the present haphazard method, which is dependent on the personal equation and individual views of each examiner.

Our second illustration is taken from the much

debated question of the detection of mental defectiveness in immigrants. To a varying extent insanities, especially of the functional group, can be included here too. It is manifestly impossible, even with a good interpreter, to judge a Russian peasant, a Sicilian vine tender, a Dalmatian mountaineer, a Basque from the Pyrenees, an illiterate Irishman, a West Indian negro, by the same tests or to expect the same reaction to questions and to stimuli as with an American. The Croat, the Pole, the Lapp, the Bulgar, the Italian and every other race has its own peculiar heritage of racial customs, history, and environment. Each has a more or less distinctive and distinct manner of thought, standard of living, degree of mental alertness, and acquaintance with physical and spiritual phenomena. Heredity and environment of so different a nature have contributed in each case to the development of different personal and mental attributes.

The present vogue of the Binet-Simon measuring scale of intelligence does not justify it as a standard for estimating the mental development of immigrants. This scale was formulated from and for French school children. The principle involved in it, however, may be taken over with advantage in the elaboration of measuring scales of intelligence for each immigrant race, at least until a new and more satisfactory principle can be evolved. But the fact remains that a standard of mental normality for each race is the fundamental need. The lack of such a standard makes difficult the certification, and especially the detection, of many cases of mental defectiveness in immigrants. The availability of such standards would facilitate in some degree, too, the even more difficult detection of certain insanities. In considering the mental examination of immigrants, it is to be recalled that as a rule this examination must be through the medium of interpreters. The lack of enough good interpreters is now one of the great handicaps in the mental examination at Ellis Island. It is of lesser moment whether the interpreters are to be provided by the Department of Labor or by the Public Health Service, although the latter plan seems to have distinct advantages. The important question is that more interpreters are badly needed and debate as to which department should furnish them ought not to delay longer their being provided. A beginning has been made in the matter of relative normal standards of immigrant races at Ellis Island by Dr. M. K. Gwyn, who has conducted a series of anthropological measurements under the instruction of Doctor Hrdlicka of the Smithsonian Institution. This work is a valuable beginning and should be extended to other lines.

Improved methods and standards of examination which have been worked out at Ellis Island should be followed at all immigration stations, and the work in all should be made uniform and mutually consistent. The interests of the national public health require efficient exclusion of physically and mentally unsound immigrants. In addition to the considerations already discussed, the medical staff at Ellis Island is hampered in conducting such an examination by lack of sufficient men and lack of proper quarters and facilities for work. On ordinarily busy days the present quarters are over-



crowded, poorly ventilated, and inconveniently arranged. The mental examination, particularly, is handicapped by absence of quiet sanitary examining rooms and of facilities for observation of cases. In hot weather conditions are measurably worse. The medical division is poorly adapted in arrangement, facilities and sanitation for its functions. As a result of the lack of sufficient men and facilities, and possibly of proper direction, the efficiency of the examination at Ellis Island is apparently below that of Boston, Baltimore, and Philadelphia, which rank next to New York in amount of immigration. The class of immigrants at these four ports is fairly comparable, being drawn in general from the same localities and races. In fact, any difference in this respect is in favor of New York receiving a poorer class of immigrants than the other ports, in which case New York should show a higher proportion of certificates for physical and mental disability. In the tables appended, Class A1 includes idiocy, imbecility, feeble-mindedness, epilepsy, insanity, and tuberculosis. Class A2 includes loathsome and dangerous contagious diseases. Class B includes dis-

the ability and efficiency of the men engaged in the actual work at Ellis Island. Some of their handicaps have been pointed out. Compared with an indifferent inspection, their work is highly efficient; but compared with the best possible efficiency there is yet much to be desired. Certain faults exist and ought to be eradicated. The awakening public health sense of the country demands that the medical examination be the best attainable. This awakening is merely an instinctive national protective reflex, based in sound reason and operating to conserve American public health, both physical and mental, and that type of culture and ideals which is distinctively national.

358 WEST TWENTY-NINTH STREET.

## THE MENTAL MEASUREMENT OF FOUR HUNDRED JUVENILE DELINQUENTS BY THE BINET-SIMON SYSTEM.\*

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New York,

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This work has been done at the New York House of Refuge during the past six months. The Binet-Simon tests, as revised by them in 1908, have been used, and record cards employed like the ones devised and used by Goddard. The subjects were all males between the ages of eight and twenty years, inmates of the House of Refuge, where they had been committed for offenses ranging all the way from incorrigibility to felony.

The objects of this work might be grouped roughly into three divisions: First, to ascertain as nearly as possible how many of these boys, who have been arrested mentally for a variety of reasons, are merely backward, and how many are constitutionally defective. Second, to help determine what part the mental defects have played in the moral delinquency. Third, to find out, if we can, some of the reasons why many are subnormal mentally, and incidentally open the way for suggestions leading to prevention and cure. It was feared that some of these boys might prove to be indifferent or purposely misleading in their answers, and thus interfere with the validity of the tests; but we have been very much gratified with the spirit shown by the children in responding to the various tests put to them. The special teacher who has done most of the work, under my direction, has taken infinite pains and displayed a great deal of patience, encouraging them without helping them in their answers, and carefully refraining from correcting any of their errors.

The smaller boys were tested first, so as to prevent their posing the others, although I do not see how they could very well have done so, since they were all given the impression that their answers were correct, whether they were or not. As regards the value of the Binet-Simon tests, we must have some standard, and undoubtedly these tests are the best yet devised; Goddard, after examining 2,000

\*Read before the Bronx Borough Medical Society, February 12, 1913.

TABLE 1.  
Certificates in 10,000 examined.

	Total number examined.	A 1.	A 2.	B.	C.	Total.	Tuberculosis.	Insanity.
New York	726,040	3,33	12.06	147	72.6	235	0.2	9.8
Boston	59,893	5.17	10.70	73	383.1	421	1.1	8.1
Philadelphia	47,742	3.77	19.49	53	187.7	203	2.3	19.1
Baltimore	22,667	1.32	45.57	112	88.0	247	0.4	47.7

TABLE 2.

	A 1.	A 2.	B.	C.	Total.	Tuberculosis.	Insanity.
New York	3	3	1	4	11	1	22
Boston	5	4	3	1	13	4	16
Philadelphia	2	1	4	2	9	1	15
Baltimore	4	1	2	3	10	1	17

ease or defect affecting ability to earn a living. Class C includes minor disabilities. In Table 1 are stated the relative numbers certified in the respective classes at the four ports in 10,000 immigrants examined. Table 2 gives the relative standing of the four ports in number of certificates under each classification, as shown in Table 1. The last column gives the sum of these relative standings and places Philadelphia first, Boston second, Baltimore third and New York fourth.

Space has permitted consideration of but a few features of the importance of Ellis Island for the public health. While these features have been discussed critically, it has been the endeavor to make the criticism constructive. Simple iconoclasm defeats its own end. There are still many points to be taken up, as, for instance, the relation of Ellis Island to the New York State quarantine, the relation of immigration inspection in general to national quarantine, the medical inspection of alien cabin passengers on board ship and the supplementation of the Ellis Island examination by a rigorous enforcement of a deportation law in cases exhibiting certain diseases or defects after landing. On the other hand, much can, in simple justice, be said of

school children, finds them amazingly accurate. Judging from the results obtained in this series of tests, I believe that if properly made they will give one a fairly correct mental age in any average class of children. For those of you who are not familiar with the Binet-Simon system, I may explain that it consists of a series of questions and tests arranged in groups of five: one group for each age from three to thirteen years, increasing in difficulty as we go along from the simplest questions and memory tests up to puzzling problems and comparative definitions in the thirteen year group. This group seems to me to be too difficult, and there is too great a gap between it and the twelve year tests. One or two intervening groups less severe, making the thirteen year questions an adult test, as has been suggested elsewhere, would be more satisfactory. As it stands now, boys of from sixteen to nineteen years are at a disadvantage; if they pass the twelve year group successfully and fail on the thirteen year, they must fall from three to six years below normal, which is often an injustice. Some of the questions appear at first a little ambiguous, affording a rather wide latitude in the answers, for example: What would you do if you were going to catch a train and missed it? It is obviously the intention for the child to elect to do something sensible under the circumstances. Another question of this kind is, What would you do before taking part in some important undertaking? One observer criticises this question because some of his adult friends gave the following answers: "Take a bath," and "Transfer your property to your wife." It must be borne in mind that these tests were made for children, not for adults. I doubt if it would be possible to formulate any series of tests which would satisfactorily measure the adult. Children's minds are simple and the adults' too complex and specialized.

I have not placed much dependence on the cutting paper and reversed triangle tests; few of my friends or family have been able to answer them correctly, and good marks for the definitions contained in the thirteen year group have been deemed sufficient to place the boy in the normal class. Of the 150 normals and plus normals, thirty-five failed absolutely on the cutting paper test, and sixty-three on the reversed triangle problem; sixty did well enough to pass both these. Any series of tests for measuring native mental ability should depend as little as possible on educational advantages; this is aimed at in the Binet-Simon system, but it is obviously impossible to entirely eliminate such questions. Arithmetic is pretty well excluded, and should be, since it is a well known fact that quickness at arithmetic depends a good deal upon a certain genius for figures exhibited sometimes by persons otherwise subnormal mentally; still, the first test usually put to a suspected child either by a layman or untrained professional man is a question from the multiplication table or a request to count or change money. It must be remembered that these boys with whom we are dealing are many of them different from the average youth of normal and healthy tendencies; their mental machinery does not operate in quite the same way, owing to lack of education, vicious environment, and bad

or negative home training; the education they have received has been that of the street and street gang. As a class they are skilled in craft and deceit, the natural result of more or less continuous efforts to evade detection and punishment for playing hockey and many other more serious offenses against the law. This often passes for mental ability, when it is only a sort of surface cleverness resulting from the sharpening of a few faculties that have been concerned in the exercise of that strongest law of nature, self preservation. In arithmetic, more especially mental arithmetic, they compare favorably with average boys who have enjoyed as little schooling as they have. It may readily be seen why this is so, since many of them have been making a more or less precarious living in the streets selling newspapers, blacking boots and patronizing pawn shops; all of which have tended to sharpen their figuring capacity in a marked degree. In geography and in matters pertaining to time and location many of them are woefully deficient. In this connection it is interesting to note that over fifty failed to name the months of the year correctly, a question belonging to the ten year group. Anything of purely literary value has no place in their mental curriculum. Conditions under which most of these boys have been living have narrowed their mental horizon, and this, combined with a minimum of school education, renders them rather difficult subjects for any satisfactory mental test. Then, again, most of them are possessed of a very limited vocabulary containing specimens of slang incomprehensible to the average man, just as many rather common English words are beyond their comprehension. Eighty-nine were of foreign birth who came to this country having learned no English and little else, and 191 born of foreign parents who have lived all of their lives on the lower East Side, where little English is spoken. For this reason it has been necessary to consume considerable time and patience in making these tests. We must also remember that we are dealing with a greater or less degree of perversion in many of these boys; their environment and habits of life have warped their mental outlook and distorted their sense of proportion, and as we go down in the scale we find many without ideals or any sense of humor more subtle than that supplied by the Sunday comic supplement. This description by no means applies to our boys as a whole; many of them are bright, capable youngsters, more sinned against than sinning, who make good in after years. The physical condition of these children is quite up to the average; I have examined a great many of them and they have few physical abnormalities, stigmata of degeneracy, or signs of congenital lues. They resist attacks of acute illness as well if not better than other children of the same age. Twenty-six, or six per cent., are the subjects of nocturnal enuresis, or floaters, as they are called; which is a larger proportion than we would be likely to find among the same number of boys of average mentality. Of the 400 examined, there were twenty-eight foreign born Italians and thirty-eight born in this country of Italian parents; thirty-eight foreign born Hebrews, eighty-eight native born Hebrews of foreign born parents; forty-six Irish, two of them born

in Ireland; forty Americans; twenty-five Germans, all born here; sixty-one negroes; and the remainder is made up of eight miscellaneous nationalities.

The accompanying charts give the tabulated results. No. 1 is diagrammatic, and shows in blocks the relative number of norms and subnorms of different mental ages. In chart No. 2 the Arabic figures represent the mental and the Roman

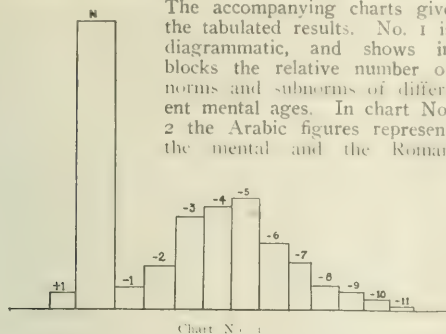


Chart No. 1

numerals the physical or chronological age. It will thus be seen that out of the 400, nine tested one year above normal, 141 at normal, ten, one year below; twenty, two years below; forty-four, three years below; forty-nine, four years below; fifty, five years below; thirty-three, six years below; twenty, seven years below; ten, eight years below;

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																																																																																																																																																																																	
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our truancy laws among the children of the lower classes. Cruel treatment, neglect, vicious habits, and environment play an important part in checking the mental growth in many of these children. Any one familiar with the history of some of these boys can readily understand why they are mentally dull and morally perverse. Many of these sub-norms could be brought up to standard by diligent treatment, if applied early enough; it is quite possible that under proper mental training and occupational teaching their mental age would catch up with the physical before maturity. It is important that mental defectives should be recognized and treated as such in our public schools, but it is even more important that the defectives in our institutions and reformatories should receive our attention, and particularly those among the street urchins who continually play truant from school, for it is this class of children who in the absence of home training, and living in a degrading environment, become unfit in later years. Vast numbers of defective children come into this country through Ellis Island every year. There ought to be more stringent laws or a more rigid enforcement of the existing ones, to prevent the influx of these undesirables. In order to give these boys the most intelligent help it is important that we should study their mental needs both as a whole and individually; we must realize that, generally speaking, there is something wrong with their mental as well as their moral equipment. Mental and moral weakness are closely associated, and proper education before these children reach the stage of incorrigibility would save many of them from becoming inmates of our reformatories and industrial schools for delinquents. Occupational schools are being started among the children of the lower East Side, and this is a step in the right direction; turning their minds and hands toward something useful and away from the education of the street, which leads to lawlessness and crime. We must try to change the juvenile delinquent's viewpoints, and straighten out his sense of proportion, so that he will realize how much more sensible it is to work and get paid for it, and be independent, than it is to work for the State at menial tasks for nothing, plus the deprivation of his liberty. Abstract moral teaching is of little use; elevating the mental standard raises the moral with it, and will accomplish reformation from which there will be no backsliding.

423 EAST 136TH STREET.

## HIGH PRESSURE DISEASE.

BY STEWART R. ROBERTS, S. M., M. D.,

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Associated disease of the arteries, kidneys, and heart is the pilot that puts out to sea with more adults than any other. The functional basis of cardiovascular renal disease is high blood pressure; the anatomical basis is sclerosis of the arterioles and arteries. It is a circulatory disease involving the vascular system of which the kidney is a part. Functionally the kidney is mainly a secreting gland, but structurally chiefly a vascular organ.

Association and progression are the two fundamental ideas involved in high pressure vascular renal disease. While it is true that at the time of examination a patient may have sclerosis without high pressure, at some time in his life he probably has had high pressure. High blood pressure is the force that holds the arteries, kidneys, and heart in this pathological association, though each of the three anatomical factors progresses along morbid avenues peculiar to itself alone. For example, in this associated progression the arteries may pass through the stages of increased pressure, sclerosis, calcification, weakness, and rupture; the kidney, through sclerosis of the arterioles, fibrosis, and renal atrophy; the heart, through increased work, high pressure hypertrophy (Reisman), valvular incompetency, myocardial degeneration, and dilatation.

This association of high pressure, arteriosclerosis, renal fibrosis, cardiac hypertrophy, with progression toward apoplexy, uremia, or cardiac failure, is a disease without a name. It is more than pressure and more than sclerosis. It is a disease, a varying morbid entity of many factors, but a morbid entity always. The name high pressure disease seems to me simple, exact, and inclusive. High pressure disease is capable of division into periods, especially when it is realized that the disease is a progression and not a stasis, an evolutionary degenerative process of increasing mechanical strain and tissue changes. There are three general periods corresponding in order both as to severity and to time: 1. Period of high pressure with or without sclerosis. 2. Period of strain, as evinced by vascular, renal, cardiac, nervous, respiratory, digestive, and weight symptoms. 3. Period of failure; a, vascular failure as apoplexy; b, cardiac failure, as myocardial disease and dilatation; c, renal failure, as uremic headache, stupor, and coma.

The damage is rarely equally distributed, and the clinical symptoms arise first from that organ where the process has been most rapid and the damage the greatest. Apoplexy may occur before there are any cardiac symptoms, though hypertrophy and a ringing aortic signify that the heart is an accomplice. Uremic headache, increasing stupor, frequent nycturia, increased quantities of urine of low weight, albumin in traces, and casts in abundance are the renal symptoms that signify that the kidneys have suffered most in the associated progress, though the vessels are hardly palpable, and the patient has had no cardiac symptoms. Increased amount of urine of low weight without albumin or casts, but with high blood pressure signifies increased renal tension, and usually there is low pthalein output. There may be high pressure without initial sclerosis or renal involvement, though perhaps it would be better to say without ascertainable cardiac, renal, or vascular changes. Continued high pressure will later involve the renal vascular system, by leading to arteriosclerosis and its evolution. The following cases illustrate different phases and symptoms of high pressure disease, and the progression to apoplexy, cardiac failure, and uremic states. The work of the heart can roughly be calculated by the formula: Pulse rate by systolic blood pressure equals work of heart. A normal rate of 72 with a normal pressure of 130 mm. under this formula (pulse rate

×systolic blood pressure work of heart) is 9,000 units. In each case of high pressure disease it is well to calculate this work before and after treatment, as it affords a double check on the condition of the patient and the results of treatment. These figures are given in each case. After the patient returns to his usual work the figure rises. The object of treatment is to keep it well within safety limits.

**CASE I.** High pressure cardiac hypertrophy with cerebral hemorrhage.—A business man of forty years, weight 190 pounds, had worked unceasingly for large stakes for four years. He had noticed occasional throbbing headache and ringing in left ear. One morning he awoke with paralysis of entire left face. On examination, arteries fairly palpable; apex beat heaving; slight cardiac hypertrophy; accentuated aortic. Blood pressure S. P. 225, D. P. 140, P. P. 85; urine low weight, negative, except for indican and increased twenty-four hour amount. On a régime of less work, more relaxation, purgation, and aconite, improvement in two months, with pressure reduced to 160 mm.; pulse 80. Before treatment, work of heart 20,000; after, 12,000. Normal, 9,000. No loss in weight.

**CASE II.** High pressure arteriosclerosis with threatened cardiac failure.—A painting contractor, fifty-eight years of age. After a day's work became emotional, cried, complained of a jumping heart, and feared death. After crying he was better. He had had similar attacks before, attended by collapse and weakness for a week after. These were probably vascular crises. Had complained of occipital neuralgia and throbbing head for four years. Pulse 76, with premature contraction every four to ten beats. Blood pressure S. P. 222, D. P. 120, P. P. 102. Occasional nycturia; urine negative except for a few casts and indican; renal test thirty-five per cent. Dyspnea on rapid walking; heart enlarged; marked mitral; lesser but accentuated aortic; arteries palpable, hard, and tortuous. After rest in bed for two weeks, bleeding, purgation, restricted diet, and aconite, pulse was 64, blood pressure S. P. 172, D. P. 114, P. P. 58. Work of heart 17,000 before treatment; 11,000 after. Normal, 9,000. Lost five pounds.

**CASE III.** High pressure kidney, uremic symptoms, transient hemiplegia.—A broker of sixty-two years, weight 205 pounds, had noticed for weeks a peculiar taste and breath, dizziness, sleepiness much of the time, and increasing nycturia. In February, one day after dinner, there suddenly developed a numbness and tingling over left side, from toes to hip and fingers to shoulder, with numbness, weakness, and a feeling of stupor and fullness in head. On examination, pulse 80, full and bounding. Blood pressure S. P. 250, D. P. 160, P. P. 90. Cardiac hypertrophy; a soft mitral, alternating with a blowing aortic. Heart six and one half inches transversely. General puffiness, uremic breath, dyspnea, nycturia from two to four times; albumin; indican; many casts. After rest in bed for one month, bleeding, restricted diet, purging, and aconite, pulse was 68; blood pressure S. P. 170, D. P. 140, P. P. 30; nycturia, once or twice. Before treatment, work of heart 21,000; after, 11,000. Normal, 9,000. Lost ten pounds.

High pressure and isolated arteriosclerosis are the first clinical symptoms of associated high pressure disease. Constriction of the arterioles may occur first in the kidney, in the splanchnic area, in the aorta or its branches above the diaphragm, or in the retina. The palpable arteries may be normal, and the vascular sclerosis exist in the hidden parts. Distinction must be made between high blood pressure without sclerosis, high blood pressure with sclerosis, and sclerosis without high pressure, as in the old and in the infirm. High pressure, palpable radials and temporals, cardiac hypertrophy, and accentuated aortic are the four signs of arteriosclerosis; but high pressure may long precede these signs. Arteriosclerosis is not a disease that lives unto itself, but is a systemic morbid process with the arterioles as the

chief criminal, and the kidneys and heart as accessories after the fact. The chief resistance to blood flow is in the arterioles, and there the process starts.

The high pressure may be initial: 1. The result of worry and mental strain, because in such times more adrenalin is poured into the blood, and thus high pressure is caused before sclerosis begins. 2. The result of overeating, with the spasmodic, periodic overflowing of the vast splanchnic area, with overwork of the heart and renal arterioles. 3. The result of a systemic circulatory toxine arising from a, intestinal putrefaction; b, endogenous tissue poisons; c, toxines from infection, as syphilis, typhoid fever, malaria, influenza. Here the later sclerosis is simple hypertrophy of the vessel wall due to its increased work.

The arteriosclerosis may be initial, due to arteritis, endarteritis, syphilis, physical work, toxines, overeating, mental strain, bad tubing, and age. Senile arteriosclerosis is the vascular disease of time. The high pressure is therefore necessary to force the blood through the arterioles, where the resistance is always greatest, and not in the capillary bed as was formerly taught. This is compensatory high pressure. The danger element is the pressure, not the sclerosis; the bore of the vessel and not its wall. The bore may be decreased by vascular spasm without sclerosis, or by actual sclerosis. The greater the decrease in the bore of the vessels, whether from spasm or sclerosis, the higher the pressure; the greater the renal atrophy and the cardiac hypertrophy. The danger is vessel rupture. Apoplexy is a vascular disease damaging and compressing nerve tissue, and it is surprising how many cases of high pressure disease are terminated by apoplexy.

Our ideas of interstitial nephritis need revision. I doubt if there is such a thing as primary nephritis. There is acute tubular and acute glomerulotubular, and chronic tubular nephritis. These are inflammations of the kidney. There is increasing evidence in favor of the degeneration, atrophy, and fibrosis of the kidney; which in the majority of cases is the result of sclerosis of the renal arterioles. This is a "renal atrophy of circulatory origin" (Barker), a degeneration, but not an inflammation; an inactivity atrophy, but not a nephritis. Of course, there is that large group of secondary contracted kidneys, with a process of fibrosis, the result of acute tubular and chronic tubular nephritis. This is a scar kidney, a renal cicatrix, a healing of a tubular nephritis. The renal arteriosclerosis is but a part of the systemic arteriosclerosis; the damage is to the glomeruli and causes the hyaline degeneration of great numbers, with atrophy of their connecting tubules. Arteriosclerotic renal atrophy gives, therefore, increased quantity of urine of low weight and casts, but little albumin; whereas a true nephritis gives a decreased quantity of urine of heavy weight, casts, and much albumin. In nephritis there is an inflammation of the kidney; in renal arteriosclerosis there is a degeneration, and the process is systemic and vascular, and not localized and inflammatory. We have regarded the kidney so long as a compound tubular gland that becomes either acutely or chronically inflamed that we need to remember that it is also a vascular organ that may yield to arterioscle-

rosis and its accompanying degenerations and atrophies. Instead of the term interstitial nephritis, I prefer the high pressure kidney, or the arterio-sclerotic kidney, of which there are probably two types: 1. Renal sclerosis primary, and secondary systemic high pressure sclerosis. 2. Systemic high pressure primary, and renal sclerosis secondary, to this general vascular degeneration. Renal arterio-sclerosis raises the pressure and involves the heart; systemic arteriosclerosis raises the pressure and involves the kidney in its vascular parts. The difference is in the starting point, not in the process.

Circulatory disturbance anywhere puts more work on the heart. High pressure causes heart strain. As sclerosis develops, the strain increases, high pressure hypertrophy results, and the cardiac reserve decreases. Moreover, in high pressure disease there is none too much reserve to draw upon, and hypertrophy is all the more rapid. In addition to the muscular overwork, there comes the valvular strain both upon the aortic valve that stands the diastolic strain, and the mitral valve that stands the systolic strain. The accentuated aortic, the accentuation with the aortic leak, premature contractions, arrhythmia, anginal pains, then these with the basic systolic murmur, then the heaving impulse and the mushy mitral, and dilatation is at hand. The strain of the mitral is to the strain of the aortic valve as the blow of the bat is to the lesser force with which the fly ball drops into the fielder's glove. Dropsy does not begin until the myocardium fails. As distinguished from primary organic disease, the damage to the heart in high pressure disease results from conditions outside the heart: in the one the heart is primarily diseased, in the other the heart is primarily overworked, and later diseased when the pull uphill has been too long or too heavy. The *vis a tergo* surrenders in time to the *vis a fronte*, and high pressure cardiac failure begins. The mechanical conditions of high pressure that in the beginning cause hypertrophy are able in time to cause dilatation. The condition of the myocardium, the extent of its hypertrophy, the position of the apex beat, as determined by palpation and percussion, are relatively more important for treatment and prognosis than auscultation, valvular accents, and murmurs. Area, rather than murmur, size rather than sound, is to be considered. Only when the vessels and kidneys withstand the strain does the heart thus progress to ultimate failure. Very slight hypertrophy may exist, and yet death come from apoplexy or uremia.

#### TREATMENT.

The treatment of high pressure disease is mainly directed toward a reduction of the high pressure if seen in the first or second period. If seen in the period of failure the treatment is directed to that organ evincing the most serious symptoms, and later to the high pressure cause. The disease is one of development: the pressure rose gradually, and the treatment must permit the pressure to fall gradually. It will rarely return to normal, certainly not at all if sclerosis has begun or the period of strain has come. The descent must be gradual to a permanent plateau above the normal. The following outline affords a basis for treatment.

1. The patient must relax into a state of repose of body and mind. Rest in bed from two weeks to a month aids one to realize that the "break" has come in his physical and mental activity, and that the tense exertion, anxiety, and worry must yield to more rest, calmness, and poise. Physically the bed is a vasodilator of no mean power.

2. Bleeding in selected cases, after a few days' rest in bed. Pressure should be taken before and after bleeding. A fall of not over fifty mm. is safe. The fall of the pressure in millimetres is the guide to the amount of blood to be withdrawn. The patient should remain in bed a week after the operation.

3. Mild catharsis frequently repeated, and not fierce catharsis, infrequently repeated.

4. In the puffy or plethoric patients a loss of from five to twenty pounds is desirable, and the diet is graded accordingly. Later a low grade egg, milk, cereal, and vegetable diet, decreased liquid and salt intake; with never a stuffy meal.

5. The tincture of aconite, in doses of from three to eight drops, once to thrice daily, is the only drug I know that will with safety and certainly lower blood pressure, and, what is more important, keep it lowered. The official tincture is now a ten per cent. solution, not the former strong and dangerous thirty-five per cent. one. It stimulates the vagus, and thus slows and steadies a straining and over-worked heart. It slows the blood current and lowers the blood pressure. It can be given for months to a patient without danger. It relieves the throbbing head and ringing ear of the high pressure patient, produces a sense of calmness, and aids sleep. I have never had any results from the nitrites, and but little from the iodides (except in syphilitic high pressure disease) in this warm southern climate, where the arterioles and capillaries are already climatically dilated. It may be different with Sir Lauder Brunton in cold England. Aconite steadies the heart, lessens its load, dilates the arterioles, flushes the kidneys with a physiological tension, calms the whole circulatory system, permanently and with safety. I have used it in the old and infirm, and in the young and strong.

6. Sodium chloride (ice cream salt) and calcium chloride baths. Later the Nauheim baths at home in certain cases.

CANDLER BUILDING.

### ANTRAL EMPYEMA, WITH THE PRESENTATION OF AN EFFICIENT CONSERVATIVE OPERATION FOR ITS CURE.\*

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The title of my paper indicates that the treatment to be outlined is adapted to those conditions where we have diagnosed pus in the maxillary sinus. It is not necessary in the primary stages of acute sinusitis. While many of these cases go on to the formation of pus, it is my experience that

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topical and general medical treatment early and vigorously pursued, will effect a cure.

Practically all cases of suppurative sinusitis are of dental or nasal origin. Naturally, one should strive to determine the origin in each case, and where an offending tooth is the source, it should receive proper dental treatment. This may be sufficient, but where the sinus has undergone inflammatory change some thorough method of drainage will be required. The older method of puncturing the antrum through the alveolar process is falling into deserved disrepute. The great likelihood of contamination through the mouth and the difficulty in cleansing and keeping the tract open are sufficient to condemn this procedure. In the cases of nasal origin Ballenger lays much stress on obstruction and deficiency of ventilation, due to anatomical conditions in the so called "vicious circle." This, with the presence of the exciting infection are, in his opinion, the causes of the majority of cases of suppurating sinusitis. This seems plausible, and yet we meet cases where the examination reveals a reasonable degree of separation of the middle turbinate from the septum and from the underlying outer wall of the nasal chamber. It is my belief that many of these cases do not depend so much on an anatomical



FIG. 1.—Curved cannula: actual size.

abnormality, as upon a neglected or carelessly treated case of acute sinusitis, following a neglected chronic rhinitis. An infection once planted in these cavities, with the means of drainage through the natural opening so poorly adapted to the purpose, the condition tends to last indefinitely. Former beliefs as to the frequency of bone necrosis in these cases is now known to be erroneous. Bone necrosis is not frequent, and when it is present it is my practice to give specific treatment a thorough trial, as many such cases are syphilitic in origin. The mucous membrane is not hopelessly diseased. It will regain almost if not quite a normal tone if drainage is complete and the constant irritation of retained pus is removed.

In considering the treatment of maxillary sinusitis, a knowledge of the anatomical relation of the parts is important. At birth, according to Leidy, the antrum is of considerable size, making its appearance at the middle of fetal life. It lies in the superior maxilla, above the alveolar process of the three molar teeth. Its base presents internally, forming a part of the outer wall of the nasal chamber. The natural opening of the antrum is in the upper part of the cavity and drains into the middle meatus. The location of this opening high in the antrum, however well it may be adapted to normal physiological function, is incapable of draining abnormal pathological fluids. The anterior wall of the antrum is generally convex in outline, and lies between the orbit and the alveolar process. The base and the anterior surface are the best adapted sites for operative interference.

I made passing mention of the operation through the alveolar process only to condemn it. It possesses no advantages not common to other operations, and does offer positive disadvantages. It is

an absolute essential, admitting of no exception, that an operation, to give uniformly good results, must provide for good drainage and cleansing of the parts, that shall continue till nature has effected a return to health of the diseased tissue. This is the reason why puncture of the antral wall and attempted cleansing by the daily introduction of a cannula by the physician fails in all save the mildest of cases. The patient will not appear for daily treatment, and the opening closes before the cure can be accomplished.

The Nail, Denker, Caldwell-Luc, and many other operations all provide for more or less extensive removal of the anterior or internal wall of the antrum, or both, leaving so large a resultant opening for drainage that Nature is incapable of readily closing it. These are radical operations which in a very large proportion of cases will effect a cure. The objections are that they incapacitate for some days; they are mutilating; they remove a large portion of the inferior turbinate and the external wall of the nasal chamber, leaving considerable cicatricial tissue, which is always objectionable; they practically convert the antral cavity into a part of the nasal chamber. It is evident that various physiological functions are, by the above methods, perverted or destroyed. Further, these operations, while they drain well, are inefficient as regards the cleansing that is so essential, requiring a degree of zeal and intelligence on the part of patients which many of them do not possess. Presuming a short stay in the hospital, the majority of them will not return to the physician's office for daily treatment. Should they have a Krause cannula or other instrument for douching the antrum at home, they are just as likely to introduce the instrument into some other part of the nasal chamber. This naturally delays the recovery. It is our business to regard the shortcomings of the patients and insure the best results with the least destruction of tissue and disturbance of function. Some seven or eight years ago I resolved to work along the lines indicated by Freeman in the use of his straight self retaining cannula. I punctured the antrum in the inferior meatus, and introduced a Freeman cannula. Within a few hours the chafing and pressure upon the septum gave so much distress that the immediate removal of the cannula was imperative. I then had made a curved cannula, which with some minor modifications, was like the one here shown. (Fig. 1.) My patient made a prompt and perfect recovery, though for years she had had a free purulent discharge, foul odor, and other typical symptoms of antral abscess. Two years afterward this patient, a dispensary case, came to my office perfectly well and bringing a thank offering of the products of the farm. My subsequent cases have given uniformly satisfactory results.

In describing this operation there are certain features I wish to make emphatic. It is not a mere puncture operation, with a curved trocar going through the thin wall of the inferior meatus. I use a straight trocar with a drillshaped point. The hole is cut, not punctured, in the inferior meatus on the floor of the nose, the aim being to reach as near as possible the bottom of the antral cavity. Drainage must be from the bottom of the well. It is almost impossible to open the thicker bone process at this

site with a curved trocar. If by chance it should give way there is grave danger of the uncontrolled force carrying the point into the opposite wall of the antrum. A curved trocar is more prone to slip and lacerate the mucous membrane. The straight trocar is introduced till its point is at the site for operation. The handle is then tilted sharply to the opposite side, and with moderate pressure and steady rotation the instrument is made to cut its way into the antrum. When through, the trocar is withdrawn from its cannula, and the pus will make its appearance. In the majority of cases I find it necessary to snip off just enough of the inferior turbinate to allow ready access to the site of operation.

The self retaining cannula has a collar at its inner end and one also beyond the curve, of the same diameter as the trocar cannula. These prevent the cannula from either slipping into or coming out of the antral cavity. The nozzle end of the cannula is grasped with a hemostat and the instrument readily introduced. I tie a small silk loop just beyond the nozzle enlargement of the cannula. The nozzle aperture will admit the tip of an all rubber ear syringe. Standing before a mirror, the patient catches the silk loop with a hook or forceps to steady the cannula, and introduces the syringe tip and without any required skill flushes and cleanses the antrum. When properly placed, the cannula rests comfortably on the floor of the nose just within the vestibule. It is not noticeable to ordinary inspection, but tilting the tip of the nose brings it into view. The patient considers it no hardship to douche the antrum once daily. He comes to my office once or twice weekly for inspection and the correction of any incidental inconveniences that may arise, and for such additional topical applications as conditions indicate. The cannula is retained *in situ* till the abnormal secretion has disappeared, and the patient looks and feels well. A month's time in my experience has effected this result in very severe cases.

As regard medicines used, I prefer a sodium bicarbonate solution for home flushing; in my office a weak liquor cresolis compositus solution, and, occasionally, applications of argyrol or weak zinc sulphate solutions.

I have confined this paper to the consideration of the treatment of pus in the antrum. It is well known that old cases of maxillary sinusitis are frequently associated with involvement of the anterior ethmoidal and even more posterior cells. One of my recent cases showed involvement of the ethmoidal cells, in addition to the antral trouble, and yet the discharge eventually disappeared. The great likelihood of communication between these cells and the gravitation of the pus to the lower antral cell offers a possible explanation and is worthy of consideration. I am convinced that the operation should be performed as a preliminary procedure in maxillary sinusitis when the anterior and posterior ethmoidal, or even the sphenoidal sinuses, are also implicated. The operation in the antrum may cure the deeper trouble. If it does not the nasal condition will be greatly improved and so give better promise of cure under subsequent radical interference. With the removal of the cannula the small

opening usually closes. Thus a practically ideal cure is accomplished with no deformity and no disturbance of normal function.

2130 NORTH NINETEENTH STREET.

### FOOD FOR BABIES.\*

By M. ALICE ASSERSON, M. D.,  
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Never in the history of the world has there been so much done for babies as is now being done by all civilized nations, for most of these nations are alive to the fact that in the past there has been a needless sacrifice and that now something must be done in the way of "conservation of the babies." For many years France has had to face the situation of a decreasing birth rate. Babies are at a premium there and must be saved at any cost. There are consequently in France many schemes on foot for the reduction of infant mortality. In connection with many of the large manufacturing plants and municipal workshops where women are employed, a *crèche*, or day nursery, is established. The babies are cared for by nurses and the mothers are excused from their work at definite and regular hours in order to nurse their infants, some of the employers even going so far as to deposit 100 francs in the bank for any baby which is breast fed up to the weaning age. In some of the German cities still another plan is adopted. If a working mother is able to prove to the government that she will nurse her baby and give it the proper care at home, she is paid a sufficient wage to make it worth her while to stay at home during the breast feeding period. These methods show us that there is a keen realization in these two countries not only of the importance of caring for the babies, but of caring for them as Nature intended them to be cared for. In this conservation of infant life the object is not only to save the babies, but to give them every opportunity to become useful, healthy individuals, with normal minds and vigorous bodies, to fit them for the struggle for existence. The effects of bad feeding and bad food may last through life, giving the individual a handicap which is an injustice to him. When one considers that the largest part of infant mortality in the first year is due to disorders of nutrition one realizes the importance of this subject of food for babies.

The normal food of the baby in its first year is breast milk, and any other food is abnormal. A large proportion of the babies of to-day are not breast fed. One hears many reasons and theories to account for this state of affairs. Some are pessimistic and consider that with the wear and tear of modern life the normal function of the breast is rapidly disappearing. While others are more optimistic and consider that, although breast feeding is now at a low ebb, in the course of one or two more generations conditions will improve, owing to the fact that young people are more athletic and that more attention is paid to general hygiene than

\*Prepared at the request of the Public Health Education Committee of the Medical Society of the County of New York and read under its auspices at the New York Academy of Medicine, March 5, 1913.

formerly. Certainly it seems as if these improved conditions should give us healthy mothers, with normal functions. However, to-day, it is true, that the bottle fed babies are far too numerous. It is rare to find a woman who *will* not nurse her baby, but it is not rare to find one who cannot. This is a condition prevailing among the wealthy classes, as well as among the poor. Among the latter, however, there are many who must forego this maternal duty in order to support themselves and their families. The responsibility of parents in the matter of rearing children is a tremendous one, as heredity and environment play such important rôles in the development, mentally and physically, of the child. For lack of time the question of environment is the only one we shall be able to consider, as this is the one which concerns us most in the child's physical development.

The human body has its starting point in a single cell, which after impregnation divides and subdivides until the human form results. The vitality of the organism depends upon the vitality of each individual cell, and as these receive their nourishment from the mother's blood before birth one realizes the important part the health of the mother must play in the future welfare of the child. Consequently, when a woman becomes pregnant her first thought must be directed toward her own health and well being. There are many important factors in her daily life which should be considered. Her disposition should be calm, thoughtful, and placid, and her diet must be sufficient in quantity and varied to include meat, fish, vegetables, cereals, and fruits. Constipation is often a very obstinate condition in pregnancy. As there are waste products of both the mother and the fetus to be disposed of, one may readily understand the importance of at least one daily evacuation of the bowels. If this cannot be obtained by laxative foods drugs must be resorted to, under the direction of a physician. Frequent warm baths and six or eight glasses of water daily will keep the skin and kidneys active, while moderate exercise in the open air will help all the functions of the body. Nursing will be facilitated if some attention is paid to the nipples during pregnancy. It is well to begin a few weeks before the expected confinement to bathe them with a boric acid solution and to make applications of some astringent lubricant. If they are inclined to be flat or depressed they should be drawn out once or twice daily.

Stanley Hall aptly says: "A man is what he eats and what he does with it through all the intricate formulæ of physiological chemistry." I might add that this is particularly true in the first two years of a child's life, when the question of nutrition is one of extreme importance. Mistakes at this time are serious. In the adult only enough food is needed to repair waste, while in the child enough is needed to repair waste and build up new tissue also, as there is a tremendous growth in these first two years of the skeleton, visceral organs, nervous system, and brain, the latter organ doubling in weight and increasing in complexity. Before birth the baby is nourished by the mother's blood; after birth by milk secreted in the mother's breast—the ideal food for the baby.

The composition of this food is proteid, fat, sugar, mineral salts, and water in definite proportions, subject to slight variations—the proteid in the proportion of 1.5 per cent., the fat four per cent., sugar seven per cent., mineral salts two per cent., water 87.2 per cent. The proteid is in suspension, the fat in the form of minute globules, in a state of emulsion, and the sugar in solution. Practically all food has the same composition, the main difference being one of form and proportions.

As the baby grows and its digestive organs develop, the mother's milk changes to meet the demands and requirements of this growth, thus preparing the way for the more solid food of the second year. At birth the digestive organs of the infant differ anatomically and physiologically from those of the adult, the baby having no teeth and its gastric juice differing in strength from the adult gastric secretion.

After the food has entered the stomach it must be changed chemically to be of use. The liquid milk is converted by the action of the gastric juice into a semisolid mass of finely divided curds, the proteid being broken down into albumoses and peptones. The contents of the stomach then pass through the lower opening or pylorus, into the small intestine, where still greater changes take place by the digestion of the fat and the sugar, the fat being emulsified and the sugar broken down into dextrose and levulose. After the food has been digested the products of digestion pass into the blood, where they are carried by means of the blood vessels to all the cells of the body. These cells, having a selective power, take up the substances required for their individual and peculiar needs. The fat and sugar over and above what the cells need are stored up in the body, as a reserve fund for use in case of illness, the sugar being stored in the liver as glycogen and the fat under the skin and about the organs as fat, while the proteid excess is excreted in the urine. Nature has given each food element certain definite work to do, the fat and sugar supplying heat and furnishing living force, the proteid building up growing tissue and repairing the work of the body cells, and water supplying a medium for the solution and suspension of the food elements.

After the birth of the baby the mother should have a rest of six or eight hours, when the baby may be put to the breast. The first secretion of the breast is a substance called colostrum, which is digested with ease, as it forms no curds, its proteid is soluble and its sugar dextrose. It serves its purpose as a laxative and prepares the digestive tract for its regular food. About the third day milk is secreted and from this time until the end of the sixth or eighth week regular, two or two and a half hour intervals of nursing should be established, with one or two night feedings. After the eighth week, three hour nursing intervals, with no night feeding, may be established, to be continued until the end of the first year. Boiled water without sugar should be given three or four times during the day, between the nursing periods. Regularity of feeding is a stumbling block with many mothers, for the reason that babies sleep a great deal in early life and few mothers realize the importance of



waking them at their regular nursing periods. If this plan is adopted the baby soon learns to regulate himself, and will awaken with clocklike regularity for his meals.

Irregular nursing is one of the most frequent causes of indigestion in the breast fed infant. If the interval is too short the remains of the previous meal may still be present in the stomach; if it is too long the baby nurses greedily and overloads the stomach. There are also changes in the milk which are harmful to the child's digestion. If the interval is too short the milk is reduced in quantity and the fat increased; resulting in vomiting or diarrhea. If, on the other hand, the interval is too long, the milk is increased in quantity and decreased in solids, with the result that the baby is not properly nourished. When regularity is observed the food has about the same composition and is digested with comfort. The majority of breast fed babies thrive when managed with intelligence. They are apt to fall asleep while nursing, and are happy and contented. The muscles are firm, the skin clear, and the eyes bright. They have two or three yellow stools daily and increase in weight from four to six ounces a week in the first six months, and after that, from two to four ounces a week. A normal baby usually doubles his weight in six months and triples it in one year. If there is not sufficient milk, the baby nurses for a longer period than twenty minutes (usually from one half to three quarters of an hour), cries when taken from the breast or sometimes cries before his next feeding is due. If the condition is not recognized the baby loses weight, sleeps poorly, and becomes listless, pale, and anemic.

It is not always smooth sailing with a breast fed baby. If there is trouble, a physician should be consulted before making any change in the food, for often after modifying slight irregularities in the mother's daily life the trouble disappears. Sometimes in the first few weeks the breast milk disagrees with the baby; this may be due to one of many causes. If the mother has had a difficult labor it may take several weeks before she has overcome its effects sufficiently to produce normal milk, or from the inactive life during her convalescence certain elements in her milk, such as proteid or fat, may be too abundant for the baby's digestion. These difficulties usually disappear as the mother assumes her regular duties and leads her usual life of activity. If, however, colic, vomiting, and other signs of indigestion persist the cause may be found in the mother's indiscretions. Colic with constipated stools may be an indication of too high a proportion of proteid in the milk, possibly caused by too much meat, excessive tea drinking, or too little exercise on the part of the mother, with resulting constipation. When such irregularities are corrected these signs of indigestion may cease. Vomiting may be due to one of many causes. Regurgitation of food, or vomiting immediately after nursing, may be due to too frequent or too rapid nursing, with the ingestion of too much food, or it may be due to handling the baby too soon after his feeding; while the vomiting of sour smelling curdled milk a half hour or one hour after nursing may

be an indication of excessive fat. This disturbing element may be reduced by a diet (for the mother) consisting principally of farinaceous or vegetable food, and by diluting the milk by giving the baby half an ounce or one ounce of boiled water or barley water immediately before nursing. When a mother understands how much depends upon the routine of her daily life and how easily the baby's food is disturbed by irregularities on her part, she will pay strict attention to every detail. Outdoor exercise must be taken every day and her diet should consist of a plentiful supply of digestible food, with enough variety to stimulate her appetite.

If there are certain foods which are not digested by her, whether they belong in the category of digestible foods or not, she should avoid them. Liquids, such as milk and cacao, should be taken between meals and at bedtime, if the milk supply is inclined to be scanty. Cornmeal gruel may be added with benefit to the diet. Tea and coffee are best taken in moderation, while beer and other alcoholic drinks are contraindicated. It should be the object of the family to protect the mother from all disturbing conditions; her life should be as care-free as possible, as her milk is often very much affected by worry, anxiety, grief, or anger; the child suffering in consequence from acute indigestion, vomiting, undigested stools, and, at times, high fever accompanied by convulsions.

Menstruation occurring during the nursing period is rarely disturbing enough to make it necessary to wean the baby. It may lessen the flow of milk and very occasionally may cause attacks of indigestion. These, if severe, may be avoided by feeding from the bottle for a day or two. If, however, pregnancy should intervene it is usual to wean the baby, as the milk then becomes poor in fat and the strain too great for the average woman. However, weaning may be deferred a few weeks if the pregnancy occur in midsummer and the baby is not strong. In cases of acute febrile disease of short duration the baby may be taken from the breast during the period of illness and nursed again upon the recovery of the mother. If the mother is the victim of chronic disease, such as tuberculosis, nephritis, or heart disease, nursing should be forbidden.

It is best to begin to wean the baby about the ninth or tenth month, as the stomach of the infant is then ready to digest stronger food and the mother's milk is beginning to lose its nutritive qualities. Many cases of rhachitis, anemia, and malnutrition are due to prolonged nursing.

#### ARTIFICIAL FEEDING.

When it is not possible to give the baby his normal food we are forced to turn to artificial feeding. Here the responsibility of the mother toward her child is shifted somewhat to the physician's shoulders, for it is now the physician's duty to prescribe for the child, as a substitute, a food which will not only be retained and cause increase in weight, but one which will build up a healthy body with disease resisting tissues. It is conceded by the best authorities that fresh cow's milk is the best substitute, as it

has the same form and the same ingredients, though, unfortunately, also certain differences which must be overcome, if possible. The important problem presents itself of putting the milk of one species into the stomach of a being of different species with a different digestive apparatus. Cow's milk, with its high percentage of proteid, was intended for the rapidly growing calf, while mother's milk was intended for the delicate digestive apparatus of the baby, which Nature prepared for a long period of helplessness attended by a tremendous growth of brain and nervous system by the addition of a much larger proportion of lecithin than in cow's milk. Another important difference, but one which we can overcome in a measure is that of proportions; cow's milk having three times as much proteid and only a little more than one half as much sugar; though by dilution with water and cereal water and the addition of sugar and cream the quantitative differences may be adjusted. This sounds very simple, but as a matter of fact it brings us up against another problem. The proteid of cow's milk is difficult for the baby to digest. It is the most important element in the food, as it is the tissue building one; yet in the early months we must dilute it below that of mother's milk before the baby can digest it. Consequently, the bottle fed baby in its early months may be receiving only one half as much of this important element as the breast fed baby of the same age. One has also to consider that mother's milk is always fresh and sterile, while cow's milk is usually twenty-four hours old, and more or less contaminated with dirt and germs.

This brings us to a very important factor in artificial feeding—cleanliness, which is the keynote to any successful feeding. It is absolutely essential that the milk should be clean. The stable, cows, milkers, and receptacles, must be clean, and in order that the bacteria which are necessarily contained in the milk will have little chance to propagate, the milk must be quickly cooled to 40° F. and kept at a point below this temperature until ready for use. Other important essentials are: The milk must be fresh; must contain no preservative; it must not be skimmed; the cows supplying it must be healthy and the milk free from disease; mixed milk from a herd is preferable to one cow's milk, as this varies less from day to day. After the milk is received in the homes all the good may be undone by careless handling. The refrigerator must be immaculate, with milk compartments near the ice, so that the temperature of 40° F. or less may be maintained. The baby's milk should be grade A or certified milk, which answers to requirements of freshness and cleanliness, with a bacteria count of less than 30,000 to a cubic centimetre.

In selecting bottles, those of cylindrical shape are easier to keep clean than the flat shape. After use they should be rinsed in cold water and allowed to stand in borax water, and before they are used again they should be washed in hot soapsuds water and boiled for ten minutes. Nipples must be of such a shape that they may be easily turned inside

out. Once a day this should be done, and they should then be scrubbed with soap and water. After use they should be washed first in cold water, then in hot, and then kept in borax water until needed.

The baby's food must be prepared carefully by an intelligent person, the hand and utensils scrupulously clean. In the early weeks many babies have less trouble in digesting milk with boiled water. The cereal dilutions which should be begun about the third month are advantageous in producing a flocculent curd and in giving a slight increase in the proteid element. In large cities, when certified milk cannot be obtained, it may be safe to pasteurize the milk, in order to destroy any pathogenic bacteria; in spite of the fact that the process renders the milk slightly more difficult to digest and causes constipation. The proprietary foods have their advantages and disadvantages. There are some babies who cannot digest the weakest preparations of cow's milk, and, here, by using temporarily some one of the proprietary foods, rich in sugar, the digestive disturbances may be overcome with the result that milk may be tolerated and digested later, thus tiding them over a difficulty. In traveling, the proprietary foods are of great service—they are easily carried and easily prepared and will keep for some days without ice; while the baby is saved from many changes in the milk. The chief disadvantage is that they do not contain the nutritive elements as they exist in breast milk, being usually deficient in fat and proteid and too rich in sugar and starch. If they are used without milk the results are bad, the baby becoming the victim of rickets or extreme malnutrition. There may be a steady gain in weight, due to the large amount of sugar digested, but the resistance to disease is very much lessened, owing to a deficiency in the most important food element, proteid.

For generations past mothers have had a dread and at times a superstitious fear of the "second summer." The second year marks a period of rapid growth and the appearance of most of the teeth, but the danger lies not so much in these two factors as in the carelessness of parents. There is a temptation now to give a taste of all varieties of food, thus spoiling the child's appetite for simple food. Many cases of chronic indigestion have their starting point at this time when a child is given a greater variety of food than he should have and allowed to eat between meals, to eat rapidly without proper mastication, and to indulge freely in sweets.

I feel that I have already taken a great deal of time, but my paper would scarcely be complete if I did not tell you even briefly what New York city is doing for food for babies. In the summer of 1911 the New York Milk Committee demonstrated in the city the need of pure milk for babies. The following year the Board of Health established fifty-five milk stations in the most crowded districts of Manhattan, Brooklyn, Queens, Richmond, and Bronx, where each week there are in attendance about 5,000 mothers with their babies, to whom about 37,000 quarts of grade A milk is sold. Each station has a trained nurse, assistant

nurse, and dispenser in daily attendance. During the winter months physicians hold clinics in each station twice a week, and in the summer months every day, to instruct the mothers in regard to the feeding and care of their babies. The nurses and their assistants follow up each case in the home, to see that the doctor's instructions are carried out and to further instruct the mothers in regard to the preparation of the milk and general hygiene in the home. There are in the city several other organizations, as well as some private individuals, engaged in this same work. Thus, the New York District Kitchen Association maintains eight stations, the Brooklyn Children's Aid Society fourteen, and Nathan Straus eight. Since such a large number of milk stations have been in existence there has been a decided drop in infant mortality, especially during the summer months, and we are hoping for still greater results in the future. Important as the lessened infant mortality for the past two years is, one cannot justly estimate the even greater importance of the lessened infant morbidity brought about. This can only be estimated in the years to come, when we trust that the better health and better development of the children in New York will prove the importance of right food for babies.

The following statistics obtained from the head of the division of child hygiene of the Department of Health may be of interest to you. In 1907, before this division was established, the death rate of young babies in New York city was 144 in 1,000; the following year the rate fell to 128 in 1,000; in 1910 the rate was 125 in 1,000. In 1911, when the New York Milk Committee instituted its campaign, the death rate fell to 112 in 1,000, and last year, after the establishment of the board of health milk stations, the rate fell as low as 105 in 1,000—a gain of thirty-nine per cent. in infant mortality.

40 WEST NINETY-SIXTH STREET.

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## WOUNDS OF THE PERICARDIUM AND HEART.

By GRAY G. HOLLADAY, M. D.,  
Portsmouth, Va.

The rarity of wounds of the heart and pericardium terminating in recovery is my only excuse for reporting the three following cases:

CASE I. On September 25, 1903, I was called at 7:30 p. m. to see a man (F. B.) whom I was told, had been stabbed in the breast with a knife. Upon arriving, I obtained the following history: A short time before the stabbing he had had some difficulty with a fellow laborer, but on that occasion the two had been separated. Later as he was bending over in the act of lifting a cross tie, the knife was plunged into his breast from below and from right to left. He fell immediately, and was seized with a vomiting spell. He was so weak that it was thought that he would die at once, and his friends did not dare carry him home, although his house was not a great distance from where the stabbing occurred. However, later he rallied somewhat, and was then carried home, where I found him. The patient, aged nineteen years, was thin and short but muscular. His pulse was very irregular, weak, and intermittent; at times running as high as 120 beats a minute, at others as low as 78, or thereabouts.

His countenance was drawn and haggard, his face bathed in a cold, clammy sweat, his respirations about normal. His voice was very weak and low; in fact, his whole condition was seemingly desperate, and it was with difficulty that he could talk at all. Upon examining his chest I found a very small, clean cut wound over the sternum, on a line with the nipples and to the left of the median line. Upon closer examination I found at the bottom of the wound a piece of metal firmly imbedded in the sternum, and just within its outer (left) border, slightly below the surface of the bone. This, after much difficulty, I extracted, and found it to be a portion of the blade of an ordinary pocket knife, between one and one quarter and one and one half inches in length. It had entered the bone from right to left.

The next day the man's condition was somewhat better, his pulse stronger and far less irritable, but he was still very weak in every way, and his condition was precarious. On percussing his chest I found the area of cardiac dullness very much greater than normal. He complained very greatly of a severe cutting pain in his chest, saying that "to take a long breath nearly kills me." For several days he continued in about the same condition, except that the area of cardiac dullness increased, and gradually a pericarditis and a pleuritis developed with their usual signs and symptoms. He gradually improved and when I saw him on the morning of October 3d, I thought him much better, as all his symptoms had improved. On that afternoon I was sent for in a great hurry, the messenger telling me the patient was dying. On arriving I found him in a state of collapse, apparently from hemorrhage. The area of cardiac dullness, which had decreased to nearly normal, had again increased and continued to increase, his pulse was very rapid and weak but regular. His condition was caused by sitting up suddenly in bed. He rallied somewhat but for some time was in a desperate condition. On November 20th he was able to be up. (Case published in *American Medicine*, September 10, 1904.)

CASE II. This man, A. G., after shooting his wife, turned his 32 calibre revolver on himself and, after firing it, fell across a sofa, seemingly dying. I reached him perhaps half hour later, and found him in the same condition. He was a large and powerful man, but at that time was unconscious, without perceptible pulse, and with very feeble and infrequent respirations, "rattling" in his throat, and bloody saliva flowing from his mouth. Upon examining his chest I found that the bullet had entered between the sternum and left nipple, breaking the fourth rib. His condition was so bad that I remained with him for an hour and, during that time, I could feel, once or twice, a faint pulse at his wrist; but at the end of the hour his pulse was fairly good, having responded to stimulants, and his respiration had markedly improved. He was now removed to the hospital and at once put on the operating table. After he had received a few whiffs of ether, with the assistance of Dr. C. H. Barlow I opened his chest. The left pleural cavity was filled with blood, and a hole was found in the pericardium, but the bullet had just missed his heart, passing through his left lung and burying itself in the muscles of the back. Owing to the muzzle of the pistol having been pressed against his person, many grains of burned and unburned powder had been blown into his pleural cavity. I picked some grains off the pericardium and some off the surface of the lung; but some had been carried well into the lung substance.

The hole in the pericardium was sewed up without drainage; the pleural cavity was washed out and drained; and the man put to bed in fair condition. After a period of gradual improvement he became worse, and an abscess of the lung was diagnosed. A rib was resected under cocaine, and the abscess found and drained. After this he continued to improve, but some weeks later, when his temperature, pulse, and respirations were normal he refused to stay longer in the hospital and went home, although the dangers of doing so were pointed out to him. When he left there was still a slight serous discharge from his chest. From what I can learn of his subsequent history, after he went home he had no attention, took no care of the drainage wound, nor of himself; the discharge later became purulent, and he died in about six months. I believe that the abscess in this case was caused entirely by the powder which had been carried into the lung. After the operation the patient never had any trouble which



could be referred to his heart, and I am convinced that had he remained in the hospital where he could have received proper attention, until the discharge had entirely ceased, he would be living to-day.

CASE III. This patient (L. J.) was shot in a fight about 4 p. m. on February 17, 1913. He was brought to the hospital in the patrol wagon, but upon reaching there the policeman in charge refused to take him out of the wagon for fear he would die on the stretcher. When I saw him, at 5 p. m., I found a well developed man, thirty-three years of age, totally unconscious, with good respiratory action but, so far as I could detect, absolutely no pulse, and, even with the stethoscope, his heart sounds could be but faintly heard. Upon examining him I found the area of cardiac dulness increased and a bullet hole two and a half inches to the right of his left nipple and on a line with it, another bullet hole in his left forearm, with the bullet easily felt under the skin. Stimulants were given, and in response there was shortly some return of the pulse at the wrist. He was then put on the operating table, his chest sterilized with tincture of iodine and after Miss Leslie, the superintendent, had given a small amount of ether, with the assistance of Dr. R. S. Carey I opened his chest and found that very free hemorrhage had taken place and was still going on. The pericardium was much distended, and blood was coming through a large hole in it. This opening was rapidly enlarged and a hole about five eighths of an inch was found in the wall of the right ventricle opening its cavity; also a large artery on the surface of the heart was spurting. The hole in the ventricle was sutured with catgut and the artery ligated by passing a suture around it. The pericardium was sutured with catgut, except at its lower end, and a small gauze drain was inserted. The pleural cavity was also drained. The man's condition improved markedly while he was on the table, and when he was put to bed he was in very fair shape. The next day he was doing nicely and the pericardial drain was removed; the other drain was left in for some days. Later pneumonia developed of the right lung, but he entirely recovered and went back to work late in April. July 12th the man was still at work and perfectly well.

512 MIDDLE STREET.

## ACUTE MERCURY POISONING.

By JACOB MUNTER LOBSENZ, M. D.,  
New York.

Many cases of acute corrosive sublimate poisoning have occurred due to swallowing of the drug, accidentally or with suicidal intent.

Death may occur in a short time from collapse, or, as is more common, from three days to four weeks after ingestion of the poison, in consequence of degeneration of parenchymatous organs, ulceration of the alimentary tract, and the resulting exhaustion. Yet recovery takes place in many cases, even after moderate degeneration. In those cases that run along for a week or two, ending either fatally or with recovery, a long train of symptoms are manifested, due to the irritant and corrosive action of the mercury.

In the following case, in which the patient recovered, there were symptoms with unusual features, and it is reported in detail, showing the progress from day to day. It is regrettable that it was impossible to find out how much mercury was retained and absorbed (after the emptying of the stomach) to produce the effects noticed, although the quantity swallowed was twenty-two grains.

CASE. Female, aged twenty-two years. Robust and in good health, swallowed three white bichloride tablets of seven and three tenths grains each. About ten minutes afterward the stomach was emptied by tube, and repeated-

ly washed, with egg and milk, for one half hour. No signs of collapse. Patient complained of metallic taste in mouth; burning sensation in mouth, throat, and stomach. Constant vomiting. Twelve hours after taking tablets tongue and gums were deep blue, breath fetid. Tissues between the toes were discolored blue, as were also the finger tips. No urination for the first day; last urination the night before, at 11 o'clock. Temperature, pulse, and respiration normal. First show of blood in stool, fifteen hours after poisoning.

On second day, condition the same, with addition of coarse tremor of tongue and fingers; continuous pain and tenesmus. Two small bowel movements, with no show of blood; no urination.

Symptoms on third day more aggravated. During the entire twenty-four hours she had twenty-seven bowel movements, all containing blood, mucus, and greenish fluid. About one half these movements were bloody only, varying in quantity from one ounce to five ounces. Vomitus, blue fluid. Very restless. During night she had desire to void, was catheterized, and bladder found empty. No urination. From the fourth day on symptoms gradually diminished in severity. Pain, tenesmus, and bowel action decreased. Vomiting continuous. Deep ulceration of palate between uvula and left fauces. Liver, tender, enlarged, and palpable two fingers below costal margin. Abdomen very tender; no tenderness over kidneys. Voided about ten drops of blue tinged urine, containing no occult blood, at 5 p. m. on fourth day; this being the first kidney action in ninety hours, almost four days. No urination again for thirty-four hours, when an ounce and a half was passed. On sixth day blood ceased to appear in stools. Eight ounces of urine passed during the twenty-four hours. Urine examination on seventh day showed total quantity, fifty ounces; acid, specific gravity, 1.008; albumin, a small quantity, a few casts; no sugar. Improvement marked, vomiting decreased, but still with bluish fluid. Marked erythematous blotches appeared on eighth day over arms and legs, the trunk remaining clear. Urticarial wheals easily produced on body.

General improvement continued for the next week. Urine averaged sixty-five ounces daily, with small quantity of albumin and no sugar, till the fifteenth day, when 1.5 per cent. of sugar was found. Sugar continued to appear daily in smaller quantities for nine days, when it ceased entirely.

Patient discharged on twenty-fourth day as cured. During the whole period of sickness there were no signs of uremia and no indications of esophageal stricture.

The treatment followed was symptomatic, consisting of hot packs, wet cupping over kidneys, saline instillation per rectum, pilocarpine in one quarter grain doses, bismuth subnitrate, and occasional tincture of opium, Vichy, and milk. After kidney action was established potassium citrate was given, in ten grain doses, four times daily.

Summary: After a patient has been removed from immediate danger of collapse and death a certain amount of degeneration must be looked for, as some of the mercury is retained and absorbed even after thorough emptying of the stomach. Interesting points in this case are: 1. Anuria for over five days, save for the passage of ten drops in the ninetieth hour; 2, temporary presence of sugar in urine for nine days; 3, bluish discoloration of fingers, toes, urine, and vomitus, without the ingestion of anything containing methylene blue.

In view of the fact that a number of cases of bichloride poisoning have been reported in the daily press of late, it would seem appropriate to remark that steps should be taken to prevent such poisoning by not permitting the dispensing of any poison for any purpose without the written prescription of a physician, and causing the containers holding a poison to be of a peculiar shape easily distinguished by touch, the cork of the container to be released only by some sort of a catch.

233 WEST 122ND STREET.

## Therapeutic Notes.

**Treatment of Inflammatory Processes of Adenoid Origin.**—A writer in *Monde médical* for January 15, 1913, discussing the treatment of acute inflammatory processes in the nasopharynx due to the presence of adenoids, states that when the condition is sufficiently severe to contraindicate early adenectomy iodine preparations should be administered internally and the general system toned up with saline baths and rubbings.

Locally, preparations containing menthol are useful:

R Mentholis, ..... 5ss (0.15 gramme);  
 Camphorae, ..... 5vi (25 grammes);  
 Olei olivae sterilisati, ..... 5vi

Misce

Or,

R Mentholis, ..... 5ss (0.15 gramme);  
 Camphorae, ..... 5ss (0.05 gramme);  
 Eucalyptolis, ..... 5ss  
 Olei amygdalae expressi, ..... 5vi (20 grammes);  
 Misce.

These fluids should be dropped in the nostrils, four or five drops on each side, at frequent intervals.

In the older children, ointments such as the following may be employed:

R Mentholis, ..... gr. iij (0.2 gramme);  
 Acidi borici, ..... 5ss (2 grammes);  
 Petrolati, ..... 5i (30 grammes);  
 M. ft. unguentum.

Or,

R Resorcinolis, ..... gr. viiss (0.5 gramme);  
 Acidi borici, ..... gr. xv (1 gramme);  
 Petrolati, ..... 5i (30 grammes);  
 M. ft. unguentum.

Inhalation of balsamics through the nose should not be forgotten:

R Tinctura benzoini, ..... 5vi (20 grammes);  
 Tinctura eucalypti, ..... 5vi (20 grammes);  
 Alcoholis, ..... 5iiss (40 grammes);  
 M. Sig.: One teaspoonful to be used by means of an inhaler

**Treatment of Gangrene and Suppurative Processes.**—Blanchard, in *Bulletin médical* for March 26, 1913, reports good results from the use of ninety-five per cent. alcohol, diluted with one fourth part of boiled water, as a dressing for parts the seat of gangrene. Thus, in a case of gangrene of the foot arising from infection of a toe, in which, after amputation above the knee, necrosis of the flaps had further taken place, dressings with alcohol clearly arrested the local morbid process and septicemia, fever, and pain disappearing within forty-eight hours, and healing later taking place under ordinary antiseptic dressings. Similar excellent results were obtained in a case of senile gangrene of the toe in which the process had extended to the leg notwithstanding other antiseptic dressings, and in a case of necrosis of the inner surface and dorsum of the foot due chiefly to trophic disturbances. In each instance pain was first relieved, then the discharge reduced and the part desiccated.

In extensive superficial suppurations, alcohol permits of reducing the frequency of the dressings when the latter cannot be attended to as often as desirable. Alcohol dressings may be left on six or seven days,

and diminish pus formation. The granulations are more vascular, and repair takes place more rapidly. In a case of diffuse phlegmon of the forearm, in which incisions and drainage had failed to prevent necrosis of areas of skin and partial destruction of one of the extensor muscles, the remaining portion of this muscle was dried and saved by the alcohol, and separation of the dead tissues facilitated.

The alcohol probably acts both by fixing the bacteria—as though to a glass slide—thus diminishing their number and virulence, and by drying the tissues, so that the organisms are imprisoned in them. The resulting solid mass can be readily removed with the scissors. In the living tissues alcohol does not induce the edema and swelling often brought about by ordinary dressings; hence there occurs more perfect vascularization of the fleshy granulations.

**Treatment of Cases of Foreign Body within the Eye.**—W. K. Rogers, in *Ophthalmology* for January, 1913, states that when the foreign body is metallic, not over three millimetres in area and not embedded in the posterior coats of the globe, the ideal procedure is to bring it forward with the giant magnet into the anterior chamber and out through the original wound if this is located in the cornea and is unsited. The portable or auxiliary magnet should be used for delivery through a marginal incision, where the corneal wound has united, or through a posterior incision if the large magnet fails. Where the foreign body is as much as five mm. in area, is embedded in the posterior wall, or has entered through a wound which is still open back of the ciliary zone, the portable or auxiliary magnet is to be preferred.

Any metallic body back of the lens must be removed or the eye enucleated, for the safety of its fellow. While lead and nonmetallic substances are said to be better tolerated in the vitreous than other metals, the author believes prompt enucleation advisable in all cases if one eye is uninjured.

Marked benefit appears to result where infection follows, as well as in sympathetic disease and all profound eye infections, from the employment of subconjunctival and deep orbital injections of mercury at intervals of from one to three days. The author's preference is for the following solution:

R Hydrargyri chloridi corrosivi, ..... gr. i (0.06 gramme);  
 Sodii chloridi, ..... gr. x (0.6 gramme);  
 Aquae destillatae, ..... 5iij (60 c. c.);  
 M. ft. solutio.

Sig.: For subconjunctival or deep orbital injections of sixteen minims (1 c. c.) each.

**Treatment of Puerperal Eclampsia.**—J. F. Moran, in *Surgery, Gynecology and Obstetrics* for February, 1913, states that while venesection is seldom practised nowadays in the treatment of eclampsia, in suitable cases it is one of the most valuable measures at our command. Where the blood pressure is high, with cyanosis, rapidly recurring convulsions, deepening coma, and threatened edema of the lungs, it is particularly serviceable. Its effect was strikingly shown in a postpartal case recently seen by the author, who is thoroughly convinced that the blood letting was the principal factor in saving the patient.

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## THE TREATMENT OF ERYSIPELAS.

Although Pollatscheck states that renal complications occur in about thirty-eight per cent. of all cases of erysipelas, more recent observations have shown that pathological urine is voided in such a large proportion of cases that it becomes a question whether the kidneys are not always the seat of inflammatory lesions. Of four hundred and eighty-three reports of cases of erysipelas examined by Boston and Blackburn, three hundred and twenty-seven showed pathological urine—a proportion over twice that recorded by Pollatscheck. While renal complications are not deemed very serious as to their influence upon mortality, the fact remains that the latter continues high and that death shows a predilection for those cases in which albumin and casts are voided in relatively large quantities. Another morbid feature which may attend such cases, and to which attention was called last year by Lesné, Françon, and Gérard, is the occasional presence of a streptococcic septicemia, which almost always becomes complicated with infectious endocarditis. This involves the left side of the heart, the mitral valve becoming covered with small vegetations. It is often overlooked, physical signs denoting endocarditis being seldom detected in erysipelas. Nevertheless we have here another complication of no mean importance, one which also influences more or less the mortality of the causative

disease. Erysipelas has yielded so little to treatment that the so called "expectant plan" and supportive measures have been advocated by most clinicians, the development of sufficient specific resistance on the part of the body being depended upon to check the progress of the disease.

There is good ground for the belief, however, that it is precisely in these neglected cases that renal and cardiac complications are apt to occur. To await, and depend upon, the development of an adequate specific reaction is virtually to sacrifice those patients who, through debility or age, are unable to awaken such a reaction. It is our duty promptly to institute measures which will enhance not only the autoprotective resources of the body at large, but also those of the cutaneous and lymphatic systems.

Of the newer local measures recommended in recent years, those in which *heat* is the predominant factor seem to have held their own. Hot compresses of saline solution frequently renewed (Pontano) and the hot air douche, applied from one half to one hour two or three times a day (Ritter) have given good results—probably by increasing the efficiency of the lymphatic antibodies. Butter-milk applied with soft compresses, kept constantly wet, has recently been extolled by Arnold. An ointment composed of chlorinated lime, one part, and paraffin ointment, nine parts, is urgently advocated by Binz. One older remedy, absolute alcohol, a powerful antiseptic, has recently gained many adherents. Magnesium sulphate in saturated solution has been highly praised owing to its ability to control pain, decrease the local hyperthermia, and prevent extension of the morbid process.

As to general remedies, the tincture of the chloride of iron seems to hold its own, but it is a question whether it does not, in the large doses usually employed, tend to promote the development of renal lesions. An immediate dose of calomel, to enhance the detoxicatory activity of the liver, has also maintained its reputation. Of the newer measures, diphtheria antitoxine, bacterial vaccines, and antistreptococcic serum, all have their sanguine advocates; but the salient feature upon which all men of experience insist is their *early* employment, i. e., before the pathogenic organisms have had time to initiate the lethal trend.

## CANCER IN CANADA.

It is not unlikely that an effort may be made in Canada to educate the general public with regard to the early symptoms of this disease on similar lines to those in the campaign against malignant maladies recently initiated by an influential section of the



medical profession in the United States. The reasons for this supposition lie in the fact that Dr. Thomas R. Cullen, of Johns Hopkins University, in delivering the address in gynecology at the meeting of the Canadian Medical Association on June 25, made the propaganda for popular education as to the detection of cancer which is now being energetically carried on in this country a text for his discourse. Indeed, the address was more of a review of the proceedings in this direction in the United States than one on gynecology. Dr. Cullen, however, was well advised to impress the necessity for checking the inroads of malignant disease on a Canadian medical audience, and to point out how this could be brought about and was being brought about by the measures decided upon by the committee of eminent American surgeons appointed for the purpose as a result of the discussion at the Clinical Congress of Surgeons of North America held in New York in November last.

In the first instance, Dr. Cullen drew attention to the fact that, contrary to common belief, cancer was not a disease of the blood, nor was it incurable. In their early stages these malignant growths could be removed with safety, and the life of the patient saved. The difficulty was that the average man or woman paid no attention to the early symptoms and allowed the case to drift until it was too late.

It was in order, of course, to enlighten the community with respect to the early symptoms of the malady that the decision was come to, to make use of the lay press, magazines, and popular literature generally, as the most certain means of achieving this object. A most interesting account was given of the campaign that has been thus waged in the United States during the past few months, and, what is more to the point, Doctor Cullen vouched for the success of the campaign. Physicians from all parts of the country have reported that large numbers have come to them for treatment, urged to the cause by articles in the lay press and magazines describing the early symptoms of cancer in various parts of the body. The speaker wisely pointed out that if the women could be brought to recognize the necessity for having cancer cases diagnosed early the men would readily follow suit. The woman is the health guardian of the home.

It goes without saying that a very large proportion of those suffering from cancer seek medical advice only when the disease has gained a firm foothold, and it is equally obvious that had the malady been diagnosed in its early stages the mortality from the disease would have been greatly lessened. The argument, then, is logical and reasonable that if people, and especially women, were cognizant of

the nature of the early symptoms they would seek skilled advice ere the time for successful treatment had passed. Even if some nervous individuals imagine that they have the disease when they are free from the taint, and seek professional advice when they have no cause for alarm, this drawback will be more than counterbalanced by the saving of health and life which will result from the successful treatment of those who were right in their surmise that their symptoms were those of malignant disease.

Viewed from this standpoint, the propaganda for educating the public as to the early symptoms of cancer appear to be justified. At any rate, the most eminent surgeons of the country are of this opinion. Doctor Cullen, at the end of his address, made an earnest plea that the Canadian Medical Association should inaugurate a campaign against cancer on lines similar to these in vogue on this side of the border.

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### SYPHILIS AND HYPOCRISY.

The evil consequences of syphilis are only too well known to a considerable proportion of the human race, but the general public has always tabooed the subject. Instead of intelligently facing this great problem, it has been content to adopt the method of the ostrich in the presence of danger, as though ignoring an evil would do away with its existence.

The recent play "Damaged Goods" might, from an optimistic point of view, be considered as a premonitory sign of a change of attitude by society toward this vital and perplexing problem. Nevertheless, a courageously intelligent and enlightened public viewpoint as regards syphilis is still a long distance off. The medical profession has always advocated the adoption of proper measures for the suppression or limitation of syphilis. Still, the public press, mirroring the prudish timidity and false attitude of an unenlightened people, has carefully avoided any references to a disease which has cursed the human race for ages. Hypocrisy and a sham modesty have acted as a cloak to cover up the ravages of this loathsome disease.

Sometimes one is inclined to rebel spiritually against the leisurely advance of human progress. But great bodies move slowly, and this is eminently true of society in its progress toward an open and fearless consideration of syphilis. Much could be accomplished in the way of diminishing the prevalence of lues were society willing to discard its cloak of sham, prudishness, false virtue, and hypocrisy. On rare occasions one may see in the public press vague allusions to this disease as "the social plague" or "blood disease." Why not come out in

the open and call a spade a spade? If we are striving for the good of mankind, there is no reason why the searching light of knowledge and education should not be directed publicly and broadly upon this disease. And therein lies the duty of the medical profession in the wider domain of social prophylaxis.

How long before we learn that publicity in dealing with a disease which actually and literally curses the offspring with the sins of its parents is the only way to approach one of the most vital problems for the betterment of the future race and the protection of the present? If it were made common and universal knowledge that practically no prostitute is free from venereal disease, and if the prevalence and horrors of syphilis were more thoroughly appreciated through means of widespread and nonhypocritical education in sexual matters, then *fear*, if not *virtue*, would help to reduce the prevalence of syphilis. If freedom from venereal disease were made a legal requisite for the privilege of marriage, another step would have been made toward the solution of this world problem. Education would, in time, bring us the voluntary self control of an enlightened race, and that would be far more potent than any statutes we could pass. Truth to say, we are dealing with a profoundly complex question, but if we desire to honestly reduce it to simpler factors, we have only one master weapon, and that is publicity.

#### THE BEDBUG IN A NEW ROLE.

Some months ago, in the *Military Surgeon* (September, 1912), Passed Assistant Surgeon R. E. Riggs, of the United States Navy, set forth in detail evidence that bedbugs act as carriers of typhoid infection. In 1910, he was stationed at a military post which was situated upon an island wholly isolated from any territory which might be suspected of harboring typhoid. This post had entire control of the traffic within its territory and complete supervision of its own food supply; its water supply was free from contamination and was unshared by others. Moreover, its history was free from typhoid. In every respect the post was ideally sanitary.

Typhoid suddenly struck down five men, however, with such steady aggressiveness that it began to look as if the whole garrison would speedily succumb. In searching for the source of the infection, the food, water, flies, drainage, and sewage were all excluded. Finally, by an analysis of the cases in the light of their mutual association, it was found that the first case was that of a prisoner who had been captured in a distant town where typhoid was endemic, and had subsequently been kept in

close confinement in the brig before the onset of the disease. The second case was one of a prisoner who slept in an adjoining cell, while the three remaining patients had also been sleeping in the guardhouse. It was thus apparent that the brig was the focus of infection, and a careful examination was therefore made. It was found sanitary in every particular, except that bedbugs were present in immense numbers. These parasites and the air were consequently the only factors which the inmates had in common. In the belief that the bedbugs were probably at the root of the trouble, the building was thoroughly fumigated and thus complete extermination of the pests was effected. This was the only precaution taken to suppress the disease, but it proved sufficient, for no new cases developed, and there has never been a case of typhoid at the station since that time.

As additional evidence to incriminate the bedbug as a carrier of the typhoid germ, Riggs cites two other cases which came under his observation in private practice, and in which every other conceivable source of infection was eliminated. He therefore concludes that house epidemics, that is where one case after another in the same household occurs in communities which are free from the usual sources of infection, are, in the majority of instances, due to the activity of the bedbug. Looking back on many cases within his own experience, he was unable to find any other explanation so simple and convincing, and at the same time plausible, to account for the repeated appearance of typhoid fever where once it has gained a foothold in the family. While it must be obvious to all that this evidence adduced by Riggs is wholly circumstantial, it does not follow that it is to be lightly considered.

In this connection we should not forget the part which Dr. Carlos Finlay played in the history of the conquest of yellow fever. For a period of many years he kept telling a skeptical world that all the circumstantial evidence pointed toward the mosquito as the chief factor in the transmission of this disease, before he finally gained an audience of sufficient influence to compel an investigation which scientifically proved the correctness of his theory. In medicine, no less than in law, circumstantial evidence is often the most convincing.

#### AMERICAN JOURNAL OF TROPICAL DISEASES AND PREVENTIVE MEDICINE.

We congratulate the editor and collaborators of the *American Journal of Tropical Diseases and Preventive Medicine* on the first appearance of this journal. The importance of special study in preventive medicine has been felt for many years, and the medical profession will certainly welcome this

addition to our already large number of journals. Simultaneously with the first appearance of the journal, the American Society of Tropical Medicine held its tenth annual meeting, and it is only natural that we should express the hope that both the journal, as well as the association, will appear before the public for many more years to come.

## News Items.

**Aroostook County, Me., Medical Association.**—At the seventh annual meeting of this association, held in Bangor recently, the following officers were elected: Dr. T. S. Dickinson, of Houlton, president; Dr. A. B. Hagerthy, of Ashland, vice-president; Dr. W. G. Chamberlain, of Fort Fairfield, secretary; Dr. W. E. Sincok, of Caribou, treasurer; Dr. A. J. Fulton, of Blaine, Dr. F. W. Tarbell, of Smyrna Mills, and Dr. F. O. Hill, of Monticello, board of censors.

**Maine Medical Association.**—At the annual meeting of the Maine Medical Association on July 3d, the following officers were elected: President, Dr. W. C. Peters, of Bangor; vice-presidents, Dr. Eben Marston, of Bath, and Dr. C. T. Emery, of Biddeford; secretary, Dr. John B. Thompson, of Bangor; treasurer, Dr. E. W. Gehring, of Portland; councillors, Dr. Stephen Webber, of Calais, and Dr. T. S. Dickinson, of Houlton. The next meeting also will be in Portland.

**Physicians Representing the Chicago Medical Society at the International Medical Congress in London.**—At a meeting of the council of the Chicago Medical Society held at the Hotel Sherman, the following were chosen to represent the society at the International Medical Congress to be held in London, England, August 6th to August 12th: Dr. Charles P. Caldwell, president of the society; Dr. John B. Murphy, Dr. W. L. Noble, Dr. Frederick Tice, Dr. A. C. Cotton, and Dr. J. A. Robison.

**Mountainside Hospital, Montclair, N. J.**—As a result of the successful campaign to raise \$225,000 for Mountainside Hospital, Montclair, the managers have purchased all the land between the nurses' home and Bay Avenue, a total area of about five and a half acres, all of which is available for hospital purposes. It is now expected all of the hospital buildings eventually will be grouped on the new site, with the decided advantage of moving away from the Erie Railroad. The amount paid for the land, including the Ebeling house now on the property, is \$35,500.

**Vaccination against Typhoid Fever in Philadelphia.**—Dr. Joseph S. Neff, director of the Department of Health and Charities, Philadelphia, stated, according to newspaper reports, that the Bureau of Health of Philadelphia was prepared to vaccinate with antityphoid fever vaccine all persons who might apply there for treatment. Owing to the presence of typhoid fever in Philadelphia and the fact that each year many cases of the malady were contracted by persons on their vacations away from this city, Doctor Neff recommended vaccination for members of families who did not carry out the instructions of the bureau and were exposed to the disease in their own homes. Summer tourists and vacationists who visited country districts or who might be otherwise exposed to typhoid contagion were also urged to be vaccinated.

**New Medical School for Fordham University.**—The new Fordham University School of Medicine will have a main façade 165 feet long and 100 feet deep. Four main laboratories are on the upper floors. There is a separate suite of rooms on the fourth floor for surgical research work. The first floor is given over to the new Fordham Clinic, where students of the third and fourth year classes will be brought into actual contact with acute cases of disease and under the heads of the various departments will be allowed to give treatment. On the second floor are located the business offices, the library, and the laboratories of physiological chemistry, clinical pathology, physiology, and pharmacology. The equipment of the school throughout is of the most approved scientific nature.

**Death of Physician while Attempting a Rescue.**—Dr. W. F. Randall, one of the best known physicians in northern Pennsylvania, met his death on July 18th at Dushore trying to save the life of a workman. He went down into a thirty-five foot well to rescue a digger, who had been overcome by gas and himself fell victim to the fumes, plunging to the bottom of the excavation. He struck on his head and died in a few hours. The well-digger was rescued by other persons and will recover.

**Chattahoochee Valley Medical and Surgical Association.**—The thirteenth annual convention of the Chattahoochee Valley Medical Association was held in Montgomery, July 15th and 16th. A large number of physicians and surgeons from Georgia and Alabama attended the convention. The address of welcome on behalf of the city was delivered by W. A. Gunter, Jr., president of the city commission, while the address of welcome for the Montgomery County Medical Society was delivered by Dr. Phillip B. Moss. Dr. J. M. Poer, of West Point, Georgia, responded to the addresses of welcome on behalf of the association.

**Fourteenth Annual Meeting of the Lake Keuka Medical and Surgical Association.**—The fourteenth meeting of Lake Keuka Medical and Surgical Association was held at Keuka, Lake Keuka, New York, on Thursday and Friday, July 17 and 18, 1913. The president, Dr. W. W. Skinner, of Geneva, delivered the address. The programme contained the following papers: Pyuria, by Dr. Victor C. Pedersen, of New York. William Harvey and his Great Discovery, by Dr. Frederick W. Lester, of Seneca Falls. Traumatic Peritonitis of the Lumbosacral Spine, by Dr. Clarence E. Coon, of Syracuse. Immunity; Its Relation to Modern Therapy, by Dr. La Rue Colegrove, of Elmira. The Relations of Internal Secretions to Surgical Conditions, by Dr. Roswell Park, of Buffalo. Gallstones, Considered from the Surgical Standpoint, by Dr. Nathan Jacobson, of Syracuse. Surgery of the Biliary Tract from the Standpoint of Results, by Dr. Homer J. Knickerbocker, of Geneva. Treatment of the Fixed Structural Type of Spinal Curvature, by Dr. Roland O. Meisenback, of Buffalo. Some Cardiac Problems, by Dr. John M. Swan, of Rochester. Lantern Talk on Endoscopy of the Bronchi, Esophagus, and Stomach, by Dr. Chevalier Jackson, of Pittsburgh, Pa. Recent Advances in Cancer Research, by Dr. H. R. Gaylord, of Buffalo. Early or Precancerous Condition as It Is Found in the Breast, Lips, Tongue, and Stomach, by Dr. William L. Rodman, of Philadelphia. Manic Depressive Insanity, by Dr. W. H. Montgomery, of Willard.

**Death Rate in New York City.**—During the week ending July 5, 1913, there were reported 1,291 deaths and a death rate of 12.54 in 1,000 of the population, as against 1,273 deaths and a rate of 12.84 in the corresponding week of 1912, an increase of 18 deaths, but a slight decrease in the rate. Measles, scarlet fever, diphtheria, and croup showed a slightly decreased mortality; typhoid fever, pulmonary tuberculosis, diarrheal diseases and the pneumonias a considerably decreased mortality. The causes showing an increased mortality were whooping cough, chronic heart and kidney diseases combined, and violence. There were 19 deaths reported directly from heat stroke, against 1 in the corresponding week of 1912. The meteorological conditions present during the past week were more unfavorable to a low mortality than those prevalent during the week of July 6, 1912, the mean temperature of the latter being 74° F. and a maximum of 89° F. compared with a mean temperature of 79° F. and a maximum of 95° F. of the week just passed. The infant mortality, notwithstanding the adverse weather conditions, was considerably below that of the corresponding week of 1912, every borough showing a fall in the infant death rate, especially the Boroughs of Manhattan and Brooklyn. The infant mortality rate for the entire city during the past week was 89 in 1,000 children born, as against a rate of 104 during the corresponding week of 1912, a decrease of 14 per cent. In the entire city there were 35 fewer deaths under one year of age and 45 fewer deaths under five years of age. The exceedingly hot weather which prevailed during the past week increased the mortality among the adults by 49 and among the old people over sixty years of age by 14. The death rate for the first 27 weeks of 1913 was 14.94 in 1,000, as against 14.98 during the corresponding period of 1912.



## Pith of Progressive Literature.

### MUNCHENER MEDIZINISCHE WOCHENSCHRIFT

June 17, 1913.

**Abderhalden's Serodiagnosis in Psychiatry.**—Wegener finds that the Abderhalden serodiagnosis is of great value for psychoses, and from this he expects important enlightenment on etiology, differential diagnosis, and, later, therapeutics also. His conclusions are the results of tests on two hundred patients suffering from all kinds of psychic disturbances. Numerous control tests were made in addition.

**Lymphocytosis in Asthenics and Neurasthenics, and Its Clinical Significance.**—Rudolf and Hoesslin say that the lymphocytosis is the same in obesity as in Basedow's disease, as well as in asthenic and neurasthenic diseases and many neuroses. It points to a disturbance of the lymphatic system, and of the thymus and blood glands. The inclusion of these conditions in diathesis is justified if we understand by diathesis a constitutional status which is largely inherited. By this explanation the relation of the various diatheses becomes comprehensible. The favorable action of arsenic on some neuropathic conditions is referable to an influence on the lymphatic system, by which it removes the neutrophilic leucopenia and the lymphocytosis.

**The Treatment of Amebic Dysentery with Emetine.**—G. Baermann and H. Heinemann conclude that emetine is an exceedingly powerful amebotropic, amebocidal remedy, which, by subcutaneous or especially by intravenous administration, appears to destroy amebæ contained in the intestinal walls, and in suppurating surfaces, as abscess walls. Amebæ specially protected by location are spared. Total amebic destruction, as far as can now be observed, is only accomplished in very exceptional cases. Isolated single amebæ usually appear again in from ten to seventy days; but in three patients these suddenly appeared evidences of numerous young amebæ. In another, instead of the negative form, there appeared many cysts. The cysts are not affected by emetine. As a result of repeated emetine injections, abscesses which would otherwise prove fatal heal rapidly. As the best mode of administration the authors advise one or two intravenous injections, with 100 c. c. physiological salt solution, or combined with these, subcutaneous injections of from 150 to 200 milligrammes within eight or ten days, at from two to three days' intervals, according to the state of the patient. Later, from four to five subcutaneous injections of 100 to 120 milligrammes should be given. These after-treatments should be intermittently repeated in periods of from three to four weeks. Careful observation of the stools is absolutely necessary, and must be extended over a period of months. The maximum intravenous dose is 250 milligrammes for sixty kilogrammes of body weight.

June 10, 1913.

**Experience with Colloidal Palladium Hydroxydul (Leptynol).**—M. Kauffmann says that leptynol is harmless, and that successful results were obtained with it in many patients suffering

from disturbances of internal glandular secretions. The remedy acts most favorably when combined with a carefully watched diet. His best results were obtained in patients with extreme obesity who would not submit to a systematic course of treatment, but who, on the whole, adhered to restricted diet and fluids. Their weight was decreased to from six to eight kilogrammes in four weeks. Five patients were reduced down to 10.5 kilogrammes within six weeks.

June 17, 1913.

**Treatment of Gastric Crises.**—M. Fuchs says that when examining a patient with gastric pains the physician should never neglect to assure himself as to the possibility of tabes. The recognition of crises, when tabes is present, is an easy diagnostic matter. It is admittedly difficult when the crises appear as the first symptom of tabes; but, having tabes in mind during the examination, the diagnosis is made possible by other accompanying symptoms. Many an unsuccessful gastroenterostomy would not be done if the operator had first thought of the possibility of tabes. Lumbar injections of novocaine suprarenin have given relief for six months at a time. These may be repeated with good results on return of the crises.

June 24, 1913.

**The Diagnostic Significance of Ferments as Foreign Substances in the Blood.**—E. Abderhalden says that every kind of cell shows peculiarities in the method of its metamorphosis. Each cell has its own specific function, as it has its own peculiar architecture. Fischer likens various kinds of ferments to different kinds of keys, and the substrata to be acted upon he compares to locks. Exactly as a certain key opens only a certain kind of lock, so will a certain kind of ferment attack and change only certain compounds in cells or open cell walls in order to devour their contents. Abderhalden therefore agrees that when specific ferments are set in motion each kind of cell is influenced to dominate over specifically constructed parts. The author is experimenting with these proofs. Each cell is capable of rending asunder parts of its own makeup. It must thus govern its ferments, contained in these cell parts. This line of thought, though important, is not yet generally understood. Even though results are already attained, it must not be forgotten that only modest progress may at present be spoken of. The author is working with materials (ferments) which are not familiar. Only the action of the ferments is known. When the ferments themselves, as such, are known, and the substrata can be well defined, the investigation will be complete.

### CENTRALBLATT FÜR ALLGEMEINE PATHOLOGIE UND PATHOLOGISCHE ANATOMIE.

June 28, 1912.

**A Contribution to the Study of Experimental Endocarditis.**—Fox reports the results obtained by injecting into rabbits of virulent streptococci procured from the tonsils of a case of rheumatic angina and a case of puerperal sepsis. The organisms from the two cases were injected into the ear veins of rabbits, and valvular lesions developed. It

seems probable that the primary lesion may have been in the myocardium at the base of the valve, and, by extension, caused the vegetative endocarditis.

#### DERMATOLOGISCHE WOCHENSCHRIFT.

April 5, 1913.

**The Action of Repeated Injections of Salvarsan and Neosalvarsan on the Blood.**—Karl Hedin studied the effect of repeated injections of "606" on the blood of luetic patients. His conclusions are not uniform. The polymorphonuclear leucocytes seem to be unaffected. In some cases the eosinophiles seem to be increased and in one case decreased. In the majority of cases the blood pressure rises; also the red cells are increased, while the white cells remain about the same.

#### ZENTRALBLATT FÜR GYNAKOLOGIE.

June 7, 1913.

**The Diagnosis of Tuberculosis by Means of Guinea-pigs.**—Bauereisen calls attention to the difficulty of making an early diagnosis of tuberculosis of the kidney. When guinea-pigs are used it generally necessitates waiting from four to six weeks for the development of tuberculous lesions that can be recognized microscopically or with the unaided eye. The method recommended by the author consists first in the injection of the suspected material, intraperitoneally, subcutaneously, or directly into the liver. In the course of from two to three weeks the animal is given an intracutaneous injection of tuberculin. Within twenty-four to forty-eight hours there will be a characteristic local reaction. Experiments indicate that the intracutaneous is more accurate than the subcutaneous method. The time of appearance and severity of the reaction have a direct relationship to the degree of tuberculous involvement.

**Palliative Treatment of Inoperable Carcinoma with Powdered Sugar.**—Berczeller recommends the use of powdered sugar, claiming that the odor and discharge rapidly decrease, the bleeding lessens, and conditions in general improve so much as to make one believe that healing is taking place. The treatment at first is given daily, then from one to three times a week.

June 14, 1913.

**A Case of Repeated Extrauterine Pregnancy.**—Von Lingen reports a case in which the patient had an extrauterine pregnancy in the left tube. This ruptured, and was removed by operation. Seven years later the right tube with its contained ovum was removed.

June 21, 1913.

**The Biological Diagnosis of Pregnancy According to Abderhalden's Method.**—Parsamow reports his results with Abderhalden's dialysis method in one hundred and sixteen instances. The author gives in detail his technic and tabulates his results. He concludes that a positive reaction is constantly present in those who are pregnant. As one obtains similar reactions in the nonpregnant, it is evident that the test is not a specific one and can be only of relative importance. A negative reaction indicates that there is no pregnancy, but a positive

one does not necessarily imply that such a condition exists.

June 28, 1913.

**The Calcium Content of the Blood in Pregnancy.**—Linzenmeier gives a brief report of his experiments upon this matter. He finds that the blood of women during the second half of pregnancy always shows an increased amount of calcium. He believes that the pregnant woman not infrequently is given a diet that does not contain a sufficient amount of calcium, and he therefore gives a table showing the amount of calcium in grammes that is contained in a kilogramme of different forms of food. If the mother does not receive a sufficient amount of this salt she must therefore supply it from her own tissues, to their detriment.

#### ARCHIVES DES SCIENCES BIOLOGIQUES, ST. PETERSBURG.

Vol. XVII, No. 5.

**The Hemolysin of the Bacillus Subtilis.**—M. N. Margouliès found the *Bacillus subtilis* to produce an extremely active hemolysin, which is thermostable. The hemolysis this body causes is manifested not only in the escape of hemoglobin from the red blood cells, but also in granular disintegration of the latter. In view of the fact that the hay bacillus is widely distributed in the atmosphere, and on the surface of the human body, Margouliès is led to suggest that this bacillus may be the cause of certain cases of anemia, and even of acute chlorosis of unknown origin.

#### PARIS MÉDICAL.

June 21, 1913.

**Atypical Syphilis.**—H. Gougerot points out that energetic treatment of syphilis, with either salvarsan or mercury, is capable either of delaying the outburst of secondary symptoms, without diminishing their intensity, of both delaying the secondaries and limiting them to a few cutaneous and, in particular, mucous membrane lesions, or finally, of suppressing all secondary symptoms and producing an apparent clinical cure. After suppressing or attenuating the secondaries, such treatment seems sometimes to hasten the advent of tertiary symptoms, or rather, the early recurrences, instead of consisting of secondary manifestations, are tertiary in nature, generalized syphilitic disturbance having been prevented and the infection tending to become localized. Cases of this kind, of which the author reports several, should render the physician more careful than ever in pronouncing a case of syphilis cured. The patients should be kept under watch and treated, even when apparently cured, as false cures are still more frequent than is generally thought. Cases of syphilis of long standing should be examined twice yearly, even if there are no symptoms, and given treatment if the Wassermann test is positive. Lumbar puncture should be practised yearly in order to detect nervous disorders in their earliest stage, and be able, probably, to prevent their further progress.

**Cause of the Paroxysms in Epilepsy and Asthma.**—Arthur Leroy invokes the physical process of dialysis to account for epileptic and asthmatic attacks. In the case of the former, the

arachnoid, and perhaps the pia, act as membranes. By reason of the increased osmotic tension in the blood, resulting from the presence in it of peptones, albumoses, and amino acids, extra fluid collects beneath these membranes and exerts pressure on the brain centres, causing spasmodic phenomena and unconsciousness. A similar process is operative in uremia, diabetic coma, and gout; substances such as urea, sugar, and uric acid, however, taking the place of the albuminous products. In asthma the respiratory apparatus acts as dialyzer, the attack continuing until the albuminous waste products in the blood have been eliminated. Bloodletting is a preventive measure in epilepsy, and in asthma the author advises wet cupping for the same purpose.

#### PRESSE MÉDICALE.

June 21, 1913.

**Tuberculosis of the Fallopian Tube.**—F. Jayle, in the course of histological examinations of specimens of salpingitis, apparently of ordinary inflammatory nature, repeatedly found tuberculous lesions, and is inclined to believe tubal tuberculosis more frequent than is generally thought, the tubercle bacillus being sometimes masked by gonococcus, streptococcus, colon bacillary, or tetragenic infection. He divides cases of pure tubal tuberculosis into (1) the granular, miliary, peritoneal, and ascitogenous form; (2), the pyogenous or pus producing form; (3), the lardaceous or infiltrated and ligneous form, and (4), the polymorphic form, consisting of combinations of the preceding. Tubal tuberculosis may be complicated by other organisms, which may reach the tube either from the intestine, the genital tract, or the blood. The author reports a case complicated by tetragenic infection, in which large bullæ filled with serous fluid were prominent features of the pathological specimen obtained at operation. On the other hand, chronic tubal affections of ordinary type may become complicated by tuberculosis. Microscopical examination is practically a *sine qua non* to diagnosis where tubal tuberculosis is complicated by other infections. In the surgical treatment of the condition the author advises conservation of the uterus and ovaries—a plan which proved very satisfactory in the cases under his care.

June 25, 1913.

**Estimation of Urea in the Blood.**—L. Hugonnet and A. Morel recommend the use of a method first described by Fosse in 1907, consisting in the precipitation of the urea, in urine diluted with alcohol, with xanthydrol or diphenopyranol. The test is specific, *i. e.*, urea alone will lead to the formation of a precipitate; no delicate manipulation is required, except the weighing of the precipitate on a chemical balance, and the procedure can be carried on with comparative rapidity, especially where several estimations are to be made at once.

**X Ray Treatment of the Nerve Roots in Neuralgias.**—A. Zimmern, P. Cottenot, and A. Dariaux report that the application of the Röntgen rays to the nerve roots has yielded constantly good results in the treatment of sciatica, as well as of neuralgia and neuritis of the brachial plexus and trigeminal nerve. Their clinical material consists of thirty cases. Not only was radicular radiotherapy found to exert a pronounced analgesic

action, but there was a reparative action, shown in the return of reflexes such as the tricipital or the Achilles reflex. The authors are convinced that whether the condition responsible for the neuralgia be a true radiculitis or a lesion compressing the nerve roots, x ray treatment frees the latter from the surrounding pressure. Where the neuralgia is due to involvement of the nerve trunk peripheral to the radicular region, the x rays fail. The dose of the rays given by the authors at each sitting varied from one half to three heat units, according to the sensitiveness of the patients. The apparatus was so disposed as to bring about oblique penetration of the rays to the spinal roots, between or through the vertebral laminae; the opposite side, beyond the spinous processes, being protected by sheet lead. In sciatica the irradiation should be directed to the last two lumbar and first three sacral vertebrae; the sacroiliac joint may also be treated. If the cause of the sciatica is suspected to be a true radiculitis, the entire region should be treated, up to the spinous process of the eleventh dorsal vertebra. For brachial neuralgia, the rays should be applied between the third cervical and first dorsal spinous processes, while for trigeminal neuralgia they should reach the region above the zygoma, in the vicinity of the ascending process of the malar bone.

#### JOURNAL D'UROLOGIE.

April 15, 1913.

**A New Method of Diagnostic Renal Tuberculosis.**—Leo Buerger gives the history of a case in which cystoscopy showed an edema of the left ureteral orifice and the left portion of the trigone. The right ureter was catheterized and normal urine obtained. Catheterism of the left ureter was impossible. The bladder urine contained pus, but tubercle bacilli could not be found. The Buerger operating cystoscope punched out the edematous area, and this on section showed tubercle bacilli and a miliary tubercle.

**Calculi of the Parietal Part of the Ureter.**—Pascual emphasizes the diagnostic importance, when a calculus is arrested in the intravesical portion of the ureter, of the bulbous edema (sometimes massive) which surrounds the ureter. This symptom, together with renal colic, or dysuria, is sufficient basis for the diagnosis of ureteral stone arrested at the ureteral orifice. In five cases which gave this symptom complex, and in which stones were proved to be present, either by operation or by passing spontaneously, the radiograph was twice negative.

#### LANCET.

July 5, 1913.

**Incarceration of the Cecum and Ascending Colon in Lesser Sac of Peritoneum.**—Ivor Back's patient, a man, aged 41, was taken suddenly ill with acute pain in the right half of the abdomen, chiefly in the upper portion. He vomited at the time. After a few hours of comparative mildness of pain, a dose of black draught brought on a severe recurrence, together with a return of the vomiting. The pain was paroxysmal. No flatus or feces had been passed since the onset of symptoms. Pulse 125,



temperature 96° F., and respirations 32. The abdomen was retracted and rigidly fixed on the entire right side; the left upper portion was also rather tense. No mass or swelling was to be found, even under anesthesia. The diagnosis was made of perforating appendicitis with spreading peritonitis involving the right side of the abdomen. The intestines and peritoneum were found normal when the abdomen was opened for appendectomy, but neither cecum nor ascending colon was found. A second median incision in the upper abdomen revealed a mass which was taken for the gallbladder. Puncture of this, to relieve distention, liberated gas having a fecal odor and so relieved the tension that a knuckle of gut, which had passed through the foramen of Winslow and then ruptured through the gastrohepatic omentum, so as to lie under the parietal peritoneum, could be extracted. It was found that the entire cecum and ascending colon had passed through the foramen of Winslow. After suture of the puncture which had been made, the involved gut was freed and the abdomen closed after its proper replacement. The patient made an excellent recovery and his cecum and colon are apparently at present in their proper positions.

**On the Possibility of Achieving by Partial Pneumothorax the Advantages of Complete Pneumothorax.**—W. Parry Morgan argues that at the site of a tuberculous focus in the lung there is an area of tissue which is less expansile than is the surrounding lung, and hence the elastic portions of the lung along any axis which passes through such a focus must be stretched abnormally, to compensate for the lack of elasticity, during the process of breathing. This often leads to a certain amount of localized emphysema, and certainly materially aids in the maintenance of activity in the focus and tends to promote the spread to other portions of the lung. If a comparatively small amount of gas be introduced into the pleural cavity it will reduce the general intrathoracic tension and in inspiration the normal portion of the lung will still follow the thorax, but the introduced gas will collect over the area of diminished elasticity and will thus accomplish its immobilization. Precisely, these phenomena can be demonstrated to occur in a partially consolidated lung artificial thorax preparation. It matters not whether the tuberculous lesion be single, or whether there be several more or less scattered lesions, the introduction of a small amount of gas—that is, the production of a partial pneumothorax—will accomplish the purpose of putting the affected region at rest. Such a condition is the desired aim of artificial pneumothorax, but when this is complete the entire lung is subjected to uniform conditions, and soon it can be shown to be following the respiratory movements, although greatly collapsed. Under such conditions the diseased tissue is not so effectively immobilized as when the pneumothorax is only partial.

BRITISH JOURNAL OF DERMATOLOGY.

MAY, 1913.

**Epithelioma and Rodent Ulcer Occurring in the Same Patient.**—Haldin Davis reports this case chiefly because of its rarity. He also quotes several other instances occurring in the practice of other dermatologists.

**A Case of Multiple Telangiectases.**—J. H. Sequeira describes an unusual case of telangiectasis rather widespread and associated with hemorrhages. He discusses at length the various types of telangiectasis, and concludes with a dissertation on the etiology of this affection.

PRACTITIONER.

OCT., 1913.

**Some Points in the Treatment of Bronchial Asthma.**—Arthur Latham says that there can be no question that *light* cauterization of the septal nerve of the septum in suitable cases, adequately carried out, produces great relief in a large proportion of the patients. He has seen a number of patients in whom this procedure has been carried out by capable men. In few instances does it cure, for its effects are seldom permanent; but in a large number it gives great relief, which may last for several years. It rarely does harm, except when polyp have previously been removed. Such cauterization can act only by virtue of diminishing the capacity of dust and odors for stimulating unduly sensitive nasal nerve endings, and so inducing a reflex effect upon the bronchial tubes.

**Nasal Disease in Relation to Asthma.**—Dundas Grant examined the nose in 107 cases of asthma and found the conditions such as to call for operation in sixty-eight, to be abnormal but not to call for operation in thirty-one, uncertain but probably adenoids in one, and no nasal abnormality in seven. From a study of these cases and of the literature on the subject he concludes that when nasal disease is present, even allowing for the rare occasional increase of temporary discomfort, the coincidence of asthma is an additional indication for operation. Many of the disappointments are due to the obstinate nature of the nasal disease.

**Asthma in Children.**—Eric Bellingham Smith presents an interesting study of asthma as it appears in children, which presents two distinct types, one met with under five years of age, the other in older children. The drugs used fall for the most part under two headings: 1. Sedatives and hypnotics; 2, antispasmodics. Their administration has also to be considered under two headings: 1. During an acute attack; 2, during the intervals. If the attacks occur only at night he gives a mixture of potassium iodide, belladonna, and ethereal tincture of lobelia, to be given at bedtime. It is safe to give one half grain of iodide for each year of life, from two to ten minims of tincture of belladonna from infancy to ten years old, and lobelia in minim doses for every year of life, up to five minims. If the attacks occur day and night he gives the same prescription, in rather smaller doses, three times a day. He thinks that iodides will be found to be the sheet anchor in this disease in early life; when they fail it is rare to get relief with other drugs. Iodides should be given regularly for from six to eight weeks, then left off for a fortnight and replaced by a tonic, such as arsenic; then renewed; in this way the effects of the iodides is prolonged. When other drugs have failed he thinks that perhaps a little improvement can be obtained from the liquid extract of grindelia. He doubts if calcium does much good, but if four or five minims of epinephrin are added to

it some parents seem to think that distinct relief may be gained. Hot baths seem to have a sedative effect in an infant, and some persons still swear by the old fashioned steam kettle, the steam from which may be medicated in various ways. An injection of from three to five minims of adrenalin, 1/1000, can be given. If the child is very bad, nascent oxygen, and perhaps a very small dose of morphine sulphate, 1/30 grain, might be given. He has never used that drug in asthma, and never uses any of the sedatives except a little bromide or antipyrine, when the child is definitely overexcitable. Errors in clothing should be corrected firmly but tactfully.

#### CANADIAN MEDICAL ASSOCIATION JOURNAL

June, 1913.

**Puncture of the Corpus Callosum.**—Edward Archibald gives the technic of this operation as follows: On the right side, about a finger's breadth behind the coronary suture and two cm. from the median line, an opening is made with the Doyen burr, about 1.5 to two cm. in diameter. A slit opening is made in the dura, and care is taken to avoid any large cortical vein. Then a curved hollow cannula is pushed over the convexity of the cortex till it strikes against the falx, which membrane guides the further progress of the cannula downwards till the corpus callosum is reached. The instrument breaks bluntly through this structure with very slight force, whereupon the ventricular fluid is emptied, usually under some pressure. An average of from ten to thirty c. c. of fluid is evacuated, but in cases of marked hydrocephalus as much as seventy c. c. Von Bramann advises enlarging the hole by pushing the cannula forward and backward, over what distance he does not say. The operation is recommended for all cases of hydrocephalus which defy internal treatment and have not been ameliorated by lumbar or ventricular puncture; for all cases of tumor or pseudotumor of the brain accompanied by hydrocephalus and optic neuritis; and finally for decompression as a preliminary measure to extirpation of tumors. He then reports four cases on which he has performed this operation, two of hydrocephalus and two of unlocalizable tumor. In the latter cases two methods of decompression were employed, for neither alone was sufficient to obtain the best results. He thinks that callosal puncture promises to be a satisfactory operation for decompression in many cases of tumor, especially in the presence of a complicating hydrocephalus. In his two cases of obstructive hydrocephalus of high grade in the infant callosal puncture proved temporarily of slight benefit, but ultimately failed to relieve the condition.

**Tuberculosis of the Genitourinary System from the General Practitioner's Standpoint.**—William Hutchinson divides cases of tuberculosis of the genitourinary system into four groups: 1. Early acute cases; 2, early mild cases; 3, late cases, but unilateral; 4, late cases, bilateral. In the first group, that is in those cases where the symptoms are very acute, the bladder much swollen, and the ureters difficult to locate, the treatment should be the same as in acute pulmonary tuberculosis. The patients should have absolute rest in bed, should be kept in the fresh air and in

as dry a climate as possible, and should have nourishing diet, but not large quantities of fluids. To put as little strain as possible on the kidneys. Tuberculin should be given, commencing with a dose of 0.0001 milligramme. This dose should be repeated once a week until two or three have been given, and then the strength should be gradually increased to 0.001 milligramme. If the symptoms are aggravated by one of these increasing doses the advance must be stopped and smaller doses given. By this means the disease may become quiescent, or at least the acute symptoms will subside, and then the treatment will be the same as that for group three. The second group should be treated in the same way as the first, except that absolute rest in bed is not necessary, though no violent exercise should be undertaken, and the doses of tuberculin may be increased more rapidly. It is important to examine these patients from time to time to see whether the condition is improving, for if not, an operation is imperative. The treatment of the third group is purely operative. The kidney is exposed by a loin incision, and if there is difficulty in exposing it, or any danger of breaking the abscesses, a transverse incision should be made toward the abdominal cavity through the muscles, but not through the peritoneum, thus obtaining sufficient room to ligate the pedicle without difficulty. The ureter should be followed down and excised as near the bladder as possible. Before cutting through the ureter a ligature is placed around it, and later the cut end is cauterized in order to destroy the mucous membrane and thus to aid in a firm union. When the bladder also is involved, tuberculin should be employed subsequent to the operation for a considerable time, but no local treatment can be undertaken. The cases in group four can only be treated in the same manner as those in group one. Operation, save for a nephrotomy with permanent drainage in order to relieve extreme bladder symptoms, is out of the question. The treatment of tuberculosis of the testicle should, at first, be along general lines, combined with the use of tuberculin, but if this is not successful, the testicle should be removed, and if the vas deferens is thickened at all it should be followed down to the seminal vesicle. Primary tuberculosis of the bladder and prostate must be treated on general principles, no operation being advisable.

#### INDIAN MEDICAL GAZETTE.

June, 1913.

**Ankylostoma Ceylanicum, a New Human Parasite.**—Clayton Lane, found in the stools of three patients ankylostomes that were shorter and thicker than the *Ankylostoma duodenale* and were finally identified with the ceylanicum discovered in 1911 in the civet cat by Looss, and since found in Bengal in dogs and cats, as well as in lions. It does not appear to be a common human parasite.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

July 12, 1913.

**Posterior Gastrojejunostomy in Acute Perforative Ulcer of the Stomach and Duodenum,** by Dr. John B. Deaver.—See this JOURNAL for July 5th, p. 37.

**Radium in Skin Diseases**, by Dr. Frank E. Simpson.—See this JOURNAL for July 5th, p. 42.

**Skin Complications of Diabetes**, by Dr. Burnside Foster.—See this JOURNAL for July 5th, p. 43.

**The Transmission of *Treponema Pallidum* from the Brains of Paretics to the Rabbit**.—Hideyo Noguchi has proved experimentally that typical syphilitic sclerosis containing *Treponema pallidum* have been produced in the testes of rabbits, in two instances, by the inoculation of an emulsion of the brain of a parietic individual. The development of the lesions was slow, in the one instance ninety-two days and in the other one hundred and five days. The proportion of successful inoculations has been small; they were obtained with one brain out of six. As regards the tardy development of the lesions, and also the low proportion of infections, the result is striking when contrasted with the results of the inoculation of chancres, condylomata, or secondary syphilitic papules. By using several rabbits the writer has usually succeeded with every specimen of the latter, while he has been successful, in the former, with only one specimen of brain out of six used. The small number of *pallida* present in the brain tissue may explain the disparity; it may be due to a low degree of infectiousness of the brain spirochetes for the rabbit. The percentage (17), however, is about that (25) in which the *pallidum* has been detected by histological methods in the brains of paretics.

**Injection of Boiling Water in the Treatment of Hyperthyroidism**, by Dr. Miles F. Porter.—See this JOURNAL for July 5th, p. 38.

**The Relation of Gastrostomy to Inoperable Carcinoma of the Esophagus**.—Henry H. Janeway emphasizes the point that experience has demonstrated that gastrostomy in properly selected cases prolongs life, and for a long time in many patients contributes considerably to their comfort. Moreover, it has frequently happened that a carcinomatous esophagus has again become pervious after the rest afforded by a gastrostomy. The writer describes in detail the technic of a new method of performing this operation, which results in the formation of a long canal from three to four times the length of the two short incisions at the extremities of the first cut. The effect is to cause the stomach wall, at the place where the tubular canal is formed, to lengthen out very markedly, the split rectus fibres coming together around this canal and acting as a sphincter. The new canal when formed has an oblique direction to the left, and any increase of intragastric pressure will bring the walls of the fistula together and effectually prevent the escape of stomach contents. In five cases operated by the writer, in accordance with the technic described, the proximal end of the new canal has never been inverted, the new canal being simply sewed near its base to the margin of the opening of the rectus sheath and the mucous membrane of the external opening of the canal to the skin, depending entirely on the constricting influence of the rectus fibres and the oblique direction of the new canal for tight closure. In none of the cases has there been any appreciable leakage.

**Salvarsan versus Profeta's Law**, by Dr. Augustus Ravogli.—See this JOURNAL for July 5th, p. 42.

**Pemphigus Foliaceus**, by Dr. J. B. Kessler.—See this JOURNAL for July 5th, p. 42.

**The Action of So Called Emmenagogue Oils on the Isolated Uterus**. With a Report of a Case of Pennyroyal Poisoning.—David I. Macht brings out forcibly the poisonous properties of pennyroyal, exemplifying the same by the history of a case brought to his notice. He concludes, from experiments made on the isolated uterus of the cat, that the so called emmenagogue oils are by no means innocuous substances. They have absolutely no direct stimulating action on the uterine contractions or tonicity, but, on the contrary, they inhibit such contractions, and even paralyze the uterus. Their action as abortifacients, if they act as such, is no different from that of any other powerful systemic poison, such as phosphorus or arsenic. Finally, they (pennyroyal, savine, tansy, rue, thyme, apiol) have little if any therapeutic value and are not worthy of a place among the official pharmacological preparations.

**What Relation, If Any, Have the Faucial Tonsils to Pulmonary Tuberculosis?**—E. Fletcher Ingals observes that a decade ago it was commonly believed that tonsillar disease was a frequent cause of pulmonary tuberculosis, but subsequent research has apparently proved that tubercle bacilli may enter and pass through the tonsils and cause disease of the cervical lymph nodes, while the tonsils themselves may escape all injury. This research has also shown that there is no direct connection between the cervical lymph nodes and the pulmonary lymphatics, and therefore, that involvement of the lungs associated with cervical adenitis must be a systemic infection rather than a result of lymphatic disease. The writer concludes by confessing that his belief is that there is no relation between the tonsils and pulmonary tuberculosis.

**When and How to Use Nitroglycerin**.—Edward E. Cornwall emphasizes several points in connection with these questions. The general indications for the use of this remedy are to relieve symptoms of localized arteriosclerosis or arterial spasm in vitally important regions of the body, and, when there is pain due to contracted or diseased arteries, in other regions; to reduce general high blood pressure if its continuance threatens accidents to the cardiovascular system; and to clear the diagnosis. The chief contraindications to its use are either a low or a relatively low blood pressure; advanced chronic nephritis with very high blood pressure and toxic conditions producing high blood pressure, as a rule; and the presence of an idiosyncrasy in regard to its action. It should never be used primarily as a heart stimulant. When placed under the tongue effects are as prompt as when injected subcutaneously. If given too long or in too large doses it can produce injurious effects, which, however, disappear when the remedy is discontinued.

#### MEDICAL RECORD.

July 12, 1913.

**Metabolism and the Circulation**.—Alexander Haig lays stress on the fact that the circulation controls the life of the whole body. The functions of the skin, the heart, the kidneys, the liver, the salivary glands, the stomach, the intestines display phenomena which testify to the fact that all their



functions are most intimately related to a free circulation in their capillary vessels, which bring nourishment and remove waste products, and generally provide for the life of the tissues from moment to moment, which we call metabolism or combustion, the results of which are heat, brain power, energy, and in short, life. An excess of waste products in the blood (collemia) increases the work of the heart and diminishes its power, and in this way depresses the metabolism and combustion of the whole body. Urea, the chief nitrogenous waste product of the kidneys, produces the same effects. The writer shows the influence of these two factors in producing conditions which have been named as diseases, but which diseases disappear when the causative collemia and uric acid have been eliminated. In this connection he refers to the production of anemia, the so called "bilious attack," headaches, purpura rheumatica, Bright's disease, etc., by these agencies, and he suggests that there is here no disease, but a condition representing various stages of poisoning by one substance which is not contained in the natural food of man, and with which he has come into disastrous contact only through an unwise departure from his natural food. By controlling the uric acid, together with the heart power, we can produce any desired change in the circulation, and except when it has produced structural change, we can remove its effects. By controlling the uric acid every function of the body is controlled, including the nutrition of the heart and lungs, and the life of the entire body is under our control, and we can do with it what we will.

**Psychogenetic Disorders; Cases Seen in Detained Immigrants.**—Howard A. Knox, from a study of this subject, with reported cases, concludes that psychogenesis is important in considering whether or not a given psychosis is founded on degenerative soil and hence whether the cause of a given alien's insanity existed prior to landing. Cases occur in which psychoses have arisen in healthy persons with apparently normal nervous endowment. Psychogenetic disorders are important to all who are identified with medicolegal problems since most of the psychoses of criminals are psychogenetic in character. In making accurate diagnoses and especially prognoses in traumatic and other organic mental diseases or supposed diseases of this nature a knowledge of psychogenetic disorders is requisite. Finally, immigrants suffering from psychogenetic disorders should not be examined for defectiveness while in this state, and lay workers with no knowledge of medicine, psychiatry, or neurology, are not competent to detect these conditions, but would call such a patient "stupid" or rate him as "seven years old on the Binef."

**The Present Status of Esophagoscopy in Cancer of the Esophagus.**—Richard Lewisohn insists that the direct inspection of the lesions of the esophagus is the most certain method for exact diagnosis, that early diagnosis in cancer of the esophagus is possible only by working along these lines, and that it is only by means of early diagnosis that successful operative results may be looked for. Until a few years ago cancer of the esophagus was looked upon as a hopeless condition. The discovery of Saubrich has changed the outlook. The writer

is sanguine that further work in this field will eventually make it possible to resect a cancer of the lower esophagus as successfully as the surgeon today excises a carcinoma of the cervical portion.

#### AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

June 15.

**Clinical Observations Concerning Twenty-seven Cases of Splenectomy.**—H. Z. Giffin gives consideration to a series of twenty-seven cases in which splenectomy was done, and is impressed with the fact that a proper classification of conditions in which marked splenic enlargement is associated with secondary anemia is extremely difficult, if not impossible, at the present time. The best basis for a tentative classification is the clinical features, as they assist us in recognizing clear cut and uncomplicated cases of splenic anemia. As the pathology of splenic anemia and other conditions simulating it is but little understood, it is best, for the present, to base our conclusions only on those reported cases in which both pathological and clinical evidence have been published. The review of these cases would suggest a possible relationship between gallbladder disease and splenomegaly and the existence of a clinical syndrome presenting a picture embodying our conception of splenic anemia in which splenectomy is followed by a return to excellent health in a large proportion of cases, but in those instances in which the diagnosis is complicated by other diseases of a chronic infectious nature, the value of splenectomy is doubtful. In these, as in other medicosurgical conditions, it is imperative that the physician acquaint himself thoroughly with the details of surgical prognosis. It is only after a careful diagnosis, not only of the enlargement itself but also of the patient's general condition, and after the elimination of the existence of serious complications, that splenectomy should be advised.

**Observations on the Intestinal Bacteria in Pellagra.**—From the report of the Illinois State Pellagra Commission on the fecal bacteria in pellagra a brief summary is made by W. J. MacNeal. The fecal bacteria in pellagra, when subjected to direct microscopical examination, are found to differ from the normal in the quantitative relationships, and are associated with unusual kinds of bacteria, more or less heterogeneous in nature. The cultural tests developed unusual quantities of certain normal types, *Bacillus bifidus*, *Bacillus Welchii*, and micrococci, as well as a great variety of bacterial forms not usually found in healthy human feces. None of these changes appeared to be constant. During the acute attack accompanied by diarrhea the Gram positive cocci were nearly always more numerous, and the Gram negative bacilli less numerous than normal in these cases. These changes, also observed in the subacute cases and persisting to a slight degree after the skin lesions were healed, were nearly constant and were such as might naturally follow the digestive derangement. There was no indication of a substitution of the normal intestinal bacteria by an abnormal invader. The abnormal types were varied in nature, and in no case dominant in numbers. Subcultures were made from numerous colonies, and one hundred of these bacterial strains were subjected to agglutination tests. Two of these bacterial

strains, Nos. 14 and 67, appeared to be identical. The writer undertook the task of isolating further bacterial strains from the intestinal contents of pellagrins. While his work is not yet completed, he has failed to isolate any germ similar to strain No. 67 (mentioned above) from the feces of these new cases. From the duodenal fluid, however, a few strains have been obtained which have given positive agglutination tests with the serum of pellagrins, and which seem to agree biologically with strain No. 67. No definite conclusions are drawn by the writer, as his investigations are still incomplete.

**The Rational Treatment of Tetanus, with a Report of Twenty-three Cases from the Episcopal Hospital, Philadelphia.**—Astley P. C. Ashhurst and Rutherford L. John agree that tetanus is a pure toxemia. The bacilli or their spores may exist indefinitely in the tissues, and no symptoms will appear unless toxins are formed, and if the toxin is introduced into the system, the characteristic symptoms of tetanus will be produced, even though no bacilli are present. The toxin ascends the nerves through the axis cylinders (perhaps by means of a centripetal protoplasmic current), and in this way can produce a severe tetanus, ascendens; the toxin may be transmitted through the perineurium and endoneurium, and be a factor in producing local tetanus; the toxin also spreads to neighboring parts of the cord, invading its sensory portions, and also entering the circulation (this last eventually reaches the cord and produces descending tetanus). The most important feature in prophylaxis is the early and efficient care of the wound, and the prophylactic use of antitoxine at once, a second injection about the eighth or tenth day; and a third during the third week, in each case to be made as near to the wound as possible, so as flood the tissues, and deep, so as to permit its rapid absorption; while if any nerves are exposed in the wound they should be injected. The prophylactic dose should be 1,500 units. The writers say of "Fourth of July tetanus" that in spite of diligent and unprejudiced study, they are not convinced that such injuries are more liable to be followed by tetanus than other contused or lacerated wounds. The reduction in the incidence of tetanus they attribute as rationally to better care of the wound as to the antitoxine employed.

**The Use of Antityphoid Vaccine during the Course of an Epidemic.**—C. J. Hunt concludes from his studies made in an epidemic that antityphoid vaccine has little value in limiting the number of cases and in modifying the process in the individual case. It would seem that a serum would be of some advantage during such an epidemic, since antityphoid serum confers relatively a more immediate and fairly strong immunity. The use of vaccine should be limited to those not already infected, that secondary cases may be prevented. The individual history and diagnosis by culture would determine its use.

**Acute Polymyositis.**—Herbert Fox reports the blood culture finding in a case of acute polymyositis, which is interesting in that it is another case to support the view that this disease is a bacteremia due to a micrococcus, with curious and

rather uniform predilection for the musculature by which a subspecies or variety of a pus former can produce a definite clinical picture, with more or less characteristic lesions differing from those produced by the most prominent member of the group to which it belongs. It is suggested that the infection assumes the form of polymyositis when a *Micrococcus pyogenes* bacteremia occurs in a person whose condition favors rheumatism, although there is no pathological basis for this, as the lesions are different.

#### AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

June, 1, 1913.

**A Critical Review of the Medical and Surgical Treatment of Puerperal Eclampsia.**—Zinke discusses at length the relative values of the medical and surgical methods of treating puerperal eclampsia. Inasmuch as the character of the causative poisonous substances is absolutely unknown, although all authorities agree that in the majority of cases eclampsia results primarily from renal insufficiency, there is little to be done in a direct way. Certain writers take the stand that as eclampsia depends upon pregnancy, the emptying of the uterus is the most important factor in bringing about the recovery of the patient. Consequently, the advice of these men is to bring about delivery after the first attack. Zinke, in going over the reports on the subject, concludes that the surgical method, by Cesarean section or otherwise, does not offer any advantages, and that under many conditions it is unjustifiable. He considers the medical treatment to be comparatively simple, dividing it into the prophylactic and the curative. If his method fails he believes that very little could be expected from surgical intervention. The good results obtained from strictly medical care in these cases far exceed the results accruing from all the surgical means proposed for relief from this condition.

**Some Obstetric Observations Pertaining to Internal Secretion.**—Good reports the cases of two patients, one a primipara of twenty-seven, the other of a multipara of forty-two, who, after simple spontaneous labors, died within a few hours of vasomotor paresis. The pulse ran up to from 150 to 180, and was irregular and thready; this was followed by a drop to about sixty-five, with low tension. A number of somewhat similar cases reported by other men are also mentioned. Good calls attention to the frequency in which thrombosis or embolism is given as a cause of death, and how infrequently it is found in cases coming to autopsy. He comes to the conclusion that it seems more probable that this cardiovascular collapse is due to some marked disturbance of internal secretion, the lack or excess of some hormone, an increased or diminished secretion of a ductless gland. The adrenal is the gland that is considered mainly responsible.

**Complement Deviation by Corpus Luteum Antigens.**—Knowing that the ovary possesses a powerful influence over the nervous system of the individual over the development of the uterus and of the breasts, and over the phenomena of menstruation, Smith wished to determine if such an "internal secretion" would produce an antibody. If so, might

it not be possible to determine the presence or such an antibody by a complement deviation test, using as antigen an extract of corpus luteum tissue? His experiments, however, proved negative.

**A Contribution to the Study of Eclampsia as a Toxemia of Possible Mammary Origin.**—Wilson reviews at some length the parturient paresis of cattle and its resemblance to eclampsia in the human being. Following this he discusses the literature dealing with cases of eclampsia that were treated as possibly being due to a mammary toxemia. From a comparison of the two conditions he concludes that there is not very much in common, and that the mammary theory of eclampsia does not rest on a firm basis.

**X Ray Treatment of Uterine Fibroids, Menorrhagia, and Metrorrhagia.**—Stern gives the results obtained in the treatment of fifty-two cases. Although it is by no means a cure all, he believes that a large proportion of cases can be cured, and others benefited, by the treatment, but there are cases where it will fail, despite careful and energetic persistence. Sometimes the improvement does not begin till the fourth, or even the fifth, month. There seems no danger of producing a permanent menopause in women who are not near the climacteric period. In younger women temporary menopause, lasting in some cases more than eight months, has been followed by a reestablishment of menstruation, generally in a normal manner.

**The Newer Operations for Restoration of the Pelvic Floor, with an Original Technic for Exposing and Uniting the Injured Levator Ani and Deep Transversus Perinei Muscles.**—Hirst, by means of a number of most excellent pictures, illustrates a new operation for this condition. By means of his new method Hirst believes that the restored pelvic floor has a more normal feel and affords a firmer support than can be obtained by any of the other operations at present in vogue.

#### AMERICAN JOURNAL OF SURGERY

May, 1913.

**Radiographic Diagnosis of Syphilis, Tuberculosis, Tumors, and Osteomyelitis of the Long Bones.**—W. M. Brickner avers that a careful analysis of every radiograph will in nearly all cases reveal the diagnosis. Two reactions characterize the radiographic picture of syphilis. The most constant and most distinctive feature is thickening of the periosteum. The second and next most important feature is the thickening of the bony tissue, especially the cortex. Both of these produce black shadows on the x ray plate. A third type of process, which may appear, by contrast, as a light area, is gummatous destruction of the bone. The writer quotes Ware in contrasting the radiographic features of (hereditary) luetic and tuberculous dactylitis: Tuberculosis originates in the epiphysis, syphilis in the epiphyseal end of the diaphysis. In tuberculosis there is little or no periosteal thickening, in syphilis the periostitis is marked. In tuberculosis there is a greater tendency to bone destruction, in syphilis to bone production. In tuberculosis the swelling is largely due to inflammation of the soft parts, in syphilis it is largely due to thickening of the bone. Suppurating sinuses are not un-

common in tuberculous dactylitis; they are in syphilitic dactylitis. In chronic osteomyelitis of pyogenic origin the x ray may show well defined periostitis, but slight as compared to syphilis. The involucrum, often seen in chronic pyogenic osteomyelitis, does not occur as such in syphilis, and, as compared with the new bone produced in the latter, it is usually thinner; its borders are also thin and irregular. Endosteal sarcoma presents a characteristic marked rarefaction in the tumor area, expansion of, and shelllike thinning out of the cortex. Periosteal sarcoma may be easily mistaken for syphilis, but the shadow in sarcoma is often blotchy, wavy, or fringelike, and, instead of hugging the bone as in syphilis, it may appear to radiate from it like miniature swirls in a sandstorm.

**Ligation in Hyperthyroidism.**—George M. Todd has employed the following method in ligating the thyroid vessels in twenty-six cases without fatality: A skin incision is made an inch and a half in length along the anterior border of the sternocleidomastoid muscle, the upper extremity of the incision being the lower border of the cricoid cartilage. The sternomastoid is exposed, and, just to the inner side of this muscle, we find the anterior belly of the omohyoid, while inside of this muscle is located the sternothyroid. These muscles are retracted, the sternohyoid to the inside of the omohyoid and sternomastoid to the outside. By blunt dissection the anterior surface of the thyroid gland is brought into full view by separating the muscles from its capsule. The carotid vessel is now exposed and the thyroid gland, covered with its uninjured capsule, lies in the field before one. With slight traction upon the gland, the superior thyroid artery is to be seen at the upper angle of the wound, leaving the carotid and entering the gland at its upper extremity, and the inferior vessel deep in the lower angle, entering the gland on the posterior surface, about one third of an inch distance upward from its lower extremity. A full curved round needle, threaded with number two chromotized catgut or ironnyed silk, is now passed with the arteries in full view, being certain to include sufficient tissue, whereby the lymphatic structures and the nerve supply of the gland may be included with the artery.

#### ARCHIVES OF INTERNAL MEDICINE

June, 1913.

**Histopathology of the Nervous System in Pellagra.**—H. D. Singer and L. J. Pollock report the findings noted in a series of fourteen cases of pellagra. The gross morbid anatomy of the nervous system was in no way characteristic. Microscopically, there was found in the acute pellagra attack, as well as in the interval cases, a picture compounded of both acute and chronic types of reaction. The acute changes included chromatolysis of nerve cells, the presence of ameboid glia cells, and slight perivascular infiltration. The chronic changes included fatty and fibrinoid degenerations, chronic Nissl changes of the nerve cells, increase of glia fibres, permanent destruction of nerve fibres, and a marked increase of amyloid bodies. In common with other intoxications, the acute pellagra attack was found to give rise to a "central neuritis" reaction. None of the changes detected by the authors



are considered by them characteristic of pellagra. They conclude that there is no evidence of a local infection of the nervous system with microorganisms, nor that chronic vascular changes are essential to the picture of pellagra.

**Influence of Rapid Changes in Altitude on Blood Pressure.**—F. E. Clough studied this question in 100 normal miners, who went down a shaft 1,700 feet deep in two minutes in the morning, and up the same shaft in one minute at the close of the day's work. The rapid change in altitude, either up or down, was found to cause a fall in blood pressure of about five mm. of mercury. Lower pressure readings, in general, were obtained from the age decade thirty to forty than from twenty to thirty. It was impossible to forecast by a man's build or any other factor what influence the ride would have upon his blood pressure. Abnormally high blood pressure was shown not to be a contraindication to hard work under ground.

**Superpermeability in Nephritis.**—W. A. Baetjer writes concerning four cases of nephritis, similar in that while the elimination of sodium chloride was impaired, the tests with lactose and phthalein showed a supranormal excretion of these substances. He concludes that there exist cases of well marked nephritis with impairment of renal function in which certain tests reveal an eliminative power which is normal or even above normal. These cases may be more common than has hitherto been supposed, judging from an experience of four such examples in several months. The evidence suggests that there may exist in some types of nephritis a stage in which the kidney is superpermeable, at least to some substances. It is necessary to study renal function from the standpoint of a considerable series of functional tests, rather than to draw conclusions from the excretion of any one drug.

**Auricular Fibrillation, with Post Mortem Examination.**—A. E. Cohn and J. D. Heard report a case in which, when auricular fibrillation appeared, a fall in the ventricular rate from 120 to 80 occurred. Strophanthin, administered intravenously some weeks later, exerted a strikingly beneficial effect on the circulation and subjective symptoms. The post mortem examination showed a lesion of the sinoauricular node, but it could not be definitely asserted that a relation existed between the lesion and the clinical irregularity.

**Relation of Heart Block to Lesions of Auriculoventricular Bundle.**—H. E. B. Pardee refers to a patient with aortic and mitral insufficiency and normal heart action who developed complete heart block and died. Autopsy showed a streptococcus endocarditis superimposed on a chronic process of the aortic valve which had involved the heart substance. The auriculoventricular bundle had been destroyed for one half of its transverse section by the chronic process; but this, so far as known, had never produced heart block. The complete block had been caused by acute inflammation of the whole auriculoventricular system. The author concludes that the extent of the anatomical changes is not the only factor inducing heart block. Bacterial and metabolic toxins and deficient local blood supply are suggested as accessory factors which, under certain circumstances, might act alone.

## JOURNAL OF CUTANEOUS DISEASES.

May, 1915.

**Report of Case of Acanthosis Nigricans.**—Herman G. Klotz and George L. Rohdenburg report a case of acanthosis nigricans previously exhibited by Doctor Klotz before the New York Dermatological Society. It was that of a man of sixty-four years, who previous to 1910 was healthy. Early in that year he noticed a change in the color of his skin, and the scalp became itchy. Later on, pigmentations of various sizes and roughness of the skin appeared in various areas. Wartlike areas were also found scattered over the skin and also on the tongue. General examination at that time was negative. Ultimately a diagnosis of cancer of the sigmoid was made. The patient died, and an autopsy made revealed a small, spindle cell sarcoma involving almost the entire colon and also secondary deposits in other organs. The case confirms the general experience that in elderly patients acanthosis nigricans is always associated with malignant tumor of abdominal organs. The unusual location of the primary tumor is of interest and explains why it remained undiscovered until a late period.

**Report of a Case of Extensive Tuberculosis Cutis, with Death from Pyemia.**—Henry Kenedy Gaskill lays stress on the mortality of generalized tuberculosis cutis. He shows the unreliability of the statistics of this affection. He shows that in his case, as also in cases reported by Kaposi and Crocker, generalized tuberculosis cutis, particularly when occurring on the lower extremities, sets up a toxic (tuberculous) lymphangitis which ultimately leads to fatality. He describes his case in detail.

**Some Details in Wassermann Technic.**—Arthur William Stillians discusses several phases of the Wassermann reaction, and gives the following conclusions: First, that a standard scale of recording strength of reaction should be adopted and that the proportion of hemolysis offers such a scale. Second, that trituration of luetic antibody is necessary to accurate knowledge of strength reaction. Third, that several antigens should be used for each test. Fourth, that absorption of native amboceptor detects a considerable proportion of positive reactions that would otherwise remain undetected or doubtful, and does not cause a positive reaction with nonluetic sera. That it is of value and should be used to parallel the Wassermann reaction in negative or doubtful sera with large amounts of native amboceptor. Fifth, that we should not allow ourselves to build upon the assumption that a negative Wassermann reaction means a cure.

June, 1915.

**Morphealike Epithelioma.**—M. L. Heidingsfeld describes in detail a case of morphealike epithelioma, and gives a picture of the pathology of this unusual affection. He then generalizes on skin cancers and concludes that there are two varieties: 1. The cylindromas and the so called basocellular epitheliomas of Krompecher, in which the subepithelial structures are involved; 2, the horny or spinous celled epitheliomas.

**Verruca Peruviana: Its Comparative Histological Study in Man and Ape.**—In this very full paper, H. N. Cole concludes that in cases of this disease with three successful reinoculations in monkeys, no specific organism had been found, and also that in man, as well as in apes, the tumors found resemble each other very closely in their mode of formation, in their constituents, and in their gross appearance.

**Negative Wassermann Reaction in Untreated Tertiary Syphilis of the Skin and Mucous Membranes.**—(O. H. Foerster records two undoubted cases of tertiary syphilis of the skin and mucous membranes, one occurring in his practice, and one in the practice of his associate, which gave negative Wassermann reactions; and throws out a hint of warning in reference to an absolute reliability of the complement fixation test of lues.

#### OPHTHALMIC RECORD.

June, 1913.

**A Case of Gumma of the Iris after the Use of Salvarsan.**—Aaron Brav reports a case in which a man twenty-four years old received an intravenous injection of salvarsan because of syphilis contracted five months before, and had no other treatment. Six weeks later he suddenly developed severe pain in the left eye, accompanied by photophobia and lachrymation. Four days later Brav found the left eye red, with a marked ciliary injection, the cornea clear, the pupil about 2 m. m. in diameter, with a very slow reaction to light. On the margin of the iris there was a circumscribed reddish brown growth as large as two pins heads, with a small adhesion to the anterior capsule of the lens. The pupil dilated under atropine, except at the point where the tumor was situated. Under atropine, leeching, and mercurial inunctions, the tumor rapidly disappeared, and the eye was perfectly well at the end of two weeks. (The history of the case, the stage of the syphilis, and the nature of the remedies to which the tumor responded, make it highly probable that the diagnosis should read, papule of the iris. Gummata of the iris are rare, but they are sometimes met with in the tertiary stage of syphilis and they respond best to large doses of potassic iodide.—EDITOR.)

**Enucleation under Ciliary Ganglion Anesthesia.**—Jesse S. Wyler proceeds in the following manner: The patient is prepared as in other operations and five drops of a four per cent. solution of cocaine are instilled into the conjunctival sac at intervals of two minutes. A syringe holding one c. c. is fitted with a strong needle exactly five c. m. long, and filled with a 0.9 per cent. solution of cocaine and 0.1 c. c. of epinephrin (one in 1000). The speculum is inserted to make the canthus tense, and the needle is entered exactly in the angle of the external canthus, close to the bony edge of the orbit. If the needle is sharp it penetrates easily about  $1\frac{1}{2}$  c. m., and then strikes the lateral wall, when the direction is turned nasally, following the wall closely until the penetration has gone the entire five cm. of the needle. By gently swaying the syringe it can easily be determined that the point of the needle is free in the orbit, and not caught in the periosteum. The mixture is then slowly injected, the speculum

removed, and after about three minutes considerable pressure is made over the ciliary body, which will cause no pain if the anesthetic has reached its goal. The eyeball is protruded a little when the injection is made. Enucleation can now be made in the ordinary manner. Local anesthesia for this operation is particularly to be preferred in patients in whom the use of general anesthesia is contraindicated for any reason.

### Proceedings of Societies.

#### THE AMERICAN GYNECOLOGICAL SOCIETY.

*Thirty-eighth Annual Meeting, Held at Washington, D. C., May 6, 7, and 8, 1913.*

The President, Dr. HENRY C. COE, New York, in the Chair.

(Concluded from page 154.)

**Further Report of Cases of Dysmenorrhea Relieved by Nasal Treatment.**—Dr. JOSEPH BRETTAUER, of New York city, said that after an experience of two and one half years with the nasal treatment of dysmenorrhea, the final results showed that in about one half the number of cases so treated the results were favorable. In some cases the benefit was temporary, requiring another course of nasal treatment. In other instances the relief was prompt and permanent after three or four caustic applications to the nasal spots during a menstrual interval. A report of sixty-six cases so treated was included in the paper.

Dr. EMIL MAYER, of New York city, stated it had been his privilege to see the cases reported by Doctor Brettauer, and also quite a number of others which he had not seen fit to include in his report, because he was not sure of some of the conditions presented. Some of these cases were in patients of his own. Occasionally a young woman would come to his office with intranasal difficulty, and naturally being interested in the question of painful menstruation, he elicited from such that they had suffered a great deal at their periods, and, following treatment of the nasal conditions, he was able to benefit them; so that his own statistics, which he hoped to publish later, would be more favorable than those of Doctor Brettauer. As to amenorrhea, he had had several young girls who had not menstruated at all for three or four months, but after applications to the nose menstruation became established.

Dr. E. C. DUDLEY, of Chicago, said he would like to ask if the author of the paper was to be understood as holding that this cauterization treatment of the nose should be used in all cases in which there were neither pelvic nor nasal lesions. In other words, if examination of the pelvis and of the nasal passages were found negative, would he then empirically cauterize?

Dr. HENRY T. BYFORD, of Chicago, stated that one of the chief objections he had to this method was the indefiniteness in regard to the kind of dysmenorrhea and the condition of the nose. As he understood, there had been no study made of the kind of dysmenorrhea to be helped. There were no lesions of the nose except during the menstrual period, or when congestion appeared during the menstrual period and they were usually regarded as a result, and not as a cause of something; and when women had pain in their breasts every month, we did not treat the breasts, thinking we would cure any disturbance in the pelvis. There were a good many kind of dysmenorrhea, and one of these had not been spoken of, namely, nervous dysmenorrhea. He was willing to concede that the treatment outlined by Doctor Brettauer would help patients who had this form of dysmenorrhea.

Dr. ROBERT C. MYLES, of New York city, said he found many cases of serious local irritation in the nose where the central nervous system seemed to be in a state of aggravation or irritation as a result, with resulting phenomena in other parts of the body; and when this irritation in the nose was relieved the other symptoms or phenomena disappeared.

Dr. W. GILL WYLIE, of New York city, stated that after a long study of this subject he had come to the conclusion

that in many of these cases the underlying cause was imperfect development of the lining membrane of the uterus. A peculiar case came under his observation not long since. A mother brought her young daughter to him, and when he asked her what the trouble was, she said that about the time of menstruation, or when it was approaching, her daughter could not appear in company, especially if there were gentlemen about, because suddenly her lips became so large and her face so red that she felt very uncomfortable and uneasy. He studied the case and told the mother he thought he could make a diagnosis. The girl was put on the table, with the mother and nurse present, and on examination he found little or no abnormal changes in the vulva except that the girl was not fully developed. He did not detect any gross disease, but he noticed the secretions about the vulva to become very profuse. He had found, when examining women, that if an erotic feeling were excited by the examination of the cervix or uterus, there were marked changes in the erectile tissue of the genitals.

Doctor BRETTAUER said, in answer to Doctor Dudley's question, he would say by all means touch the nose in the absence of any pathological condition in the nose and the pelvis. He would do so as an experiment, as it could do no harm.

**The Conduct of Gynecological and Obstetrical Operations in the Presence of Acute or Chronic Endocarditis.**—Dr. JOHN OSBORN POLAK, of Brooklyn, New York, gave the following conclusions as summarizing his experience in gynecological operations under such conditions: 1. In pelvic conditions necessitating operation this may be done after proper cardiac preparation. 2. The cardiac symptoms, the blood pressure, and the functional activity of the liver and kidneys, are the only indices of when it is time to operate. 3. These cases should always be seen and treated in conjunction with a competent internist. 4. The operation should be rapid, bloodless, and done under combined local and general anesthesia (morphine novocaine, ether, and oxygen). 5. The Trendelenburg posture should be used only until such time as the field can be properly isolated, when the patient may be gently lowered out of it. 6. Phlebotomy should be done promptly on signs of right heart engorgement. 7. Postoperative distention must be avoided. 8. Morphine was the mainstay in the therapeutics.

**The Influence of Ectopic Pregnancy on the Blood Supply of the Uterus, with Special Reference to Uterine Bleeding: Based on the Study of Twenty-five Injected Uteri Associated with Ectopic Pregnancy.**—Dr. JOHN A. SAMPSON, of Albany, New York, stated that as a result of ectopic pregnancy the uterus was enlarged, due mainly to hyperemia and a thickening of the endometrium. The changes in the latter were similar to those found in the decidua vera of early uterine pregnancy. The venous spaces of the endometrium were dilated and this dilatation was most marked in the superficial portion of the compact layer and at its junction with the spongy layer. The termination of the pregnancy was followed by involution of the uterus. The first step in the involution of the endometrium was seen in the greater dilatation of the venous spaces, probably due to regressive changes in the stroma and apparently dependent upon a diminished supply of arterial blood. The arteries were less evident during involution of the uterus. The dilatation of the venous spaces was followed by the escape of venous blood in the tissues of the endometrium. If the superficial venous stasis of the compact layer gave way, the blood would escape into the uterine cavity, without the formation of a decidual cast. On the other hand, if the venous spaces at the junction of the compact and spongy layer gave way, the extravasation of blood would occur mainly between these two layers, and the compact layer would be expelled as a decidual cast. In time the regressive changes ceased and were followed by a reparative process which was apparently dependent upon the restoration of the arterial supply of the endometrium. The involution following the termination of tubal pregnancy was very similar to that following uterine pregnancy, differing only in degree. In the vast majority of cases of ectopic pregnancy the complete termination of the pregnancy was a gradual process often taking several days or weeks, four weeks or more in seventeen of the twenty-five cases studied. When operated on the uterus had been and might still receive stimuli from two distinct antagonistic sources, namely, pregnancy and involution. The condi-

tion present in any case depended upon which of these sources predominated and to what extent it had been and was influenced by the other. The uterine bleeding was of venous origin, from the venous plexus of the endometrium, and due to regressive changes in the latter, apparently dependent upon a diminished arterial supply. Muscular insufficiency might also contribute to this. The bleeding continued as long as the pregnancy (products of conception) interfered with the process of involution. It was probably analogous to the bleeding in subinvolution of the uterus due to an incomplete uterine abortion.

Dr. PHILANDER A. HARRIS, of Paterson, New Jersey, said that to one who had performed a good many operations for ectopic gestation (to be specific, 228) it was interesting to have this unquestionable demonstration of the changes which occurred in the uterus. It would not have been possible for him to exhibit uteri from the cases on which he had operated for ectopic gestation, excepting those that were also the seat of some neoplasm. This brought up the question of what practical use was the uterus after an operation for a simple gestation? Doctor Smith of the society had collected a good deal of valuable information along this line, but he hoped he might be pardoned for saying he had not had time to find out how many of the women upon whom he had operated for ectopic gestation really gave birth to children. According to Doctor Smith and others the number of births in such cases was exceedingly small. Possibly, there were four out of the 228 on whom he had operated who gave birth to children. In thirteen of these the ectopic gestation was recurrent. The only point which came to his mind now was whether, in order to secure only four or five offspring in possibly 228 cases, we should save the uterus.

**Operation for the Cure of Rectocele and Restoration of the Function of the Pelvic Floor.**—Dr. GEORGE GRAY WARD, Jr., of New York city, said the operation in question was especially applicable to cases of large rectocele. The conditions present in a rectocele were the same as in a cystocele; there was a true hernia or prolapsus of the rectum corresponding to the prolapse of the bladder. Likewise, the bowel had been enlarged and pouched by distention, so that there existed an actual increase in size of the gut similar to the condition at the base of the bladder in cystocele. The same principle was applied in this operation to cure the rectocele as was employed in the modern radical operations for the cure of cystocele; the rectum was completely separated from the entire posterior wall of the vagina and was placed higher up in the pelvis. The author described the operation and gave the technic used by him in perineorrhaphy.

**The Relation between the Blood Pressure and the Prognosis in Abdominal Operations.**—Dr. GEORGE W. CRILE, of Cleveland, Ohio, stated that the relation between the blood pressure and the prognosis in abdominal operation was based upon two extremes, an extremely low blood pressure and an extremely high blood pressure. Provided the heart was normal, we could now control the low pressure phase by transfusion of blood, by mechanical means, or by saline infusion. The high blood pressure was far more difficult to control, because it was difficult to control the factors that produced it. If there were cardiovascular disease due to infection or to tox, nitroglycerin might exert little control, although there was a type of cardiovascular disease that was controlled by nitroglycerin. It was not wise to reduce the blood pressure by bleeding, and aside from nitroglycerin and hygienic measures, there were no other remedies. Therefore, as a matter of fact, the high blood pressure was likely to be a more dangerous factor than was low blood pressure. Whether the blood pressure were abnormally high or abnormally low, the patient was more apt to have complications such as thrombosis, emboli, pneumonia, nephritis, and bronchitis—indeed, the abnormal pressure played into the hands of all the usual dangers and complications of abdominal operations. If operation were so performed that the nervous system remained uninjured, the blood pressure unaltered, then the maximum degree of safety would be reached. This he had found could be done on the principle of anoci association.

**Studies in Blood Pressure before, during, and after Operations under Local and General Anesthesia.**—Dr. JOSEPH C. BLOOMCOO, of Baltimore, Maryland, said that even to-day, with better anesthesia, with better technic, we had a mortality. The mortality was not from simple ap-



pendectomy and from other simple operations, but from the graver operations, such as resection of the stomach, resection of the colon, the more extensive operation for cancer of the uterus, and the more difficult operation for myoma of the uterus. There was a mortality, and if there was an autopsy on such a patient we might find no infection of the wound, no break in the technic of the intestinal suture, no hemorrhage from the pelvic operation, though still the patient had died. Carefully followed, it was found that such patients died as a rule within forty-eight hours or three days with a gradual lowering of blood pressure, with a gradually increasing pulse, with little or no fever, or that they died from complications which in the healthy individual were not serious. Patients died from complications of the kidney and anuria, complications of the heart, complications of the stomach, such as dilatation. There was this mortality in surgery to-day which had no relation to infection and no relation to faults in technic in the sense of hemorrhage, in the sense of faulty suture of intestine, where there would be peritonitis, in the sense of incorrectness which would produce intestinal obstruction, but in the sense of death from shock or death from complications that were due to shock of the operation. These complications were chiefly dilatation of the heart, dilatation of the stomach, and faulty kidney function. He was trying to show in a practical way how we were being forced to investigate and to adopt the method of Doctor Crile. In the last four or five years, as a result of investigation of the literature on the subject, and stimulated by Doctor Crile's work in the laboratory and clinic, he had attempted to follow the technic, and he thought the most practical thing he could say to those present was to follow his technic in every case. We should remember, however, that to accomplish something that was difficult, something that was more than ordinary, we must practise. From his experience, now covering three years, he believed that if we wished to develop the technic of anesthesia and operation, and to give these patients handicapped with an extraordinary operation the best opportunity for recovery we must practise this newer technic in every case until we had gotten it fully developed.

**The Diagnostic Value of the Electrocardiograph before Gynecological and Obstetric Operations.**—Dr. HUGO H. FREUND, of Detroit, Michigan, gave a short description of this instrument and spoke of its application to hospital cases, especially those in which the patient's cardiac condition was in doubt. He showed lantern slides demonstrating the various forms of cardiac irregularities as recorded with the electrocardiograph. The advantage of this form of graphic work over that of clinical bedside examination and over certain forms of sphygmographic tracings was discussed. Some stress was laid upon the type of electrocardiogram that called for operative interference in pregnant women.

**The Conduct of Gynecological Operations, also of Pregnancy and Labor in Acute and Chronic Affections of the Heart.**—Dr. J. CLARENCE WEBSTER, of Chicago, said operations should be avoided in active or recent valvular diseases, dilatation, or myocardial degeneration, except in conditions of extreme emergency. General anesthesia might greatly increase the risk by causing coughing, straining, vomiting, or respiratory embarrassment. Slow administration with free admission of air or oxygen was necessary. Local anesthesia was of importance in such cases. In slight or well compensated affections regular methods of anesthesia might be employed. As regards pregnancy, women with heart disease should not become pregnant. If pregnancy occurred, it was on the side of safety to advise early abortion, especially if there was recent acute disease of any variety, or old mitral disease of other lesion with failure in compensation. With reference to labor, if the patient's condition was good, in the first stage, as in normal cases, all strain and excitement should be avoided. It was advisable to avoid straining in the second stage by artificial delivery, forceps, or turning under anesthesia. In the third stage it was best to separate the placenta manually, allowing some loss of blood. A woman at term with failure in compensation, or embarrassed circulation, probably had the best chance if delivered by vaginal or abdominal Cesarean section.

**The Significance of Anemia as an Operative Risk.**—Dr. HENRY T. BYFORD, of Chicago, stated that for surgical purposes we might divide cases of anemia into two groups,

namely, those with compensation and those without. The former class were good operative risks, the latter poor ones. He pointed out the characteristics and complications of each, and cited illustrative cases.

**Treatment of Puerperal Thrombophlebitis.**—Dr. PALMER PENNEY, of Omaha, Nebraska, reported and discussed the literature on the subject, and went on to say that with this review of his recent personal experience with puerperal thrombophlebitis, together with the expressions of opinions of many of our workers in the field of obstetrics, he would submit the following for consideration: 1. The Trendelenburg operation was surgically correct in theory, but as a practical proposition it was a questionable procedure. 2. The difficulties involved in the making of an accurate diagnosis before opening the abdomen were as yet insurmountable; furthermore, it was not possible to judge with accuracy the extent of the infection within the veins or elsewhere after the abdomen was opened. We could not rely upon the sense of touch to locate with certainty the limits of a thrombus, nor could we judge with certainty the limits of a thrombus, nor could we judge with certainty the presence or absence of pus within the veins. Failure to find bacteria in the general circulation gave no absolute assurance of the localized character of the infection, nor could a physical examination of the lungs and other viscera exclude the possible presence of metastatic foci. 3. It was in direct violence to our rules of practice to traumatize tissues in the immediate neighborhood of a virulent infection. 4. It was a physical impossibility to ligate all the veins leading from the genital organs, and unless all channels were blocked there could be no assurance of checkmating the infection. Among the ardent supporters of the operation were those who would ligate the lower end of the vena cava and both spermatic veins, stating that the collateral circulation could be depended upon to reestablish the return circulation. 5. The physical resistance of all cases of puerperal infection was far below par. A fact which made us cautious in adding further to their burdens. We might well rob them of the little resistance they possess. 6. Little dependence could be placed upon serums and vaccines in these cases. 7. Whatever might be our views on the question of ligation of veins or upon the administration of serums and vaccines, we were all agreed that the body resistance might be supported by fresh air and nourishing food.

**The Calcium Content of the Blood during Pregnancy, Labor, and the Puerperium.**—Dr. W. H. MORLEY, of Detroit, stated that calcium was a normal constituent of the blood. Its function in promoting clotting of the blood was explained. The determination of the amount of calcium in the blood was usually done by the volumetric or by the gravimetric methods. Either of the two methods mentioned required a large amount of blood in order to lessen the proportion of error. The author described a simple but accurate method of determining the amount of calcium in the blood. He presented a short report of cases in which this method had been applied, and stated what it had accomplished and what the knowledge of the calcium metabolism might show in the physiology and pathology of pregnancy, labor, and the puerperium.

**What are the Best Methods of Educating American Women Concerning Cancer.**—Dr. FREDERICK J. TAUSIG, of St. Louis, Missouri, stated that it was almost impossible to have printed in a lay periodical intended for general distribution any article upon so distasteful a subject as cancer of the uterus. The only way it could be done was to incorporate it in a general article on cancer and couched in special paragraphs referring to uterine cancer in such words as not to give offense. In spite of the wide circulation thus obtained through some of our women's magazines, he did not specially favor this method, as its lack of directness tended to diminish its effectiveness. He suggested an occasional article in the journals of nursing, besides the distribution of special leaflets giving concise information as to early symptoms. Such leaflet had better be given in person by the doctor, the nurse, or the social worker. Leaflets that supplied the necessary information were more apt to be read if presented personally than they were if sent by mail. Much could also be accomplished in his opinion through the agency of women's clubs in the distribution of literature and pamphlets. There was a directness in knowledge acquired by word of mouth that ordinarily made it better retained. Hence he believed much could be accomplished

by lectures and personal conversation that mere printed matter failed to bring about. The lectures might be given either directly to the laity, before women's clubs, or social settlement organizations, or they might be given before groups of such persons as would be most frequently called upon for advice, such as nurses, midwives, teachers, social workers, ministers, or druggists. He recommended that special stress be laid upon the early symptoms of breast and uterine cancer in the curriculum of all nurses' training schools and all colleges of midwifery.

**Report of the Committee on Ways and Means in the Matter of Impressing Physicians and Educating the Public in the Necessity of Early Diagnosis and Operation in Cancer.**—This committee consisted of Dr. HOWARD C. TAYLOR, Dr. FREDERICK J. TAUSSIG, and Dr. LEROY BROWN, who reported that to accomplish these ends they were convinced that little could be done of lasting value excepting through an organized body, the sole purpose of which would be to conduct the needed campaign of education, of scientific assistance and collection of data. They further believed that such a society should be of national scope, embracing all interested societies and organizations, together with lay people throughout America. The work of this society should be carried on by a competent paid executive secretary and his office corps, under the guidance of a central committee of surgeons to be appointed by its board of directors. The need of such an organization and the possible good to be accomplished through its labors had been presented to certain public spirited women of New York city. Through their efforts and the hearty cooperation of the members of the American Gynecological Society, together with prominent surgeons and lay people, a meeting was held in New York city. At this meeting the present needs and status of the cancer problem were presented in full before them. At a later meeting of a committee on organization consisting of laymen appointed by this body the sum of \$5,000 was guaranteed toward the expense of such a society for the first year. The committee was authorized not only to make a statement to the American Gynecological Society of this guarantee, but also to present the following resolution:

*Resolved,* That we request the American Gynecological Society to present the matter to each of the branches of the said congress interested in the subject and ask each of them to appoint a committee of two or more members to cooperate with them in forming a national organization for educational and publicity work regarding the recognition and treatment of cancer, and that they meet in such committees as soon as possible after the meeting of said Congress of Physicians and Surgeons to be held during the week beginning May 4, 1913.

The committee recommended the endorsement and the enthusiastic cooperation of the society in the formation of such a national body. The committee further recommended that the American Gynecological Society appoint committees of two each to present this resolution to such component societies of the congress as they might deem interested in this matter, with a request for their cooperation. The resolution was adopted and the committee was appointed.

**Officers.**—The following officers were elected for the ensuing year: President, Dr. J. Whitridge Williams, Baltimore, Maryland; vice-presidents, Dr. Thomas J. Watkins, Chicago, Illinois, and Dr. Howard C. Taylor, New York city; secretary, Dr. Leroy Brown, New York city; re-elected; treasurer, Dr. J. Wesley Bovee, Washington, D. C., re-elected. Next place of meeting, Boston, Massachusetts.

### Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

**The Child. Its Care, Diet, and Common Ills.** By E. MATHER SILL, M. D. Lecturer in Diseases of Children at the New York Polyclinic Medical School and Hospital, etc. New York: Henry Holt & Co., 1913. Pp. viii-207.

The author has in this little book supplied the demands of the mother who wants to be intelligent in case of illness.

and who is not satisfied to follow the methods advocated by her mother or grandmother. Of the many books of this kind which have lately appeared this is the most rational. The author rarely gives directions which assume previous skill or training, but indicates to the mother *when* a doctor should be called. The proprietary foods and condensed milk are rightly frowned upon for general use, and their proper indication is shown, i. e., for temporary use in illness or as adjuvants to modified milk. Several well selected illustrations make the text clearer. One is disappointed, however, after having the proper method of syringing the ear described, to find an illustration of a soft rubber ear syringe which is not alluded to in the text. The use of old linen in the same sentence with sterile gauze as a dressing for the cord is inappropriate in a modern book. The chapters on "Flies and Mosquitoes," "When Should the Doctor be Sent For," and "Where to Spend the Summer," are particularly valuable. Nor have the problems of the village, suburban, and country mother been forgotten. This is especially significant when we recollect that the death rate of many rural communities is higher than that of the cities. The little book will be found instructive not only to the mother but to the doctor himself.

**Surgery of the Lung.** By C. GARRÉ, Professor of Surgery at the University of Bonn, and H. QUINCKE, formerly Professor of Medicine at the University of Kiel. Second Edition. With 114 Colored and Other Illustrations, and Two Colored Plates. Translated from the German by David M. Barcroft, M. D. New York: William Wood & Co., 1913. Pp. viii-271. (Price, \$4.)

The enlargement of the sphere of operations on the thoracic cavity made possible by the introduction of methods of maintaining a difference of pressure has necessitated a complete revision of this well known work on the surgery of the lung. In its present form the book gives the reader a complete description of the surgery of this region as it exists to-day, and coming from the pen of well known pioneers in this field, has a stamp of the highest authority. The work is admirably arranged, beginning with topographical anatomy, the pathology of pneumothorax, methods of maintaining a difference of pressure, and surgical technic, and finally passing on to injuries and diseases of the lung with their treatment. The chapter on the various methods of artificial change of intrathoracic pressure is particularly instructive. The authors take up in detail each form of apparatus, and afterwards give the advantages and disadvantages that have been found by actual experience to belong to each. Full credit is given the excellent work in this line that has been done by Willy Meyer, Meltzer, and others in this country. There is a good supply of plates and diagrams which help to elucidate this difficult branch of surgery. While primarily a book for the special workers in this field, it will be of great interest and value to the general surgeon and the practitioner who desires to become familiar with the progressive work that is being done in thoracic surgery and the new indications that are being laid down for interference in traumatic and pathological lesions of the lung.

**A Manual of Surgical Treatment.** By Sir W. WATSON CHEYNE, Bart., C. B., D. Sc., LL. D., F. R. C. S., F. R. S., Honorary Surgeon in Ordinary to H. M. the King, Senior Surgeon to King's College Hospital, etc., and F. F. BURCHARD, M. S. (Lond.), F. R. C. S., Surgeon to King's College Hospital, etc. New Edition. Entirely Revised and Largely Rewritten with the Assistance of T. P. Legg, M. S. (Lond.), F. R. C. S., Surgeon to the Royal Free Hospital, and Arthur Edmunds, M. S. (Lond.), F. R. C. S., Surgeon to the Great Northern Central Hospital. In Five Volumes. Vol. IV. The Treatment of Surgical Affections of the Jaws, Tongue, and Alimentary Canal. Philadelphia and New York: Lea & Febiger, 1913. Pp. xxvii-622.

The fourth volume of this important work on surgery deals with the surgical affections of the jaws, tongue, and alimentary canal and their treatment. So much progress has been made in the surgery of the stomach and intestines that the chapters devoted to them have needed more alteration in this new edition than any of the chapters of the preceding volumes. The result is that the book has been brought fully up to the times in the description of the

new diagnostic methods, indications for operation and operative methods relating to abdominal surgery. Some of the finer points in technic in which the American surgeons excel are found missing and furthermore one sees here and there a description of some method which has grown obsolete in this country. Thus the use of gauze packing for drainage in acute appendicitis has been discarded here in favor of rubber tissue. Furthermore the plan of leaving the wound wide open advocated by these authors is thought here to favor subsequent hernia. In general, however, operations advised and described are those which have stood the test of experience in Europe and America. The illustrations accompanying the description are excellent and add very much to a clear understanding of the points in technic. As a textbook for students the work should take a high rank on account of the excellent arrangement of the topics, its clear method of description, and its freedom from unnecessary interpolations of other methods of procedure than those that have received the approval of the best authorities. The wise plan has been adhered to of giving full and detailed information as to the methods that have seemed best to the authors and reference only to others.

*The Care and Treatment of European Children in the Tropics.* By G. MONTAGU HARKSON, M. D. (London), M. R. C. S. (Eng.), L. R. C. P. (London), Fellow of the Society of Tropical Medicine and Hygiene, Fellow of the Royal Society of Medicine, etc. With an Introduction by Sir Patrick Manson, G. C. M. G., M. D., L. L. D. New York: William Wood & Co., 1913. Pp. xvi-232. (Price, \$3.)

A considerable number of Americans live to-day with their families in our tropical possessions. This has come about from necessity and also because of the greater safety due to modern methods of sanitation. To look after the health of the foreign child has become an important part of the tropical practitioner's duty, and this work will prove of inestimable value to him. This will be true whether the physician has had a course in tropical medicine or not, for the handling of children in the tropics is an important branch in itself, though seldom discussed in the schools, and not touched upon by textbooks on diseases of children. The author is particularly fortunate in making his book interesting and valuable by his clearness of expression, avoidance of controversial ground, and particularly by his explicit directions as to treatment. Especially noteworthy are the chapters on "The Incidence of Disease in European Children in the Tropics" and the "Care of Infants in the Tropics." The pediatricist and the general practitioner in this country will profit by applying the principles outlined by the author to his summer problems in this country; of real value in this connection being the articles on humidity and effect of sunlight and diet. Malaria and dysentery, forming a large proportion of the children's diseases, are fully treated. We learn that in malaria the large mononuclear leucocytes are increased relatively to the other leucocytes, generally up to twenty per cent. and often more (the normal proportion being from five to ten per cent.). The author is a firm believer in the axiom "no anopheles mosquitoes, no malaria," and says that malaria is much more common, more severe, and more dangerous in young children than in adults, but more amenable to the action of quinine. We cannot agree with him in his ideas on feeding of infants, to whom he gives undiluted milk with sodium citrate, even when at birth they are below normal in weight. The little volume is well illustrated with well selected plates from larger works on tropical diseases. The book can be highly recommended, especially to the tropical physician, the pediatrician, and to every physician practising in our southern States whose practice is among children.

*Maladies du cou.* Par JOSEPH ARROU, PIERRE FREDEL, et ERNEST DESMAREST, chirurgiens des Hôpitaux de Paris. Avec 41 figures dans la texte. Paris: J. B. Baillière et fils, 1913. Pp. 166. (XXI Nouveau traité de chirurgie, publié sous la direction de A. Le Dentu et Pierre Delbet.)

The twenty-first volume of this important work by French authors is devoted to the surgery of the neck. The subject is condensed into a space of less than 200 pages which seems rather inadequate for such a very important topic. The first chapter deals with injuries. This is followed by

a discussion of acute and chronic inflammatory lesions and their treatment. Tumors, cysts, fistulae, and torticollis receive attention in the last chapters. The subject of goitre is not taken up in this volume. The articles are written by men of experience and the clinical aspects are kept uppermost. The discussion of such practical topics as the local treatment of enlarged glands from various causes, particularly tuberculosis, the pathology and treatment of phlegmon and the differential diagnosis of cervical tumors is very thorough and instructive. The text is clear, concise and free from the recital of personal experiences of specific cases. It is eminently fitted for the student and practitioner who wishes to get at the pith of the subject without wading through unnecessary details. The illustrations are not in keeping with the good text. They are very sparse and not well executed. This is, however, a minor defect in comparison with the high order of the information to be obtained from the text.

## Official News.

### United States Public Health Service Intelligence:

*Official list of changes of stations and duties of officers of the United States Public Health Service for the seven days ended July 16, 1913:*

**Draper, W. F.**, Assistant Surgeon. Directed to proceed to such places on the lower river as may be necessary in the conduct of the investigation of the pollution of the Potomac River. **Lavinder, C. H.**, Surgeon. Directed to report at Bureau for conference relative to plan and organization of pellagra investigation. **Vaughn, E. I.**, Acting Assistant Surgeon. Granted sixty days' leave of absence, without pay, from July 2, 1913. **Von Ezdorf, R. H.**, Surgeon. Directed to proceed to various points in the States of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, and South Carolina for conference with the State health authorities and for investigation of the prevalence of malaria. **Wickes, H. W.**, Surgeon. Granted one month's leave of absence from August 1, 1913.

### Boards Convened.

Board of medical officers convened to meet Monday, July 14, 1913, at 10 o'clock a. m., at the Marine Hospital, Baltimore, Md., for the physical examination of third Lieutenant of Engineers F. E. Fitch to determine his physical fitness for promotion. Detail for the board: Senior Surgeon H. R. Carter, chairman; Passed Assistant Surgeon J. T. Burkhalter, recorder.

### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending July 19, 1913:*

**Armstrong, John M.**, Medical Reserve Corps. Ordered to active duty in the service of the United States on account of an existing emergency from July 14 to August 22, 1913. Lieutenant Armstrong will report on July 14th to the Commanding Officer, Fort Snelling, Minn., for duty until August 22d, when he will stand relieved from active duty in the United States Medical Reserve Corps. **Baker, C. R.**, Medical Reserve Corps. Arrived at Washington Barracks, July 10th, for temporary duty, from Fort Ethan Allan, Vt. **Brechemin, Louis**, Colonel. Upon being relieved from duty at the Medical Supply Depot, St. Louis, Mo., will proceed to New York city, and assume charge of the Medical Supply Depot of that City. **Brooke, Roger**, Major. Returned to Letterman General Hospital, July 7th, for leave of absence and detailed duty. **Brooks, John D.**, Medical Reserve Corps. Ordered to active duty in the service of the United States on account of an existing emergency from July 10 to 30, 1913. Lieutenant Brooks will report to the Commanding Officer, Fort Meade, South Dakota, for duty until July 30, 1913, when he will stand relieved from active duty in the Medical Reserve Corps. **Buck, Carroll D.**, Major. Is relieved from further duty with



the Second Division, Texas City, Texas, and will proceed to Fort Mackenzie, Wyo., for the purpose of transferring public property for which he is accountable. Major Buck will stand relieved from duty at Fort Mackenzie upon the completion of the transfer of this property, and will then proceed to Washington Barracks, D. C., and report in person to the commanding officer of that post for duty and by letter to the commanding general, Eastern Department, relieving Major Charles R. Reynolds, Medical Corps, who upon being thus relieved will proceed to Fort Sam Houston, Texas, and report in person to the commanding officer of that post for duty, and by letter to the commanding general, Southern Department. **Cowles, G. D., Captain.** Left West Point, July 14th, on four months' leave of absence. **Crosby, W. D., Colonel.** Granted leave of absence for one month and fifteen days, about July 1st. **Davis, William T., Captain.** Is relieved from duty as assistant to the attending surgeon in Washington, and, upon the expiration of the leave of absence heretofore granted him, will proceed to Fort Leavenworth, Kansas, and report in person to the commanding officer of that post for duty and by letter to the commanding general, Central Department. **Eckels, Lieutenant.** July 15th left Fort McKinley on twenty days' leave of absence. **Ellis, Paul H., Medical Reserve Corps.** Is ordered to active duty in the service of the United States on account of an existing emergency from August 10 to 21, 1913. Lieutenant Ellis will report in person on August 10, 1913, to the commanding officer, Fort Omaha, Nebr., for duty during the absence of First Lieutenant John H. Trinder, Medical Corps, and will stand relieved from active duty in the Medical Reserve Corps on August 21, 1913. **Fisher, Henry C., Lieutenant Colonel.** Is relieved from duty at the Army and Navy General Hospital, Hot Springs, Ark., and will proceed to the Walter Reed General Hospital, District of Columbia, and assume command of the latter hospital, relieving Colonel Henry P. Birmingham, Medical Corps, who upon being thus relieved will proceed to Fort Slocum, N. Y., and report in person to the commanding officer of that post for duty. **Howard, Dean C., Major.** Relieved from duty at Jefferson Barracks, Mo., and will repair to this city and report in person to the Surgeon General of the Army for assignment to duty as attending surgeon in this city. **Leary, T. J., Lieutenant.** Left Walter Reed General Hospital, July 15th, on fifteen days' leave of absence. **Metcalf, Raymond F., Major.** Is relieved from duty at the Letterman General Hospital, the Presidio of San Francisco, Cal., to take effect on the arrival at that hospital of Captain John W. Hanner, Medical Corps, and will then repair to this city and report in person to the Surgeon General of the Army for assignment to duty as assistant to the attending surgeon in this city. **Raymond, Thomas U., Lieutenant Colonel.** Is relieved from duty at Fort Slocum, N. Y., and will proceed to the Medical Supply Depot, St. Louis, Mo., and assume charge of that department, relieving Colonel Louis Brechemin. **Snyder, Henry D., Lieutenant Colonel.** Is relieved from duty at the Medical Supply Depot, New York city, and will repair to this city and report in person to the surgeon general of the Army for duty in his office. **Truby, A. E., Major.** Leave of absence for one month. **Winter, Francis A., Lieutenant Colonel.** Is relieved from duty in the surgeon general's office, to take effect on or about November 1, 1913, and will then proceed to Hot Springs, Ark., and assume command of the Army and Navy General Hospital at that place. **Wood, Neil M., Lieutenant.** Granted leave of absence for one month.

The following changes in the stations and duties of medical officers are ordered:

Due to a reduction in the number of medical officers for duty in the Philippine Islands, the following named officers are relieved from duty in those islands and will proceed to the United States, and upon arrival will report by telegraph to the Adjutant General of the Army for further orders: Captain John L. Shephard, Medical Corps; Captain Samuel M. DeLoffre, Medical Corps; Captain Robert L. Carswell, Medical Corps; First Lieutenant David D. Hogan, Medical Reserve Corps; First Lieutenant Ernest E. Roberts, Medical Reserve Corps; First Lieutenant, Val E. Miltenberger, Medical Reserve Corps.

A board of officers is appointed to meet at the call of the

president thereof at Fort Monroe, Va., August 1, 1913, for the competitive examination of such enlisted men as may be ordered before it to determine their fitness for promotion to the grade of second lieutenants in the Coast Artillery Corps. Major Powell C. Fautleroy, Medical Corps; Captain Archibald H. Sunderland, Coast Artillery Corps; Captain William H. Smart, Medical Corps; First Lieutenant Robert Arthur, Coast Artillery Corps; First Lieutenant Alexander J. Smart, Coast Artillery Corps. The junior member of the examining board other than a medical officer will act as recorder.

### United States Navy Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy was reported during the week ending July 19, 1913:*

**Ammerman, C. C., Assistant Surgeon, Medical Reserve Corps.** Ordered to Navy Recruiting Station, Pittsburgh, Pa., on July 14th. **Angeny, G. L., Surgeon.** Detached from Navy Recruiting Station, Richmond, Va., and ordered to Navy Yard, Norfolk, Va., July 9th. **Backus, J. W., Surgeon.** Detached Pittsburgh to South Dakota. **Dykes, J. R., Surgeon.** Detached South Dakota to Pittsburgh. **Geiger, A. G., Commissioned surgeon** from October 28, 1912. **Hethfield, W. B., Medical Reserve Corps,** July 14th. Ordered to Naval Hospital, Newport, Rhode Island. **Post, D. C., Assistant Surgeon,** July 15th. Temporary duty, Buffalo. **Toulon, A. G., Passed Assistant Surgeon.** July 12th, detached Naval Hospital, Philadelphia, Pa., to Ozark.

### Births, Marriages, and Deaths.

#### Married.

**Long-Zinsmeister.**—In New Albany, Ky., on Thursday, July 10th, Dr. W. Hamilton Long and Miss Ella Joann Zinsmeister. **Pinkerton-Slaven.**—In Oakland, Cal., on Monday, July 14th, Dr. S. H. Pinkerton, of Salt Lake City, and Miss Alice M. Slaven. **Simons-Hildreth.**—In Boston, Mass., on Wednesday, July 16th, Dr. R. D. Simons, of Gardiner, Me., and Mrs. Florence T. Hildreth.

#### Died.

**Abbott.**—In Danvers, Mass., on Wednesday, July 16th, Dr. Harry D. Abbott. **Ashhurst.**—In University, Va., on Monday, July 14th, Dr. William Wayne Ashhurst, aged forty-six years. **Evans.**—In Cheswood, Del., on Sunday, July 20th, Dr. Owen Herbert Evans, aged forty-nine years. **Fisch-Behm.**—In Genoa, Italy, on Thursday, July 17th, Dr. Max Fisch-Behm, of Berlin, Germany. **Glinnen.**—In Brooklyn, N. Y., on Sunday, July 13th, Dr. William J. Glinnen. **Griffith.**—In Cherrydale, Va., on Friday, July 11th, Dr. Monte Griffith, aged fifty-one years. **Howard.**—In Los Angeles, Cal., on Thursday, July 10th, Dr. Burt Estes Howard. **James.**—In Madera, Cal., on Friday, July 4th, Dr. H. L. James. **Kimball.**—In Kenosha, Wis., on Thursday, July 10th, Dr. George T. Kimball, aged fifty-seven years. **Lee.**—In Point Pleasant, N. J., on Friday, July 11th, Dr. Benjamin Lee, aged seventy-nine years. **Munger.**—In Winona, Minn., on Wednesday, July 9th, Dr. L. H. Munger, aged fifty-six years. **Porter.**—In Chicago, Ill., on Monday, July 14th, Dr. Phillip Porter, of Springford, Mich., aged seventy-one years. **Quackenbush.**—In Remington, Va., on Wednesday, July 9th, Dr. Leslie R. Quackenbush, aged sixty-nine years. **Randall.**—In Dushore, Pa., on Thursday, July 17th, Dr. W. F. Randall. **Schaefer.**—In Cooperstown, N. Y., on Saturday, July 19th, Dr. John Schaefer, aged thirty-eight years. **Scott.**—In Fond du Lac, Wis., on Friday, July 11th, Dr. Hugh Scott, aged eighty-one years. **Skaggs.**—In Ellsworth, Ill., on Wednesday, July 9th, Dr. L. H. Skaggs, aged seventy-eight years. **Taussig.**—In St. Louis, Mo., on Thursday, July 10th, Dr. William Taussig, aged eighty-seven years. **Terriberry.**—In Paterson, N. J., on Monday, July 14th, Dr. George W. Terriberry, aged seventy-four years. **Waddell.**—In Chatham, Ont., on Sunday, July 13th, Dr. Jerald Waddell. **Wertebaker.**—In Washington, D. C., on Sunday, July 6th, Dr. C. I. Wertebaker, aged thirty-nine years.

# New York Medical Journal

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### Original Communications.

#### REPORT OF TWENTY CASES OF INFLAMMATORY AFFECTIONS OF THE LABYRINTH.\*

By WENDELL C. PHILLIPS, M.D.,

EDMUND PRINCE FOWLER, M.D.,

SAMUEL J. KOPETZKY, M.D.,

AND J. CLARENCE SHARP, M.D.,

New York.

#### *Introductory.*

The following series of labyrinth cases have occurred in my service at the Manhattan Eye, Ear, and Throat Hospital, in my private practice, and in the private practice of those whose reports follow. It should be noted that the diagnosis and treatment of cases have been reported in full, but without comment or conclusions. In some of the earlier cases the labyrinthine tests were somewhat crude.

#### *Report of Eight Cases.*

By WENDELL C. PHILLIPS, M.D.

CASE I. Miss M. P., aged twenty-seven years, consulted me on February 18, 1910, complaining of pain in the left ear, which had continued for several hours. There was a distinct bulging of the drum membrane, and a paracentesis was performed, under gas anesthesia. Two days later mastoid tenderness developed over the antrum and tip of the same ear, and I sent her to the Manhattan Eye, Ear, and Throat Hospital. The discharge was not profuse, and the house surgeon was directed to repeat the paracentesis. She gradually improved, and was discharged from the hospital on the 26th inst. Two days later she complained of slight headache over the left parietal region, and of severe and continuous vertigo. The ear was discharging slightly, but there was no mastoid tenderness. Her gait was extremely unsteady, with a tendency to fall toward the right side. There was no spontaneous nystagmus. There was no aerial hearing in the left ear, and no bone conduction on the left side, and when the fork was applied to the mastoid of the left side it was heard distinctly in the opposite ear. Upon rotation the left vestibular apparatus was not irritable. The vertigo remained severe and continuous, even when the patient was lying down. She was kept in bed in a dark room for nearly three weeks, during which time the aural discharge gradually disappeared and the vertigo subsided. She had absolutely no hearing in the affected ear when the noise producer was used on the opposite side. Upon rotation at this time a very slight reaction was obtained. On September 10th, of the same year, she returned for examination, when it was found that there had been no improvement either in the hearing or in the static labyrinth. She was not seen again until January 6, 1913. She has had no recurrence of discharge, but does complain at times of

noises in the left ear. She is still absolutely deaf to all sounds, both aerial and by bone conduction. Upon rotation to the right she has an after nystagmus of ten seconds. Rotation to the left induces nystagmus of five seconds. She volunteered the statement that even at this time she is wholly unable to locate the direction of sound.

CASE II. Sophie W., aged twenty-six years, married, housewife.

Previous history: Remembers no diseases of childhood. Had an abscess of the left ear when thirteen years of age. Since then there has been a discharge off and on. Sometimes the discharge was purulent, and at other times small, foul smelling pieces came from the ear. At intervals there was slight headache. Three weeks before coming to the clinic she had violent vertigo accompanied by nausea upon introducing the index finger into the left ear. Patient states that she had had milder vertiginous attacks before this.

Functional examination: Patient had spontaneous rotatory nystagmus in both directions, in the extreme lateral positions of the eyes; more marked toward the diseased (left) side than toward the sound (right) side. Weber test referred to the sound side, and hearing totally lost in the diseased ear (tests made with the noise apparatus). Rotation showed both labyrinths functioning; caloric test gave a decidedly prompt reaction; fistula test positive. Compression and aspiration gave typical reactions.

Operation, December 30, 1911: Mastoid sclerosed throughout. A large cholesteatoma occupied the attic, aditus, and antrum. A defect in the bony wall of the external semicircular canal was found; this admitted a probe which passed out of the oval window. After the operation she had a rotatory nystagmus toward the sound side in all positions of the eyes. There were, however, no disturbances in equilibrium. She could lie on her back with comfort and was never compelled to lie on her sound side. No vomiting; temperature normal.

January 18, 1912. Rotation showed the left labyrinth not functioning. No hearing; caloric test negative; fistula test negative. Discharged from the hospital.

April, 1912. Radical cavity healed; middle ear epidermatized. January 4, 1913. The patient had remained well but she had no hearing and her labyrinth was not functioning.

CASE III. Male, aged about twenty-eight years, was referred to me at the Manhattan Eye and Ear Hospital, March 2, 1912, giving the following history: He had had suppuration in the right ear for a period of five months, with no complicating symptoms of any nature up to three days before coming under observation. Two days previously he had been seized with an attack of vomiting and dizziness, the latter of which had remained continuously. He had no rise of temperature, and did not complain of pain in the mastoid, nor was there any tenderness upon pressure. He was totally deaf in the right ear. The caloric reaction was negative in the right ear, but positive in the left. He had spontaneous rotatory nystagmus to the left. When walking he was inclined to fall toward the right. He was immediately admitted to the hospital, and the radical mastoid operation was performed. The mastoid antrum and cells contained a small amount of pus, and there was much granulation tissue in the tympanic cavity. There was no fistula of the labyrinthine capsule, but the region of the round and oval windows was granular and soft to the probe. The patient made a good recovery from the ether and passed a good night; was rational and answered questions early the following morning.

\*Read before the Section in Otology of the New York Academy of Medicine, January 10, 1913

Later in the morning he began to show signs of meningeal irritation, with a moderate rise of temperature. At noon of the same day there was a sudden rise of temperature to 105° F.; he became unconscious, and died at 2:30 p. m., apparently of respiratory failure.

At the time of operation the eye grounds were examined and found clear. A specimen of cerebrospinal fluid was also removed at the operation and did not show signs of meningitis, according to the biochemical tests devised by Kopetzky. Immediately after death lumbar puncture was made; the fluid was cloudy and gave abundant evidence of meningitis.

CASE IV. F. W., male, aged eighteen years, consulted me on April 2, 1912, with the following history: On January 2, 1912, he had suffered from an attack of mumps of extreme severity. During the early stage he had fainting spells and his family physician had told his mother that the pancreas was evidently involved. Two weeks from the onset of the attack he became extremely dizzy and complained of excessive tinnitus in the right ear. Three days later he became completely deaf in the right ear, and his family physician stated that the eyes were slightly fixed toward the right side. For four days during this time he was almost entirely unconscious; the vertigo remained severe, and continued for over two weeks. During the four severest days forced feeding became necessary. There was no abscess. He gradually improved and the vertigo finally disappeared, but his hearing remained nil. A sister contracted the disease from him and her attack was followed by a double ovaritis, and for a period of one week she had double vision.

At the time of my examination the patient had entirely lost the hearing in his right ear, both air and bone conduction being destroyed, as proved by the employment of the noise producer. The semicircular canals had evidently somewhat improved, but the nystagmus upon irritation of the right side lasted less than two thirds of that upon the left side. He was examined on January 4, 1913. He is still completely deaf to all sound, but the vestibule upon the affected side is now irritable.

CASE V. C. A., aged twenty years, laborer.

Family history: Father, mother and two sisters died of tuberculosis.

Personal history: Does not remember any diseases of childhood. Has always been well as far as he knows. Left ear has always been normal. The right ear began to ache and discharge about fifteen years ago. At that time he had a simple mastoid operation performed, and the posterior wound had never healed. The ear had continued to discharge ever since. He had no pain in the ear, however, until one month ago, when the discharge ceased and a swelling appeared behind the right ear. He never had had any vertiginous attacks; nor had he had attacks of nausea and vomiting.

Functional tests: Functional tests showed total destruction of hearing on the right side. The right static labyrinth was not irritable; caloric and fistula tests negative.

Operation: Incision through the old cicatrix. Cortex dense and the mastoid sclerosed; antrum small and filled with cholesteatomata. Middle ear filled with granulations and cholesteatomata; promontory apparently sound. Large irregularly shaped fistula in the horizontal semicircular canal, about one quarter inch long. The canal looked like a carious tooth whose crown had been eroded. A probe passed into the opening came through the oval window. The vestibule was not opened further.

Facial paralysis followed the operation. Flap made about ten days later. Wound not fully healed. At present inner tympanic wall covered with granulations.

January 7, 1913: Functional tests show total destruction of both cochlear and labyrinthine function.

CASE VI. Mrs. E. C., about thirty years of age, married. I saw this patient for the first time at her home on June 7, 1912, and ascertained the following history: The right ear had discharged since childhood, with varying intervals of cessation. For five weeks there had been considerable discharge of dark colored odorous pus. Five days previous to the above mentioned date she began to have attacks of vertigo and vomiting, which had increased in severity and frequency. The vertigo was extreme and she complained of slight parietal headache on the affected side. She had slight spontaneous nystagmus to the right on extreme abduction. Both vestibules were irritable, and she had a slight degree of hearing upon the

affected side. No caloric test was made. Radical mastoid operation was performed on June 10th, at which time a fistula of the external semicircular canal was found. A small amount of pus was found in the antrum, and also a mass of cholesteatomatous material. Recovery was slow, partially on account of the patient's lowered vitality, and she had slight attacks of vertigo at long intervals for several months. At the present time the wound is entirely healed. She has slight hearing, and her vestibule is irritable upon rotation.

CASE VII. A Greek, twenty-five years of age, came to my clinic at the Post-Graduate Hospital on March 19, 1912. He was an unusually robust individual, with splendid vitality. Had complained of acute pain in the left ear for about four weeks, but no discharge took place until one week previous to admission, when a paracentesis was made by a physician whom he had consulted. When he consulted me, one week after the paracentesis, he was extremely dizzy and had a profuse discharge from the left middle ear. He had extreme mastoid tenderness and a large postauricular swelling over and below the tip. In other words, his was a case of so called Bezold mastoiditis. His hearing was entirely gone in the left ear, and the canals of that side did not respond in any manner either to the rotation or the caloric tests. He had a spontaneous rotatory nystagmus to the right. He made no complaint of pain, and there was no rise of temperature. He had extreme vertigo and staggered when walking, but did not fall typically away from the nystagmus direction. Was admitted to the hospital for observation. The next day he complained of slight headache, but was otherwise entirely comfortable. Two days later conditions were the same, with the exception that he had a temperature of 102.5° F. Cerebrospinal fluid drawn at one o'clock that day was hazy and contained pus cells. Culture of this fluid afterwards showed streptococcus infection. The patient made no complaint of headache and did not seem particularly ill.

The same afternoon I performed the radical mastoid and the Neumann labyrinthine operations. He had an unusually large pneumatic mastoid process, the cells being broken down, and there was a large amount of pus present. No fistula was found. Following the labyrinthine operation it was determined, if possible, to anticipate the dangers of intracranial pressure by draining the cisterna magna. This operation was performed by Doctor Kopetzky, and free drainage of cerebrospinal fluid was obtained. The clinical picture afforded by the subsequent history of the case is well worthy of observation.

The following day the temperature remained entirely normal, the patient did not complain of headache, his mentality was entirely normal, and he was cheerful. On the 23d he had a considerable rise of temperature, at one time reaching 104° F., but the pulse was 88. He still seemed entirely comfortable. His nystagmus to the right side was still present; there was no headache, and the blood culture made that day showed no growth. He was not restless and his mentality was normal. In fact, no symptom of meningitis was present excepting the rise in temperature. At one time during the following two or three days the opening into the dura became blocked, and for a short time he was slightly somnolent. This was entirely relieved upon the reestablishment of drainage. Conditions remained practically the same for nine days following the operation, but the temperature remained high, around 103° to 104° F., until the eighth day, when it became more septic in character, ranging from 97° to 105° F. Even at this time the patient remained entirely conscious, and was able to sit up and to converse. Late in the day on the 28th he sat up, asked for a glass of water, and suddenly fell backward into bed and died.

CASE VIII. Mrs. B., aged seventy-one years, was brought to me by her family physician, from a distant town, on December 25, 1912, with the following history: She stated that she had been deaf in the left ear for fifteen years, during which time she had had spells of dizziness, but to the best of her knowledge she had had no discharge from this ear until one year ago, when a discharge commenced which was preceded by itching, but no special pain or suffering. Of late the pain in her left ear and mastoid region had become severe and the discharge had been both profuse and offensive. While she states that she had had dizzy spells for two years, her vertigo began to be severe just one month ago, and at about the



same time she began to have more pain in the mastoid region, and more discharge. She had had a few attacks of nausea and vomiting.

On examination of the middle ear there was found a perforation superiorly and posteriorly, through which discharge was coming, and I thought I saw indications of cholesteatomata in the antrum or mastoid. The patient had slight hearing for the voice, and she could hear tuning forks placed on the left mastoid, but referred the Weber test to the right ear. Turning to the right produced nausea and nystagmus to the left, lasting twenty-five seconds. There was no spontaneous nystagmus. The patient reported any incoordination to be in the nature of a falling forward, but that produced by turning was to the right. The fistula test was positive, producing a horizontal nystagmus to the left; the caloric test was not tried.

The radical mastoid operation was performed. The sinus was superficial and far forward, and was exposed on entering the antrum. The antrum itself was small and contained a small amount of cholesteatomatous material. There was a fistula of the semicircular canal about six millimetres in length. No ossicles were found in the middle ear. The dura was exposed above the antrum. A plastic operation was done on the canal, and the posterior wound was closed. The day following the operation the patient showed slight signs of facial paralysis, which became complete during the next three days. She was extremely restless and suffered severely from the shock of the operation. There was no improvement in the vertigo. Conditions remained about the same for several days, after which there was a marked improvement in the vertigo. Her appetite improved and her general condition improved as well. The facial paralysis remained the same. On November 24th, eighteen days after the operation, tests were made, and it was found that she had no hearing whatever on the diseased side, and that her static labyrinth upon that side was not irritable, while the fistula test was negative. She was permitted to go home, and a long distance telephone message the day before yesterday informed me that she was up and about her regular duties; her facial paralysis is rapidly improving, and her vertigo had nearly subsided.

#### *Report of Four Cases.*

BY EDMUND PRINCE FOWLER, M.D.

CASE I. *Sequestrum of Semicircular Canals, with Presentation of Specimen.* This case was presented before this section in December, 1911, and published in the *Annals of Otolaryngology, Rhinology, and Laryngology*, June, 1912. M. E., aged forty-five years, came to the ear service of Doctor Phillips at the Manhattan Eye, Ear, and Throat Hospital, February 18, 1911. She gave a history of grippe, followed by pain, deafness and discharge in the right ear. The discharge had persisted for three months, though the pain had disappeared, and two weeks prior to admission dizziness appeared and increased to such an extent that at times she could not stand upright. Vertigo was much worse for the three days preceding admission, and it was this symptom which brought her to the hospital. She stated that she felt as though she was falling to the right. Examination showed a very tender and edematous mastoid process, and marked nystagmus to both sides, combined horizontal and rotatory. The nystagmus was so excessive that it was impossible to determine its direction, and it was diagnosed by several men as an ocular nystagmus. While the eyes were closed the dizziness was markedly lessened.

An extensive mastoidectomy was done, the whole tip and much of the posterior wall being removed. Two days later all nystagmus and vertigo had disappeared, and up to the present have not reappeared. The wound was treated in the usual way, and the patient discharged from the hospital on the eleventh day. She made a satisfactory improvement, except that the wound continued to discharge. Three months after the primary operation a complete facial paralysis occurred, and this lasted for three or four days, since which time she has suffered no inconvenience from her trouble with the exception of the deafness and the discharge from the old wound sinus. On November 18th a secondary operation was decided upon. An examination of the urine on admission showed marked albuminuria and glycosuria. Bare bone could be

felt by probing the middle ear through the wound. The external auditory canal was dry. Functional tests were not definite, but the Weber test lateralized the sound in the better ear.

Operation showed the old wound completely epidermatized down to the aditus, which was filled with granulations. The inner posterior portion of the external auditory canal was necrotic. The remainder of the mastoid process showed nothing of interest. When the bony external semicircular canal was clearly exposed it showed an opening into its lumen. After removing the remains of the posterior meatal and external aditus walls it was apparent that the external semicircular canal was separated from the temporal bone. Careful curetting around the sequestrum revealed a large mass, and in order to secure sufficient room to remove this without destroying the facial nerve, a portion of the tegmen antri and tympani was ablated. A portion of the vestibule, with the three semicircular canals, was removed intact, with the exception of about one quarter of the exterior and anterior part of the horizontal, and a small piece of the anterior, extremity of the sagittal canal. The Fallopian canal was necrotic in the middle ear, and slight pressure upon it caused muscular twitching on the right side of the face. The bottom of the wound now presenting was covered with granulations, and it was deemed wise to leave these *in situ*. The wound was packed with iodoform gauze. Upon regaining consciousness the patient showed a complete facial paralysis on the right side. Since the operation the albuminuria has cleared up, and there has been some return to power in the right upper eyelid. The patient stated that she felt a little response on endeavoring to contract the paralyzed facial muscles. The posterior wound was subsequently closed, and the operative procedures completed.

There is complete loss of hearing in the right ear, but for a few days following the second operation tinnitus was complained of. This was increased whenever the head was congested. Caloric and rotation tests showed a normal left semicircular canal system and no response from the right side. In this case there is little doubt that the diabetes was the determining factor in the carious process. It is seldom possible to show a sequestrum of the three semicircular canals as intact as the one obtained from this case.

CASE II. M. W., forty years of age, consulted me on December 13, 1912. She had had a continuous discharge from the left ear since ten years of age up to one week ago, when, from no apparent cause, a profuse hemorrhage occurred from the diseased ear. Since then there has been no aural discharge. The discharge had always been malodorous, and she gave an indefinite history of attacks of vertigo during the early years, having on one or two occasions fallen forward to the floor.

Upon examination the middle ear on the diseased side showed excessive granulations. No ossicles could be felt with the probe. The inner wall and floor seemed to be covered with a tough fibrous tissue. Tuning forks were not heard on the diseased side either by air or bone conduction. With my noise producer in her sound ear she could hear no tones whatever upon the diseased side, not even her own words. She had no spontaneous nystagmus and the fistula test was negative. The caloric test was positive in both ears. During a month of local treatment the granulations have greatly diminished as a result of the applications of orthochlorophenol.

CASE III. G. E., aged five years, came to Doctor Phillips' ear clinic at the Manhattan Eye, Ear, and Throat Hospital on August 29, 1912. Four months before, during an attack of scarlatina, he became affected with acute purulent otitis media in both ears, and this had continued. He complained of deafness in the left ear and had distinct mastoid tenderness. On August 30th he was subjected to a simple mastoid operation, during which it was found that the entire mastoid, the posterior bony external canal wall, and the tegmen were extensively necrosed, and they were consequently curetted away. The facial nerve was exposed for about three eighths of an inch in the tympanum, and the cochlear wall beneath came away in pieces. The oval and round windows came away intact, but the semicircular canals did not appear to be necrotic, though they did not respond to the caloric test during or subsequent to the operation. Rotation tests were likewise negative, and there was no spontaneous ny-

stagnus at any time. No facial paralysis followed the operation.

About two months later a radical operation was performed upon the opposite ear to forestall a fate similar to its fellow, and the wound has healed slowly. At the present time there is still some discharge from both ears. He has no hearing in the left ear. Rotation to right or left elicits no nystagmus until ten turns are made in ten seconds, when it is found that rotation to the right produces no nystagmus, while rotation to the left induces nystagmus of three seconds' duration. Hearing for loud voice present in the right ear which lately has improved markedly in function and in wound appearance.

CASE IV. C. P., aged thirty-one years. No history of discharging ears until five months ago, following an attack of grip. She developed an abscess in the left ear two and a half months ago and suffered severe pain in this ear for two days. She complained of deafness and a pounding tinnitus. For the past two weeks she has had a severe vertigo, and on one occasion fell to the floor while leaning forward. She has also had six or seven attacks of nausea and vomiting during this period. Upon examination, the right ear appeared normal. There is marked deafness in the left ear, but it is not total when my noise producer is used in the opposite ear. She has a spontaneous nystagmus to the right and the caloric test is negative. The fistula test in the left ear gives a very marked response, with a nystagmus to the left. When the patient's head is held forward, she feels as though she were falling forward; when her head is tilted backward she feels as though she were falling backward. When a constricting band is placed about the neck, the spontaneous nystagmus and vertigo are diminished, as is also that induced by the caloric and fistula tests. (This is my method of differentiating between suppurative and nonsuppurative labyrinthitis). The mastoid is quite tender upon firm pressure, especially over the emissary vein. Operation showed eburnized cortex and hemorrhagic cells, except in the tip, where a pocket of pus was discovered. The inner table over the lower third of the lateral sinus was necrotic. In the antrum pus and granulations were found. The tegmen was necrotic and the dura was exposed. The bony semicircular canals were freely exposed, but no fistula was found. She made an uneventful recovery without having a temperature over 100° F. Vertigo and nystagmus were absent immediately following the operation and to this day.

Fistula test negative three months after operation. As the region was tender, I used one of my massage cups to accomplish the compression. Tinnitus was like the sound of seashells. She has never felt better and has gained fifteen pounds in weight. January 6, 1913: Hears the whisper in the right ear thirty feet; in the left ear, eleven feet. Ear dry for two months, and a recent severe attack of scarlatina has failed to involve either ear.

#### Report of Three Cases.

By SAMUEL J. KOPETZKY, M. D.,

CASE I. Following a submucous resection of the nasal septum, Mr. D. L. came under my care at the New York Red Cross Hospital on January 15, 1910, suffering from an acute mastoiditis on the left side, and an acute otitis media purulenta on the right side. The simple mastoid operation was performed on the left side, and the right placed under local treatment. Patient discharged. On May 31, 1910, the right mastoid gave classical symptoms, and the patient underwent a simple mastoid operation at the Red Cross Hospital, being discharged therefrom on June 22, 1910. He returned to his home in the South, where the aftertreatments were carried out. On August 29, 1910, he was again brought to New York suffering with an intense headache, which had lasted for ten days, most intense over the mastoid area on the right side, and radiating upward and backward. This pain was not controlled by drugs. The wound was still discharging, and the middle ear was not dry.

Condition on admission: The old mastoid wound showed a depressed scar with a persistent postauricular opening one half inch in diameter. The middle ear was also discharging pus. The caloric reaction was negative on the right side. Patient also was deaf for voice and whistle on the right side.

Radical mastoid operation performed August 29, 1910. Bone found infiltrated with pus. The sinus and dura over tegmen exposed and examined, and found to be normal. Labyrinthine wall searched, but no lesion found. Panse flap. September 1, 1910. Spontaneous nystagmus present (no note of its character made). Has vertigo and nausea. When patient is turned upon his right side the sensation of vertigo is intensified, and when eyes are fixed upon a point, oscillatory nystagmus toward diseased side is apparent. This is lessened when he lies on his back or on the opposite side. Temperature, 102° F. Patient placed in a darkened room, head immobilized, the eyes bandaged, and ordered kept absolutely quiet. September 4, 1910. Spontaneous nystagmus has disappeared. Patient kept quiet on his back for six weeks; the wound, meanwhile being dressed clean, is apparently healing properly. Left New York in December with wound in middle ear almost epidermatized. Some granulations on the promontory, from which secretions came away. Patient still deaf in the ear, although exact date on tests are lacking.

He reappeared in New York July 14, 1911. Examination showed a radical wound cavity almost completely epidermatized, some granulation on the promontory, and a very moderate amount of discharge from ear. Deaf for voice; lateralizes to this ear. C fork not heard through air conduction, although heard through bone conduction. C fork heard in this ear. Lower tone limit at or above 64 D. V. July 23, 1912. Reexamined. Still shows granulations over promontory, from which discharge can be seen coming away. Patient complains that he has lost the sensation of the direction from which sound comes. Lateralizes toward this ear: C not heard through air, but heard through bone. C 512 D. V. heard through air with noise apparatus. C 512 D. V. heard in opposite ear. Has occasional spells of dizziness, especially when suddenly changing the position of the head, as when bending down or when raising the head. Caloric reaction now positive in this ear.

Diagnosis, small fistula into promontory, with circumscribed labyrinthitis. Rest cure; recovery with postoperative sequestra formation, which I think he will eventually throw out spontaneously. Patient attending to his business.

CASE II. Mr. F. C., aged thirty-nine years, came under observation September 23, 1912. Ten weeks ago, following sea bathing, had an attack of acute otitis media purulenta, which was treated by family physician, by paracentesis and douching. For the week previous to his appearance at my office he suffered with a severe pain in the right ear; on the last day he complained of chilly sensations. On the morning of September 23d he woke up to find the right side of his face paralyzed, and that he was unable to walk without staggering.

Examination: Classical signs of acute mastoiditis with facial paralysis, involving all branches of the nerve; upper branches less markedly involved than the others. Patient staggers toward opposite side when walking; spontaneous horizontal nystagmus present. Hearing absent with noise apparatus in the opposite ear. Caloric reaction absent after three minutes trial in the right ear; present after thirty seconds in the normal ear.

Radical mastoid operation at Red Cross Hospital, September 23, 1912. Perical abscess uncovered; no lesion found in labyrinthine wall; no exposure of the facial nerve noted. Pus evacuated between sinus wall and posterior meatal bony wall near bulb. All symptoms abated within a week; Panse flap made and wound sutured. Discharged October 1, 1912. Uneventful recovery thereafter.

Examined December 10, 1912. Lateralizes toward the right side (affected ear).

C fork heard 15/45 of normal through air.

C fork heard 20/20 of normal through bone.

C fork heard 22/60 of normal through air.

512 D. V. heard in the ear.

64 D. V. B. not heard in the ear.

These tests made when noise apparatus is present in opposite ear. Facial paralysis gone; ear dry, fully epidermatized.

Diagnosis, serous labyrinthitis. Rest; eyes bandaged, and absolute quiet.

CASE III. Miss C. L., aged twenty-one years. Admitted to Doctor Phillips's service in the Manhattan Eye, Ear, and Throat Hospital, November 10, 1912, suffering with recurrent mastoiditis, for which a radical mastoid opera-



tion was performed November 16, 1912, with the usual findings. November 12th, 2 a. m. Patient complains of extreme dizziness and has attack of persistent vomiting. November 18th. Dizziness continues; spontaneous nystagmus present. No rise in temperature. Eyes masked and quiet ordered.

Hearing tested: Lateralizes to healthy ear: No hearing for C fork with noise apparatus in opposite ear. No hearing for C fork or voice and whistle heard with noise apparatus in opposite ear.

November 28th. An attack of extreme dizziness. November 30th. Headache noted—ice cap applied. December 20th. Complaints of dizziness following quick motions. December 28th. Tests as follows:

Turning test—To right 10 X after nystagmus to left—0. To left 10 x after nystagmus to right—16 seconds.

Caloric reaction—cold water—Rt—1 minute 50—positive reaction.

Left ear—2 minutes 50—no reaction.

Voice, whistle and forks, with noise apparatus in opposite ear—total deafness in left ear. Patient complains of some tinnitus in the left ear; ear not yet dry; epidermatization incomplete. Diagnosis, acute serous labyrinthitis or acute purulent labyrinthitis.

January 7, 1913. Ear shows slight discharge.<sup>1</sup>

#### Report of Five Cases.

By J. CLARENCE SHARP, M. D.

CASE I. J. S., aged twenty-seven years, consulted me on December 12, 1911, complaining of tinnitus dating from October 1st. On November 4th he had an attack of vertigo which was soon followed by a complete facial paralysis. Complained of slight headaches during the attacks of vertigo; never had discharge from the right ear; drum membrane dark red in color, but with no bulging. Functional tests: Caloric negative; no hearing, even with the noise producer. Turning tests: When turned to the right, no after nystagmus follows; turning to the left produced after nystagmus for thirty seconds.

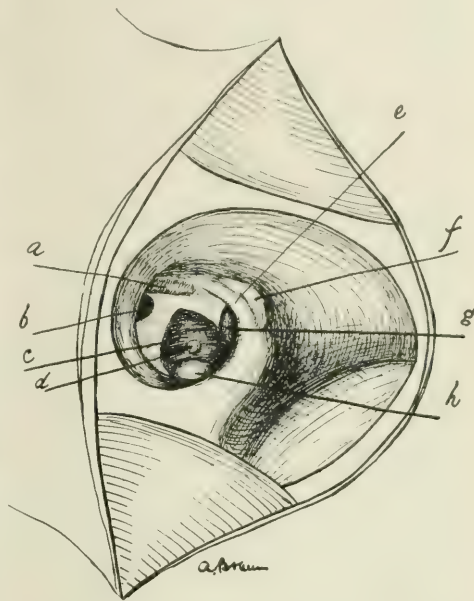
Patient denied any history of syphilis, but the Wassermann test was strongly positive. He was placed on anti-syphilitic treatment and began to improve after fifteen days. The improvement continued with the exception that the loss of hearing remained permanent. On January 4, 1913, the galvanic test, applied to the left ear, showed nystagmus to the left with six milliamperes; galvanic test, applied to right ear, showed no nystagmus to the right with 7½ milliamperes.

CASE II. Miss M. D. H., aged thirty-five years, was referred to me May 11, 1912. She gave the following history: When eleven months old had scarlet fever; at this time had abscess in left ear, which discharged for some time, but finally dried up. Between this time and her seventeenth year she remembers two (2) different periods when her ear discharged, and this always began without any preceding pain. The discharge was never profuse and probably lasted not longer than ten days or two weeks. When seventeen years of age she had measles, and again the ear discharged about two weeks. From this time on, for a period of eighteen years, she had had no trouble until last April (1911), when the ear began, without any pain, to discharge, and has continued to do so ever since. The first of May, 1911, granulations formed, which were cauterized; she had no further treatment except the inflation of powder into the ear. One year later, Wednesday, May 8, 1912, she complained of pain in the left ear; this continued, and late the following day it began to discharge freely. Friday morning she noticed that her face was drawn a little to the right. This increased, and by the following morning she had a complete facial paralysis.

Examination: Right ear normal. Left ear, no swelling over mastoid, but pain on pressure; external auditory canal full of pus; large perforation in drum, surrounded by granulations. Functional tests: Caloric reaction negative; no nystagmus; no hearing in the left ear when the noise producer was used.

Patient was operated upon the same evening; the antrum was filled with cholesteatomata. The mastoid cells, including the tip, were removed because of the granulations found. Upon removing the posterior meatal wall, the tympanic cavity was found full of cholesteatomata.

After these were removed, and the cavity was enlarged, the facial canal was found intact; part of the incus and malleus was present. Upon touching the promontory, it came away, showing the cochlea filled with granulations. Upon clearing this away, the jugular bulb could be seen. The inner tympanum wall was soft and covered with granulations; the vestibule was also full of granulations. The Eustachian tube was curetted and enlarged; no fistula



a, Groove for tumor, tympanic muscle; b, eustachian tube; c, cochlear cavity; d, cochlear nerve; e, facial nerve; f, horizontal semicircular canal; g, vestibule; h, jugular bulb.

could be seen in any of the canals. (See illustration.) After making the flap, the posterior wound was closed. The face began to show improvement by the fourth day, and at the end of the third week the paralysis had cleared up. She made a good recovery and, by November 1st the cavity was dry. She complains of being dizzy once in a while, but this is gradually growing less. Functional tests still negative.

CASE III. M. S., male, aged twenty years, was admitted to the service of Doctor Phillips at the Manhattan Eye, Ear, and Throat Hospital, June 15, 1912, with the following history: He had an abscess in his left ear five years ago, which healed without any treatment. June 1, 1912, the same ear began to discharge again, but gave him no pain. The discharge increased and he came to the hospital for relief. Examination showed that the canal was full of pus, with perforation in the posterior and inferior portions of the drum membrane. No pain or tenderness over the mastoid process, and no dizziness. The discharge lessened after two or three visits, and he did not return until June 28, when he complained of being very dizzy; was afraid to walk on the street alone or go up and down stairs. He had a tendency to fall to the right side, and held his head to the right. Examination showed his ear still discharging, with marked tenderness over the mastoid. Ear tests showed no functional activity either of the cochlea or the vestibule. Diagnosis of labyrinthine disease was made and immediate operation advised, which he refused. Did not return until July 2d. On this date he had increased tenderness over the mastoid and greater difficulty in walking, and was in so much distress of mind that he agreed to be operated upon at once. He was admitted to the hospital and was operated upon the same

<sup>1</sup>Examined March 26, 1913; ear dry, labyrinth not functioning.



afternoon. Upon removing the cortex, the sinus was found very far forward, close to the posterior wall. The antrum was full of cholesteatomata, and, upon clearing this away, the three semicircular canals were exposed, but no fistula could be found. Removal of the posterior wall showed the tympanic cavity also full of cholesteatomata. After clearing these away, the facial canal, as it entered the posterior wall, was found necrosed, exposing the nerve. The stapes was imbedded in a mass of granulations, and the inner tympanic wall was also found covered with granulations; cochlea intact. Facial paralysis developed the following day, but is now beginning to clear up. I went on my vacation before this case was healed, leaving him in charge of Doctor Friesner, who reports that for several weeks he would become dizzy when the wound was dressed, showing that he must have had some irritation left in the vestibule. He made a good recovery; the cavity was healed by October 1st.

December 7th. Tests show no functional activity of the cochlea; turning to the right, nystagmus nine seconds; to the left, fifteen seconds. This does not show complete compensation. December 28th. On turning, shows practically no nystagmus of either side, but this symptom varies from day to day. January 4th. Galvanic test shows rotatory nystagmus to the left, with one milliamperé; rotatory nystagmus to the right with  $1\frac{1}{2}$  milliamperé.

CASE IV. Mrs. P. F., aged fifty-one years, was admitted to the service of Doctor Phillips at the Manhattan Eye, Ear, and Throat Hospital, June 23, 1912, with the following history: During the time of her first confinement, at the age of twenty-one, her right ear began to discharge. This continued for a long time; it was treated off and on and gradually dried up. Later it discharged for a day or so, and then would stop. On July 9, 1912, she was awakened in the morning by a severe pain in her right ear, which later began to discharge. She paid no attention to it but ten days afterward she noticed that she could not move the muscles of her face, very well on the right side. This gradually grew worse and she came to the Manhattan Eye, Ear, and Throat Hospital on July 15th. Examination showed complete facial paralysis on the right side; the external auditory canal was filled with thick pus. Functional tests: Caloric test shows no reaction; no nystagmus upon turning; no hearing in the right ear upon use of the noise producer. The radical mastoid operation was deemed necessary. The antrum and tympanic cavity were found filled with cholesteatomata. They had destroyed the roof of the antrum, exposing the dura of the middle fossa; also most of the posterior wall. On cleaning away the debris, all the semicircular canals were found exposed and eroded. A fistula was found in the horizontal semicircular canal. I then opened into the vestibule, so that a probe could be passed out through the oval window. The facial ridge was necrosed; the inner tympanic wall was covered with granulations and was not disturbed. The rest of the cavity was carefully curetted. After making the flap, the wound was closed. She made a good recovery, the cavity being dry by October 15th.

November 30th. The paralysis is much improved; she is able to nearly close the eye, and can move the muscles about the corner of the mouth. Functional tests show no caloric reaction; no hearing; turning to the right, nystagmus thirty seconds; turning to the left, twenty seconds, showing compensation for the loss of the labyrinth.

CASE V. J. A. C., aged twenty-one years, was admitted to the service of Doctor Phillips at the Manhattan Eye, Ear, and Throat Hospital July 6, 1912, with the following history: Left ear had discharged since childhood; it would discharge for three or four weeks, and then not again for three or four months. About four years ago, he began to get dizzy. For the past four months the ear has discharged profusely, but given him no pain. He was unable to take any exercise or do any work that required him to lean over, as he always became dizzy and would fall to the right. During all these years, he has had only two months' treatment. Examination showed complete destruction of the drum membrane; cholesteatomata can be seen in the tympanic cavity; mastoid very tender on pressure; temperature by mouth,  $101^{\circ}$  F. Functional tests show caloric reaction present; can hear whisper twenty feet; turning shows nystagmus; fistula test gives horizontal nystagmus, showing that he has a fistula of his horizontal semicircular canal. He was operated upon at

once. The antrum was found full of cholesteatomata. Upon clearing away this mass, the horizontal semicircular canal was exposed, showing a fistula. The membranous labyrinth, or what appeared to be this, could be seen very plainly. After removal of the posterior wall, and clearing the tympanic cavity of the cholesteatomata, the stapes was found hidden from view in a mass of granulations, and was not disturbed. After making the flap, the wound was closed posteriorly and the patient made a satisfactory recovery. On December 8th I had a note from him, reporting that his ear was dry, but he still had some ringing and dizziness.

40 WEST FORTY-SEVENTH STREET.

## PELLAGRA, SURGERY, THE COLLOIDS, AND STRONG DRUGS;

*Also Introducing a Possible New Etiological  
Factor.\**

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Situated in an isolated and rural community, it has been possible for me to see a number of cases of pellagra develop from the very incipency of a gastrointestinal disturbance to a profound pellagrous explosion. These cases have shown every variation of the disease in its course, development, and termination.

In 1910 there were known to me about ten cases of pellagra in Cleveland County; in 1911 I could easily figure up fifty; in 1912, a hundred; and this year the incidence of this disease is almost that of measles. As these cases have terminated in a variety of ways, and as some of the methods used in their treatment are even more varied, I introduce them to you, hoping that without further confusing you I can suggest a possible new factor in the etiology of this disease and a rational explanation of the uniform results obtained by so many divergent means of treatment.

First, let me say that this paper is no statistical study of pellagra, but purports to convey the prevailing idea obtained by me through a careful study of the case at hand. Some of my points I shall try to verify to your satisfaction out of my own experience and from that of others. I realize that the views set forth are so divergent from the accepted teaching that I may seem contentious, but those familiar with this subject know that pellagra was first thought to be a disease produced by infected corn and of nervous origin—observe the vast amount of literature on the nervous phenomena of this disease by the great nerve specialists. Next, it became a gastrointestinal intoxication, and last an infectious disease produced by a parasitic host with its attending phenomena. To begin at the end, my cases have terminated as follows: Some have recovered through the hypodermatic administration of strong drugs; some have recovered by a variety of operations; and some have recovered spontaneously; some have died, though I am happy to state that all of the operative cases, including two patients who went insane, have recovered and escaped pellagrous symptoms one season.

\*Read before the North Carolina State Medical Society, June, 1913.

What fundamental condition could cover such a variety of procedures?

The office case histories of indigestion in 1910 proved to be the pellagrous infections of 1911. The symptoms of 1910 were mild epigastric disturbances of digestion, accompanied by small aphthous patches on the tongue and buccal mucus membrane, excepting that over the alveolar processes, and some numbness and tingling of the hands and feet. Hypoleucocytosis and a slight loss of weight are frequently added to this symptom complex. This loss has amounted to one quarter to one third of the body weight between Christmas and the month of May. As I have said elsewhere, when the rash appears a countryman can correctly diagnose pellagra. Inasmuch as the early diagnosis of this disease means so much toward the success of the doctor and the recovery of the patient, too much stress cannot be laid upon these symptoms when found to persist over some weeks. Diet and medicinal treatment are most efficacious at this stage, and all suspects should be put upon a proper diet and medication at this time.

During the year 1910 all the pellagra patients seen by me either lived at or had communication with Earl, N. C., a very small hamlet eight miles south of Shelby. Some of these patients were six miles west and twelve miles east of Shelby, but all gave a voluntary history of contact with pellagra cases at Earl. This suggested a contagious nature of the disease, and also suggested a fly belt at Earl. Since then, the spread of pellagra through the Piedmont section has been so rapid that all lines of contact are lost. While on a trip to the Pacific Coast during the winter of 1912, I stopped thirty-six hours in a city of 50,000 in northwest Iowa. There I saw two cases of pellagra, and was not in consultation with any of the profession. A subsequent newspaper clipping tells me that they have awakened. Two cases were shown to the county medical society of San Francisco. Pellagra is scarcely a problem of the South; it is national in scope. To my mind the general distribution of pellagra should discourage that element of the profession which chooses to act as medical director, telling the patient which climate to choose and where to find it. Disease should be treated at home. There lie all the economical and social advantages.

Much has been done along certain lines, especially by the neurologists on the pathology of pellagra; though, on the other hand, almost nothing has been done toward the pathology of the early symptoms. I have deliberately opened the upper abdomen in two early cases of pellagra for the purpose of draining the gallbladder, and I was fortunately able to remove the appendix through this high incision. The head of the pancreas was firm and thicker than the body. A number of edematous lymph nodes were easily seen and felt. The biliary fistulæ drained dark colored bile for six days in both cases, when the flow became characteristically greenish yellow. Drainage was removed on the tenth day. The patients were discharged from the hospital on the twenty-first day. One, a male patient, has had an uneventful recovery; the other, a female, became pregnant, and nearly lost her life

from recurring intestinal symptoms. The pregnancy ended in an abortion, and she is just now recovering her normal weight. Both patients had a hypoleucocytosis. The condition found in the lymphatics in these two cases agrees with the autopsy findings in four cases reported by H. P. Mills.

Wood writes that the pancreas is not reported affected in pellagra, and I have not been able to find any reference to this particular gland, nor to any other of the deep structures of the upper abdomen, such as the great plexus of nerves below the pylorus, or even the receptaculum chyli, being affected. Still, pellagrins complain of distress in the upper abdomen from six to nine months before they really dispense with the diagnostic ability of the physician. When the pellagrous explosion occurs, and all the pathognomonic symptoms are lined up like a row of ten pins, one can feel beneath the buccal mucus membranes along the lower border of the inferior maxilla, especially if the submental tissues are supported by the free hand, a chain of lymph glands. Moreover, all authors agree that there is an increased flow of the submaxillary and sublingual glands. Would it not be fair to suppose that an analogous condition possibly exists in the pancreas when the descending duodenum is affected? Many authors speak of a characteristic odor of the stools in pellagra. I can easily duplicate the odor *in vitro*. Mince finely some pancreatic tissue from the dog and allow it to stand in an open beaker. When fermentation is well advanced, the typical odor of a pellagra stool will be obtained. Pellagrins do well on a high protein diet. Would not this factor suggest an altered function of the pancreas? Ferments or fermentable foods annoy the pellagra; might not this suggest an alteration of the principal digestive ferments?

One more fact along this line, taken from Niles's book on pellagra, before I leave the most interesting phase of the subject to the surgeons. On page 90 Niles writes:

In one instance the writer had the opportunity of examining the duodenal contents of a pellagra. The contents were obtained by the Einhorn duodenal bucket which was withdrawn ten hours after swallowing. The contents were golden yellow, thick, and turbid, and showing no reaction for trypsin. This, of course, proves nothing, being mentioned only as a matter of interest.

Again, on page 125, he says:

One of the most difficult complications to manage is the condition of marasmus or wasting away, into which the pellagra sometimes lapses. A liberal diet seems to aid not at all, and emaciation rapidly supervenes, bringing with it apathy, mutism, lessened tendon reflexes, and muscular rigidity.

Now let us recall the six to nine months gastrointestinal disturbances and the high protein diet. If one of the three most important digestive ferments were destroyed in your patient, and the patient in turn lost about one third of his body weight in five months, what would you think? The chemistry of the descending duodenum must be variously disturbed in pellagra, because the diet which the individual pellagra finds suitable to his economy has not yet been completely described.

Any attempt to introduce a new factor in the etiology of pellagra, unless it can be absolutely

proved to be of its true etiology, must necessarily add to the confusion that already exists. However, the suggestions put forth are necessarily forced upon us because of the tendency of one school of thought to accept the fly theory of pellagra infection. My wife ventured the suggestion last year that the common fly would be found a carrier of pellagra. Jennings and King think from their survey that the stable fly (*Stomoxys calcitrans*) is the possible carrier and the common house fly (*Musca domestica*) may be a mechanical carrier. They fail to find the "jigger" (*Sarcophylla penetrans*) and do not mention the common biting mite which country people call "jiggers." Riley says in reference to jiggers:

The two mites described below cause great annoyance from harvest time till into October to people who frequent the rank herbage and grass in our forest openings or along our rivers. Both of them are six legged reddish microscopic species and both of them are popularly termed in the United States "jiggers." The term is evidently a corruption of "chigoe," the name universally applied to the more dangerous *Sarcophylla penetrans* (sand flea), which will be described later, and the term "harvest mites" is preferable.

In some sections of the Piedmont "red bugs" is a popular term.

Dogs, cats, etc., from their prowling habits in field and garden suffer greatly and they scratch and nip their skin with their teeth, so much so that they are sometimes supposed to be suffering from the itch when it is only a reinforcement of the mites. They do not all deposit eggs in the wound they make, and soon die victims to their sanguinary appetite.

Nathan Banks writes: "To the ordinary person mites do not exist. Occasionally he may have painful evidence of their presence, but he has no idea of the number of specimens and species around him."

I removed from my clothes the second *simulium* of the season, March 25, 1913, and a short time prior to this saw the first one of the season. Shelby has been deluged with them this season. About the middle of March, while counting blood, I impaled a female house fly, fat and pregnant. On her ventral side I saw two mites, and a week later found one in a fly egg. To me this was a great discovery, but I soon found that the government expert in mites (acarina) had made it ancient history. My mite corresponds to the species "*Leptus americanus*" (Riley), and is the predaceous six legged parasite of the genus *Trombidium* (eight legged); order, *Acarina*; class, *arachnida*. This predaceous mite (*Leptus americanus*) moults several times before it becomes the adult "red bug," visible to the naked eye. There are other "red bugs" common to this vicinity, but they are not parasitic on flies (*Acarina gallinae* (Redi), a chicken mite, *Dysdercus suturellus*, a cotton stainer).

Jennings and King mention F. Knabs's four factors necessary for an insect to be a potential transmitter of disease to human beings: 1. Habit of biting man regularly. 2. More or less close association with him. 3. A certain degree of longevity. 4. Abundance of the insects.

I mentioned to a lawyer friend the possibility of the fly being the winged host of a parasite obnoxious to man and suggested "mites," "red bugs," or "jiggers" as carriers of disease. He promptly replied that he had been bitten many times by "red

bugs" and did not have pellagra. So have the people of California been bitten many times by fleas, and they do not have the plague. Consequently we must add a fifth condition to Knabs's four factors: The biting insect must be infected.

Flies, all species, mosquitoes and the simuliidæ all carry parasitic mites. Are they predaceous and obnoxious to man? This remains to be seen. So long as the good housewife gets pellagra twice as frequently as the man in the field we may suspect something about the house; but there is a drawback even to this, as among nulliparous women the sex incidence is even. Pellagra is the best gynecologist since Marion Sims's time.

We have one analogy of a predaceous parasitic mite being obnoxious to man. Schamberg and Goldberg describe such a mite, *Pediculoides ventricosus* of straw disease, and the entomologist Banks has identified and classified this mite. It is predaceous upon the larvæ of the angoumois grain moth (*Sitotroga cerealella*), the wheat straw worm (*Isosoma grande*, Riley), and the joint worm (*Isosoma tritici*, Fitch)—a small black fly the size of a gnat. This mite bites vigorously. Any one having camped at Gettysburg is probably familiar with its bite. The foregoing does not fix the etiology of pellagra upon the fly as a winged host, nor on a predaceous mite (*Leptus americanus*); but it does place the burden upon any doctor or entomologist attempting to prove or suggest the fly as the carrier host of a disease, to prove the flies free from predaceous parasites obnoxious to man.

Any fly theory of pellagra is open to two possible modifications by mites. First, the mite limits the fly population by destroying the fly larvæ. If the fly is proved to be a carrier of pellagra and the mite is its natural enemy, the mite plays a rôle in the waxing and waning of this disease through the destruction of fly larvæ. Second, the fly is a winged host of this mite which may be regarded with suspicion. We know of one fly, the wheat joint worm (*Isosoma tritici*, Fitch,) carrying a parasitic mite obnoxious to man, as described above. And, furthermore, Banks has described these larval mites on simuliidæ, flies, and mosquitoes. R. M. Grimm says on the relation of pellagra to the 296 families investigated:

In this connection there might be mentioned a fact which seems to me to be of considerable importance. This fact is that in many instances where the family had one or more cases of pellagra some one or perhaps several other members of the family would be found to present signs and symptoms very suggestive of pellagra, but to an extent not sufficient for a positive diagnosis. These signs and symptoms in many instances seemed to differ from those presented by the pellagrous member only in degree and not in kind. Among the symptoms in question may be mentioned mild gastrointestinal or nervous disturbances, the presence of a beefy or of an abnormally red tongue. The previous histories of some of these cases were also very suggestive of pellagra. Persons presenting signs and symptoms such as these were also seen in several of the pellagrous communities who were not members of families having definite case of pellagra. There were seen a great many of these borderline cases, the diagnosis of which was not always made with ease. For purposes of advice and treatment these cases would undoubtedly be considered as early cases of pellagra and in fact this diagnosis was the most probable one in the majority of instances, but for the purpose of my work



they have not been considered as true cases of pellagra, on account of the element of uncertainty in the diagnosis. I have learned that some of these cases which were only suggestive of pellagra at the time of my visit have since developed the disease in pronounced form and succumbed to it, so without doubt it was the very early stages of the disease from which some, at least, of these persons were suffering at the time of my visit. The fact that many such cases exist is of considerable importance in considering the pellagra situation in a family or in a community, and, although it can not be considered as evidence definitely positive, it may, with propriety, it seems to me, be considered as data of an important collateral nature.

Grimm has seen pellagra early and admits it, but thinks it only may "be considered as data of an important collateral nature." What opportunity is there in arriving at an etiological factor in a disease that is admitted to exist nine months before an absolute diagnosis can be made, that then runs a well defined course which the ordinary farmer in many parts can diagnosticate, and terminates in insanity, death or recovery as the case may be? What opportunity is there two or three years after the onset of the disease to discover an etiological factor? Some of those early cases, in which laparotomy is performed for gallbladder drainage and appendectomy, present the opportunity to study the sterile fluids of such drainage with profit.

Pellagra, in my experience, begins and for six to nine months remains as a mild catarrhal indigestion confined to the upper abdomen. I have had four opportunities to verify this conception; two I accepted, one I refused, and one patient was admitted to the hospital and died during my absence. The patient refused operation and the patient not seen by me both died in the same manner; both vomited themselves to death. The former was on rectal alimentation for six weeks. The two gallbladder appendectomies are both well and have passed one summer without relapse. In both cases there was evidence of pancreatic lymph nodes and some firmness of the head of the pancreas.

Appendicostomy, to my mind, is, like the entomologist, nine months behind the infection, or the neurologist two years later. Appendicostomy is done about twenty feet from the primary seat of the disease. While almost any operation apparently improves pellagrins by stimulation of the bloodmaking organs, and, to my mind, any necessary operation is actually demanded that will improve these patients' well being. For instance, note the preponderance of pellagrins among females suffering from birth traumatism which one reads in the statistics of every field investigator on this subject. Motherhood pays the penalty. Let me indicate how far one may safely go in this matter by quoting three operative cases. One of the patients only I knew had had pellagra the previous year, and she had a completely lacerated perineum three inches up the rectum; the two unknown cases were both well marked cancer of the cervix and lower uterine segment. In the perineal case the patient was pellagrously emaciated and controlled the bowel by constipation. She made an uneventful recovery and is in good flesh, without a pellagrous relapse for one summer. The two cancer patients, after a vaginal hysterectomy in each, went insane, one four days, the other seven days after operation. The earlier insanity lasted the longer and dry, branlike

scales, sharply demarked from the smooth skin of the forearm, told part of the story. The second patient broke out with a good rash, and admitted a previous one the year before.

Both of these patients are in a perfect state of health as to cancer, and did not suffer a pellagrous relapse last summer. Moreover, I shall never again stand idly by with a stomach tube in one hand and a rectal tube in the other while a pellagrin is in need of drainage. Gallbladder drainage is the operation of election, because it is as high in the alimentary tract as it is necessary to drain, and, being an operation of election, should be accompanied by an appendectomy. There is no telling how many microbes this little tube will hold.

I have observed patients recover from pellagra by such a variety of treatment that at first I thought it to be all a matter of chance, but later I began to look for some fundamental factor. Patients have recovered in the Shelby Hospital by surgical operations upon the gallbladder, appendix, and pelvic organs and muscles. Patients have recovered by the use of strong drugs, especially metallic drugs. Two patients have recovered spontaneously. The possibility of a patient in the lowest state making a spontaneous recovery should warn the physician never to give up. The first spontaneous recovery occurred in a woman who has now passed two summers without a relapse. I saw this patient six months before any pellagrous symptoms began. An old Potts's disease of the spine was beginning to warp her back. She came down with an acute attack of pellagra, and went from bad to worse until she lay on the bed in a state of suspended animation. She had a marked rash on the arms and neck. In this condition I photographed her. The picture appears like that of a cadaver. Within ten days the woman walked out of the hospital, and has been well ever since. Just prior to her three days of coma a leucocytosis of 14,000 was noted. Differential count was not made. In the second case, spontaneous recovery occurred twice in the same patient, in the practice of one of our Shelby physicians. Twice he gave this patient up to die, and twice his patient recovered by the aid of a "quack" water. For diet and appropriate treatment both of these patients would have made good additions to statistics. Unless the profession makes an earlier diagnosis and obtains more cures, a most excellent opportunity is offered to the quack. A number of pellagrins presented themselves to the hook worm dispensaries last year, the first time that they were seen by any doctor, and the inevitable followed. Pellagra was cured by thymol.

Again the necessity of finding a uniform factor in the recovery of pellagra presents itself. I regard pellagra as a medical disease which may at times be relieved by surgical interference. As I have mentioned before in this paper, gallbladder drainage with appendectomy is the operation of election, and may have a twofold effect on the disease. Early in the disease some patients have a slight catarrhal jaundice. As the gallbladder is a very suitable reservoir for many microbes, it is possible the pellagra germ may lurk here. At least drainage of the gallbladder relieves the pancreas and upper bowel, while the mere presence of a drain

sets up a leucocytosis over a number of days. Appendicostomy has been done with success in pellagra, but aside from the benefit of a continued leucocytosis the drainage is not high enough in the intestinal tract to be of service. In the normal man we have three diverticula. Two, the tonsils and appendix we may remove. The gall ducts we can drain.

Any surgical procedure on pellagrins has been attended with success by me. First, I have put the patient in a way to complete health, and, second, I have stimulated the hematopoietic organs to such an extent that my patients have escaped one year without a return of pellagra. Three cases relapsed immediately following operation and two others became insane—operated upon for cancer of uterus—and relapsed. All are in good health to-day. They owe their recovery from pellagra to a leucocytosis surgically incited. This fact I shall prove to your satisfaction by the action of colloids and strong drugs upon pellagra. E. H. Martin, of Hot Springs, in a recent article on the use of sodium acetylarsenilate, has added more evidence to this point. He claims that in the use of this drug you should get a reaction, which he claims is due to the destruction of parasites and the releasing of their antibodies, and, furthermore, you should administer it as long as you get a reaction, because you are killing microbes. I have given about four hundred intravenous injections of metals, metallic colloids electrically prepared, and organic colloids of metals. Chief of these are antimony, copper, selenium (Wassermann), silver, arsenic, and iron. Antimony, copper, arsenic, and iron have been used in pellagra; copper and selenium in inoperable cancer; arsenic in syphilis; and iron in tuberculosis, kidney anemia, etc. The most electrically positive metals, such as copper, provoke the greatest disturbance—the so called reaction.

Clinically this reaction begins shortly after the administration of a colloid. In the electrically prepared metallic colloids after the manner of L. Loeb or G. Bredig in my hands, a chill began forty-five minutes subsequent to administration, accompanied by a rise of temperature to 102° to 104° F., and a corresponding acceleration of the pulse, headache, nausea, and sometimes emesis. Upon examination of the blood before, during, and after, this chill a pronounced leucocytosis is seen to begin, increase, and disappear, with the temperature curve. I have been able to produce at will a leucocytosis of from 15,000 to 20,000 within forty-five minutes of the administration of the drug. In nine hours the leucocytosis has disappeared. What has become of it? When a reaction is produced daily, a septic chart is imitated, or if every other day, a tertian fever curve will occur. As this reaction curve is in the hands of the man that wields the needle, I have called it an aseptic chill. Twice weekly is as frequently as I have ever used it.

The leucocytes that are called up by the hypodermic or intravenous administration of strong drugs are unique. When the first reaction is provoked the polymorphonuclear leucocytes are 98 per cent. of the entire differential count. This, as you know, exceeds Sondern's leucocyte resistance line

which he indicates as a failing resistance. As the use of strong reactions is continued, the small mononuclear leucocyte enters the count in increasing proportion; with still more injections the large mononuclear leucocyte begins to occur more frequently; and if the use of the colloid is continued, large mast and bone marrow cells make their appearance. Finally a decrease in the red cells is noted and a few irregular red blood cells appear—poikilocytosis. Here I have terminated the use of electrically prepared colloids. To the cytologist the phenomena within the polymorphonuclear leucocyte is interesting. The chromatin has lost its usual resting shape and is unravelled like a skein of yarn and thrown into loops, ovals, and giant peripheral rings, generally open at one place. The cytoplasm is clear and very translucent.

In using the organic colloids of metals the above mentioned reaction may be absent or if present is never so excessive as that produced by the electrically prepared colloids. Do these increased leucocytes become phagocytes? I do not know. I am an ardent follower of Metchnikoff and Wright, but I have no means at hand to prove these cells active. Clinically, the patients improve in well being. A muddy copper colored skin soon begins to show a healthy flush; there is a gain in weight. I have reported a case of spontaneous recovery from pellagra with a leucocytosis of unknown origin; I have quoted E. H. Martin's statement, showing the necessity of a reaction to sodium acetylarsenilate as essential to a cure of pellagra! I have shown the effects of colloids and strong drugs upon the blood making apparatus, a generous leucytosis created at the will of the doctor, and I have reported pellagra recovering from a variety of surgical procedures which were undoubtedly accompanied with a mild surgical leucocytosis.

Whether or not a more or less active leucocytosis should be provoked early in pellagra remains for experience to determine. I have shown the way.

All authors agree that pellagra is a disease of hypoleucocytosis, excepting the typhoid state, in which a low grade leucocytosis exists. The few cases I have seen in this condition were so overwhelmed by their infection that nothing seemed to relieve their helpless state. There is one more factor to support the good results obtained in pellagra when a leucocytosis is created early in the disease. This is a negative factor, but it obtains. Drugs depressing the blood making apparatus militate against recovery just as effectually as the drugs which stimulate the blood making apparatus act favorably. Alcohol and opium act unfavorably. I have recently read of the favorable action of opium on pellagrins, but I have personally seen several pellagrins progress from bad to worse and final dissolution on opiates.

An early diagnosis, diet, and treatment as outlined by Wood, Martin, Niles, and many other specialists on this disease, give the most favorable results. A late diagnosis, and then the internist gives the surgeon a chance.

Pellagra is a nonleucocytic disease. Pellagrous infection is symbiotic with nonleucocytic diseases, such as malaria, typhoid, tuberculosis, cancer, preg-

nancy, and the puerperium; or it may follow such leucocytic diseases as exhaust the blood-making organs, as pneumonia, septicemia, etc. In my experience when a leucocytic disease or reaction is grafted upon a pellagrous patient, whether from the effects of surgery or surgical diseases, or the beneficial effects of a reaction to strong drugs, or a spontaneous leucocytosis, pellagrins make a slow but satisfactory recovery from their pellagra. To date none of my patients have relapsed. All have passed one summer and some have passed two summers.

A number of things are to be avoided by the pellagrins. Pellagra does not improve, but has a tendency to grow worse in alcoholics, morphine habitués, with excessive consumption of corn products, a low protein diet, and from the effects of direct sunlight. Any medical or surgical procedure which tends to restore the individual to the normal is beneficial to the pellagrins.

Pellagrous morbidity is greater than the birth rate in the Piedmont section. That the disease may be transmissible is suggestive from the number of cases seen in the same house. All, however, may have been subjected to the original infection. Among the children certainly some have acquired pellagra after birth. As pregnancy has added to a fatal termination of pellagra I am not prepared to state the condition of the offspring. However, one would naturally suspect that an overwhelming infection would pass the syncytium. Is this heredity or environment? Incidentally, in the aborted fetuses of the pellagrins lie many laboratory possibilities of antibodies and antigens. What we need is a specific blood test to enable us to make an early diagnosis in pellagra. This fact is clearly borne out by the report of the Illinois pellagra commission. They found a low protein diet among their insane, and it is a well known fact that a generous protein diet is favorably borne by pellagrins. On the other hand, I am surrounded by pellagra, and the inhabitants in all walks of life invariably eat two different proteids at each meal. The proteid is certainly not an etiological factor in pellagra.

Besides urging the avoidance of those articles of diet that apparently depress the well being of the pellagrins, it certainly should be the duty of the physician to advise the female pellagrins against pregnancy. This is a new rôle for the physician, but by any one watching the unimpeded progress of a pellagrous infection accompanied by pregnancy this advice will be well accepted. Of two cases in which pregnancy was terminated to save life, one patient at the third month recovered, while one at the sixth month rallied only to sink deeper into a typhoidal pellagra and death.

An early diagnosis, proper diet, and treatment place pellagra entirely in the domain of modern medicine. A specific test, such as the Bordet test, is within reason. To one looking over this scrawny offspring of the pellagrins, it is reasonable to presume that the aborted placenta and fetus contain sufficient antigen to set up a specific reaction in vitro. One in twelve pellagrins are surgical and can be treated by drainage. Lastly, an absolutely unfavorable prognosis should never be given to a patient, because the most unfavorable case may

make a surprisingly rapid recovery, and chiefly because the recovery from pellagra renders upon a happy frame of mind.

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## THE NEW POCKET CLINICAL SPHYGMOMANOMETER.

By L. NAPOLEON BOSTON, A. M., M. D.,  
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to Frankford Hospital.

The instrument here described presents certain decided advantages to the clinician, in spite of the large number of instruments now in use for the determination of blood pressure.

This pocket instrument has in common all the essential factors of the most modern instruments now in use, and in addition possesses unique features which, I believe, will bring it preeminently into favor. The pendulum has swung from the large and crude instrument of earlier days to the compact watchlike aneroids now universally employed.

The additional practical features of the new Faught pocket clinical sphygmomanometer are:



a. The instrument when resting in its closed case is anchored to a false bottom which fits snugly in the case; the false bottom and instrument are removed together, and there is a neat receptacle at one end of the case which serves to hold the false bottom at a convenient angle, and this places the dial in the most suitable position. Again, when the instrument is ready for use, the entire case may be placed upon a stand or a bed, and, still more important, it may be shifted to a position where the patient is unable to observe the record.

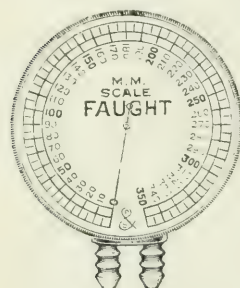
b. The scale is extended to read to 350 m.m.

c. The dial is enlarged to a size which makes the reading easy at some distance from the instrument.

d. All graduations are at 5 m.m.

From actual experience with this instrument, it would seem that through it a happy medium has

been reached. While all the above mentioned new features connected with the improved Faught instrument give it a decided advantage in clinical work, the one feature that stands out conspicuously to the clinician is, that the scale is graded to 350 mm., which will doubtless make it possible, through the aid of this instrument, to obtain



Dial of Faught clinical sphygmomanometer

an accurate reading in each and every case. Again, the distance between the graduated marking on the dial makes it likewise easy to obtain abnormally low pressures.

This instrument is attractively finished in white and gold and is contained, complete with arm band and pressure pump, in a case of a size to fit any coat pocket. It is made by G. T. Pilling and Son Co., of Philadelphia.

1819 CHESTNUT STREET.

## THE MENTAL SYMPTOMS OF RENAL INSUFFICIENCY.

*With Report of a Case Showing Remarkable Sub-normal Temperature.\**

By WILLIAM BURGESS CORNELL, M.D.,  
Baltimore.

That disturbances of the renal function may give rise to abnormal mental symptoms has long been recognized. In the following brief review of the subject, it is purposed to limit the term renal insufficiency to that due to any form of acute or chronic nephritis, either primary or secondary. It seems reasonable to expect, as we have kidney lesions varying quantitatively from a very slight departure from normal to the most advanced state

of renal degeneration, irrespective of the lesion qualitatively considered, that we would have *pari passu*, a great variety of nervous and mental symptoms of increasing severity. The symptoms, in the words of Herrick, are "in number legion, and in variety protean," and run a gamut from simple headache to delirium and coma.

Although, nosologically speaking, the mental symptoms of renal diseases are usually denied an entity, the importance of their recognition and proper estimation can, nevertheless, be hardly underestimated. For, upon the correct diagnosis depends, to a great degree, the outcome of the case. Frequently the diagnosis of kidney disease is fraught with difficulty, particularly in the chronic interstitial variety, and in the latter occasionally the mental upset first directs the attention to the condition of the kidneys. Uremia has been defined as "an autointoxication which affects mainly the nervous system" (Wells). It is interesting to note that the patients are usually of neurotic type, with faulty heredity. In this connection also it is important to observe that a "distinction must be made between the psychogenetic factors that may determine the character of a psychosis, and the somatic conditions that determine its occurrence." (Neff.)

Bearing this in mind, let us pass on to the enumeration of the symptoms themselves. Taking up first those of the suburemic state, it will be recognized that many of these are the nervous symptoms of the chronic neurasthenic. Headache is one of the most frequent and earliest, also vertigo. Another one of the earliest is a feeling of tension in the muscles. The patient has fits of the blues, and is easily discouraged and fatigued. Other symptoms are irritability, moroseness, insomnia, neuralgia, tinnitus, and a tendency to a slight degree of confusion. In the severer suburemic and uremic states we may meet with the following changes:

Consciousness: Confusion, drowsiness, obtundity, disorientation, delirium, semicoma, and coma. Since the writings of Addison, in 1839, and Lasegue, in 1852, all authors have called attention to the mental obtundity and dullness in nephritic cases; and Régis and others later recognized confusion as the commonest symptom of the whole group of nephritic psychoses. The others have been given in order of progression and severity.

Attention: An inability to fix, and a lack of power of concentration.

Intelligence and judgment: A general lowering and deterioration. Delusions of paranoid and persecutory type. ("Folie Brightique.")

Memory: An amnesia, more or less complete, with retrograde character, often developing into typical pseudoreminiscence.

Motor and psychomotor field: Sluggishness of thought processes, convulsive attacks, monoplegia, and hemiplegia.

Speech: Aphasia, which may be transient, and a speech defect best characterized as thick, hesitating, deliberate.

Hearing: Deafness, which may be transient, and hallucinations.

Vision: Diplopia, amaurosis, and hallucinations, usually of unpleasant and terrifying nature.

\*Read at the Sixtieth Anniversary of the Founding of the Sheppard and Enoch Pratt Hospital, Baltimore.

Affect: Excitement, sometimes of ecstatic type, or depression, which may be accompanied by anxious expression and agitation, or by apathy.

Regis divides the psychoses of Bright's disease into acute and chronic. Acute symptoms are usually preceded by more or less pronounced signs of uremia, which runs a rapid course. There may be delirium, hallucinations of terrifying content, motor disturbances, such as choreiform movements, grimacing, posturing; the latter sometimes resembling the catatonia of dementia præcox, and self accusatory ideas. It is interesting to note that often these patients are worse at night. Remissions, or semilucid intervals, are fairly frequent, and may last from a few hours to a number of days. In cases that do not succumb to the uremic condition acute symptoms are followed by intellectual obtundity, and sometimes certain of the ideas based upon fallacious sense perception remain as fixed delusions. Chronic symptoms are qualitatively similar to the acute, but spread out over a much longer time. The resemblance of this variety to chronic alcoholic hallucinosis and alcoholic pseudoparesis has been noted by numerous observers since the original report of Florant and Spigaglia in 1891.

The case which I particularly wish to report is one of the latter group. At first the diagnosis was in doubt, then alcoholic pseudoparesis was decided on, owing to the rather long and prominent history of alcohol. However, the subsequent course of events, and the death in uremic coma, determined that we were dealing from the beginning with a chronic uremic psychosis, although, unfortunately, no autopsy could be obtained.

The patient was admitted to the Sheppard and Enoch Pratt Hospital about the middle of 1909, and died six months later. The history given by the family put the onset at least five years preceding admission, when his face and hands were puffy and his family feared he had nephritis, although repeated examinations of the urine were reported negative. About this time he had a fainting attack and fell on the street. Then hallucinations developed and delusions that he was being followed and watched, and that some one was trying to rob him. He expressed suicidal intentions. He improved considerably after this attack, clearing up mentally to a certain degree, but never was quite himself again. There were in all, three periods of unconsciousness prior to admission, and all of these were followed by hallucinations and delusions of a paranoid and persecutory nature, which tended to disappear; a certain amount of irritability and deterioration persisting. After the last attack he showed confusion and memory defect. He wandered aimlessly about, particularly at night, and was then committed and brought to the hospital. The physical examination showed salowness and pallor of skin, puffiness of eyelids and hands, and a suggestion of fluid in the abdomen. There was a general cutaneous hyperesthesia, and the deep tendon reflexes were all exaggerated; no evidence of arteriosclerosis. He swayed somewhat in Romberg's position. Spinal fluid showed increased of protein, but no increase of cells. Wassermann reaction was not performed. Mentally, he gave his age correctly as fifty-three years, and was oriented for place, not in time. Insight was partial; knew only that something had been wrong for a long time. Apperception was poor; memory defective, particularly for recent events. He entertained delusions of a persecutory type; hallucinations were present, the auditory type predominating. Speech was thick and defective; he stumbled badly over test phrases. He seemed very uncomfortable, and made numerous complaints of a physical nature, was irritable toward nurses; at other times childish in manner. Seemed physically weak. Retained ideas that he

was poisoned before coming to hospital. Urine examination showed considerable variation at times in amount, or casts being reported; the twenty-four hour amount was usually much diminished, but the specific gravity was usually low. After several months his general physical condition seemed to improve; mentally there was considerable fluctuation. For some days he would appear brighter, and than he would lapse into a sluggish, confused state, in which the delusional and hallucinatory ideas would become more active; or he would make more complaints of a hypochondriacal nature. The condition of the bowels, usually constipated, but occasionally loose, seemed to worry the patient greatly. Finally, after a short prodromal period, not unlike others he had had, of weakness and malaise, he lapsed into a comatose state. It was noticed that the body temperature seemed very low, and inserting the finger in the mouth gave the sensation as if ice had been held therein. The mercury of an ordinary clinical thermometer failed to move above the lowest mark, and one obtained from the laboratory registered the remarkably low temperature of 83.3° F. rectal, and 82.3° F. by mouth. This was very little influenced by various applications of heat; and although the mental state cleared somewhat, the patient sank later into a deep coma, followed by death three days after the inception of the severe uremic symptoms.

The mental symptoms in this case undoubtedly followed changes in the renal functioning. The possible similarity of alcoholic and uremic psychoses, already referred to, may have a common factor in an abnormal kidney; indeed, this has led some writers to believe that the majority of the toxic deliria classed as lead, puerperal, typhoid, scarlatinal, etc., are determined by concomitant renal disease. In this connection it is interesting to consider the relation the latter may have to other psychoses, as suggested by Doctor Neff's review of 1,180 autopsies in the Morristown State Hospital. Excluding all cases over sixty years of age, also all paretics, epileptics, and organic dementes, there remained 258 cases, clinically manic depressive and paranoia, ninety per cent, of which showed varying grades of kidney disease.

Of the many possible variations in the urinary output the best known and most constant ones paralleling uremic mental symptoms are changes in the specific gravity and the twenty-four hour amount, but the new renal functional test, according to Rowntree and Geraghty, using phenolsulphonephthalein, undoubtedly will prove of great value in better and more accurately detecting renal insufficiency, and likewise establishing the latter as the etiological factor in the psychosis.

It is hardly necessary to add a word as to the prognosis. In the uremic psychoses the outlook is graver than the other toxic psychoses. Of course, the state of the kidneys swings the balance one way or the other. Recovery in the milder cases may occur, but relapses must be expected, and in the severer acute and chronic cases the situation is well nigh hopeless.

In conclusion, let us not forget the important bearing of the renal function upon the psyche, not only in the so called nephritic psychoses, but in other and less understood forms of abnormal mentality. The realization that very little is known of the common underlying etiological factors should form a great incentive for clinicochemical work in this direction that promises brilliant results in psychical medicine.

## SURGICAL APHASIA.\*

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The term "surgical aphasia" is applicable to a certain class of cases wherein the speech centres have been injured or inhibited by trauma to the bones of the skull or by growths encroaching upon them. They must be cases which hold out some hope of relief from surgical procedure. No other form of aphasia can be considered under this title. It is essentially a condition produced by pressure, or the effects of pressure, upon the nerve cells of the speech centre. The field, therefore, is exceedingly limited.

## ETIOLOGY.

The etiology may be considered under two headings, viz.: neoplasms and trauma. Tumors or cystic growths occur in the speech centre, as well as in any other region of the brain, but as the writers have had no personal experience with them, they will receive but passing mention as possible etiological factors. The only conditions met with which might be considered in this class are exostoses and osteophytes, and these are the results of trauma.

The exposed position of the head, with the slight protection which the scalp affords, renders it freely accessible to injury through falls or blows, but the most frequent cause observed has been from the use of obstetric forceps during delivery. About eighty per cent. of all cases seen by the writers could be traced to this cause. This is not surprising when one considers the condition of the bony tablets at birth and the amount of pressure frequently exerted upon them. As a rule, the indentation made by the forceps blade soon disappears, owing to the elasticity of the then cartilaginous bones, but in some cases the inner tablet is split, a callus is formed upon its inner surface through the escape of osteoblastic cells, and thus the dent remains. In any injury to the head the inner tablet is more liable to fracture than the outer, for while any force applied to the skull causes only compression of the outer tablet, it puts the inner tablet upon the stretch. Epidural and subdural hemorrhages may result from the same pressure, either by laceration of the bloodvessels of the meninges or from exposed diploe. As a rule, the blood from these hemorrhages is absorbed, and therefore they produce no pathological changes, but in some cases fibrinous collections remain and form adhesions, producing pressure by their own bulk, or by promoting the development of bone cells which have escaped through the laceration of the inner tablet, at that time practically a membranous endosteum. The cranial hemorrhages which occur at parturition

have been studied exhaustively by Cushing, of Baltimore, and Rawling, of London.

## PATHOLOGY.

The pressure effects upon the brain centres may be divided into those of the first and second degrees. Those of the first degree produce only inhibitory or functional disturbances, without structural changes within the brain substance, while those of the second degree produce destruction of the nerve cells, either by direct violence or by atrophy from long continued pressure. Hemorrhages produce changes in the same manner, that is, those from the meninges or diploe produce changes of the first degree, while those within the brain substance produce changes of the second degree. The question has been raised in the cases operated upon whether the patients were not suffering from mere psychoses which the shock of the operation removed, and which would have eventually disappeared without operation. The only answer that can be made to this question is that psychoses do not produce bony depressions nor meningeal adhesions, and that it was not until after the removal of such depressions and adhesions that speech was restored.

## INDICATIONS FOR OPERATION.

Indications for operation are frequently difficult to determine, and these difficulties are often complicated by the untruthfulness of parents or guardians. It is an astounding fact that in these unfortunate cases parents will sometimes deliberately lie in order to secure an operation upon their child's head, in the vague hope that thereby some miracle may be performed. The frantic desire of parents and friends to secure relief for defective children often leads them, in detailing histories, to exaggerate the importance of any slight fall or injury. In this manner parents are very apt to persuade themselves, and try to convince the surgeon, that some very insignificant injury has resulted in the whole trouble. When confronted with the surgeon's opinion, based upon cross examination and final analysis, that the result of an injury has probably had nothing to do with the mischief, they will often exclaim, "Please operate anyway, and take a chance; I would rather see my child dead than the way it is." The heartrending scenes witnessed in many of our neurological clinics are enough to cause many operators to shrink from the field of cranial surgery.

One thing is certain, it is useless to attempt any operation unless the organs of special sense and all other mental faculties are normal. In order to determine this it is frequently necessary to have the assistance of the neurologist, otologist, and laryngologist. All cases should receive most rigid examination. All other forms of aphasia should be excluded by the neurologist. The question of congenital deafness should be settled by the otologist. The laryngologist should examine for adenoids, enlarged tonsils, and congenital defects of the nasopharynx, palate, and vocal chords. X ray examinations are of uncertain value. All the cases operated upon thus far in which the operation has proved beneficial have had a positive history of trauma, and in most cases a depression could be de-

\*Read by Dr. Chapman before the Caledonian Medical Society of Brooklyn, N. Y., April 28, 1913.



ected by digital examination. In making digital examinations of the skull care must be taken not to mistake the normal ridges and depressions of the skull for abnormalities, as the normal ridges vary in different subjects.

#### PROGNOSIS.

No prognosis should be made previous to operation, as the extent and effects of a given injury cannot be determined until after the skull has been opened. Certain points in the case may, however, be considered. The age of the patient and the duration of the existing condition are important factors. The older the patient and the longer the lesion has existed, the less favorable the prognosis. Little should be promised to the patient or to his relatives and friends, for the disappointment which follows failure here is bitter with the bitterness of the hemlock cup.

#### SURGICAL ANATOMY.

A few words regarding the surgical anatomy are necessary. All textbooks on anatomy practically agree upon the topographical location of Broca's area, namely, on the left side (in all right-handed persons), one and one half inches posterior to the external angular process of the frontal bone and one and one half inches above the zygomatic arch. In reviewing the subject in Gray, Quain, Morris, Piersol, Deaver, and Campbell, one finds in their measurements differences of but a quarter of an inch, and as the ordinary trephine is one half inch in diameter, it covers these differences. These measurements, however, are made upon the normal adult skull, and are of little practical value here, as most of these cases are found in children of from four to ten years of age. But the method described by D. J. Cunningham, of Dublin, is applicable to all ages, and is the one followed by the writers. Cunningham locates the point where the greater wing of the sphenoid meets the frontal, parietal and temporal bones. This point is known in the infant as the anterior lateral fontanelle, and in the adult skull as the pterion. It is true that this point changes its position with the growth and development of the head, but during all its changes it follows and lies directly over "Broca's area." When the periosteum of the temporal fossa is elevated, the sutures entering into its formation are easily recognized, and the trephine may be applied directly over them.

#### SURGICAL TECHNIC.

The patient is admitted to the hospital the day before operation. Upon admission the entire head is shaved, regardless of age or sex. This is done with a thick lather of green soap and a safety razor. Special mention is made of the safety razor because of the natural resistance on the part of the child. After the head is shaved, it is rinsed with sterile saline solution and several times with a solution of bichloride of mercury, 1 to 1,000. It is then wrapped in several layers of sterile gauze soaked in bichloride, and a snug skull cap bandage is applied, the bandage being reinforced with strips of adhesive plaster. The child receives no medication whatever. If its bowels do not move, an enema is given in the morning. A light supper, usually bread and milk, is given at six p. m., and nothing more until after operation.

At the time of operation the patient is placed upon the operating table, lying upon his right side. The head is brought well up to the end of the table and placed upon a moderately low pillow. The anesthetic used is either pure sulphuric ether or A. C. E. mixture, according to the age of the patient. The head dressings are now removed, and the scalp again gone over with sterile soapsuds and the saline and bichloride solutions. All parts, except the immediate field of operation, are carefully protected by sterilized sheets and towels. A semicircular incision is made, starting at a point about three-fourths of an inch to one inch posterior to the outer canthus of the eye and running upward, backward, and downward, parallel to, and about one third inch below, the inferior temporal ridge. The incision is about two inches in length, but varies according to the case, and should be kept as far as possible within the area of hair growth, so that no scar will remain upon the forehead. The scalpel is pressed through the soft parts of the scalp down to the bone, and made to feel the bone throughout its entire course. The flap thus formed is seized with a tenaculum forceps and pulled downward, while a few incisions free it from the bone. After all bleeding points in the scalp have been arrested the periosteum is incised along the line of the scalp incision, and, with a periosteal elevator, is raised and reflected downward over the scalp flap. The parts are now ready for the application of the trephine, the manner of which depends upon the conditions presented. If the depression is slight, the trephine may be placed directly over it, but if it is deep, or if there is reason to suspect much bony thickening beneath it, it is better to trephine above on the margin, and then attack the ridges with the rongeur and bone forceps. After the button of bone is removed the depressions and adhesions can be located by a blunt probe or grooved director. All depressions and adhesions should be followed and removed to their entire extent. Should the dura be found adherent to the underlying structures it should be incised and freed. This is done by pushing the finger through the incision, and, while the edges of the dura are held with thumb forceps, depressing the brain beneath, thus tearing it free from the adherent dura.

The wound is now closed in the following manner: *no bone is replaced*; a few strands of plain catgut are laid across the opening for drainage, the periosteum is drawn over these and sutured with No. 1 plain gut, interrupted sutures; the scalp flap is sewed down with No. 2 plain catgut, the sutures passing down through the temporal muscle, and so located as to include the clamped bloodvessels. This completes the operation, except for the ordinary head dressings.

The most recent work on cranial surgery, by Rawling, lays great stress upon the difficulties of controlling hemorrhage during cranial operations. The writers have not met with any of these difficulties, and the cranial tourniquet has not been used in a single case. The vessels of the scalp are easily controlled by pressure clamps; the clamp cannot be applied directly to the bleeding points, but must include the entire thickness of the scalp. If the flap is quickly turned back, this is easily accomplished. The bleeding from the diploe is usu-

ally slight, but, if excessive, is easily checked by a few moments' pressure with hot gauze. The meningeal vessels, if injured, may be cared for with suture ligatures of No. 0 plain catgut threaded upon a small, curved intestinal needle. The after-treatment is the same as for any other craniectomy.

It is surprising to note the small amount of shock following these operations. There is little or no variation in pulse and temperature; possibly a rise in temperature of one or two degrees during the first twenty-four hours.

In closing, we wish to express our sincere thanks to Dr. John L. Macumber and Dr. B. C. Collins, of the hospital staff, for their earnest cooperation. Their assistance in selecting and eliminating material has been of extreme value.

114 LAFAYETTE AVENUE.

## CHRONIC APPENDICITIS IN ITS RELATION TO HYPERACIDITY OF THE GASTRIC JUICE.

### *A Clinical Study.*

By H. ILLOWAY, M. D.,  
New York.

(Concluded from page 1687.)

### II. APPENDICITIS SETTING IN IN THE COURSE OF A HYPERACIDITY OF THE GASTRIC JUICE FROM OTHER CAUSES.

CASE I. December 6, 1909. I. J., male, referred by Doctor S. Age, twenty-three years, single, clerk; height, five feet, four inches, weight at most 114 pounds. Average weight 111-113 pounds. Smokes two or three cigars and one cigarette a day; drinks only rarely; a glass of beer or a little brandy once in two or three months. He has been troubled with his stomach for over a year, having attacks of indigestion at irregular intervals. He suffers from oppression after eating, and this is more marked after a hearty meal, as after his dinner in the evening, when he feels a pressure even in his back, about the eleventh vertebra and a little to the right of the vertebral column.

About six months ago he lifted a piano, and since then he has had a pain in the right half of the abdomen. It was at no time an acute pain, only a feeling of dullness, of heaviness, and now he complains of the whole right half of his body, with a feeling of stiffness in the muscles of the leg. It does not disturb his sleep, but when he wakes up he has the same heavy feeling. His appetite is good. (Breakfast, shredded wheat biscuit, glass of milk or cup of coffee; lunch, some meat, glass of milk, bread and butter; dinner, in the evening, a regular dinner.) He drinks very little water (about two glasses a day). The bowels, he says, would move spontaneously every day, but because of the state of his stomach and the sensation in his abdomen he takes a purgative (or laxative) every other night. The heaviness in his abdomen is, however, not relieved by this; it continues the same whether he is purged or not. Occasionally he feels "gases moving about in him"; this happens most frequently after meals. Tongue, clean; headache, rarely; sleeps well.

Examination. Epigastrium, nothing abnormal on inspection or palpation. Slight sensitiveness in the median line; soreness along lower part of right costal arch border extending into right hypochondrium; also over the region of the gallbladder, but more marked in the right epigastrium at the site of the pylorus. (Point A.) No splashing; water six ounces, no splashing, no sound. Liver and spleen in normal position; abdomen, nothing abnormal on inspection or palpation; on the linea spina umbilicalis dextra, at a point  $1\frac{1}{2}$  cm. from the umbilicus, to the right, slight soreness on hammer percussion, but

more at a point further down, five cm. from umbilicus and two cm. to the right from the median line. On flexion and extension soreness at point A; not in lower quadrant of abdomen or over McBurney's point.

December 13th. Test breakfast; 1 hour; tube; sixty c. stomach contents, bread and fluid; bread well worked up. Reaction, blue litmus +; congo +; phoroglucin vanillin +. Free hydrochloric acid, thirty-nine, total acidity fifty-nine (on second trial for total acidity alone, sixty). Reexamined to-day: Epigastrium, pain in right epigastrium at the bend of the right costal arch. Abdomen, no pain on pressure to-day; only a heavy feeling. Urine, normal. *Diagnosis:* Hyperacidity; slight subacute gastritis, especially in pyloric section; chronic appendicitis. *Treatment advised:* Dietary directions in accordance with above mentioned findings; water, vegetables, etc. Locally over appendicular region, application of tincture of iodine, and ice bag at night. If not completely relieved in a reasonable time, operative interference to be considered.

CASE II. November 22, 1910. M. S., salesman, aged thirty-five years, married; children; height five feet, seven inches; average weight 138 pounds, here, without coat or waistcoat 129 pounds. He smokes one or two cigars and several cigarettes a day; drinks a little whiskey as an appetizer before dinner and before supper. Complaints of severe pains in the stomach, cramplike, that come on at intervals; has had stomach trouble for the last six years. The last severe attack, previous to the present one, occurred about six months ago; the present attack came on about a week ago. Formerly, despite the attacks, he always had a fine appetite and could eat well, only that three hours after the meal he would have severe cramps. Took sodium bicarbonate and was relieved. Lately, however, his appetite has failed and he has subsisted on oatmeal and milk diluted with water. Last Sunday, feeling somewhat better, he ate two platefuls of chicken soup and about two hours afterward was seized with the cramps. Bowels, although usually regular, have lately become rather irregular. Sometimes he is constipated for two or three days, and then again he will have two or three loose stools a day. Tongue: the anterior half clean, the posterior half covered with a yellowish white coat. Sleep, good, when not broken by the cramps. *Examination:* Epigastrium, nothing abnormal on inspection or palpation; no sensitiveness (to hammer percussion) anywhere. No splashing; water, eight ounces, splashing in the upper segment of the epigastrium. Liver and spleen, in normal position; abdomen, nothing abnormal. He is rather nervous; very fidgety.

November 23d. Test breakfast (Ewald and Boas); one hour; tube; obtained sixty c. stomach contents, bread and fluid, well mixed, emulsified. Reaction, blue litmus +, congo +; phoroglucin vanillin +. Free hydrochloric acid, sixty-seven, total acidity seventy-seven. *Diagnosis:* Hyperacidity; gastralgia. *Treatment:* Diet, for the present: Eggs, milk, crackers. To stop smoking and abstain from all alcoholic liquors.

December 2d. His bowels have moved seven times to-day. The first stool was very hard; so much so that a few drops of blood came with it. Says he gets pain in his stomach when it is empty. I ordered the hyperacidity diet usually directed by me<sup>1</sup> and prescribed for him eight grains of bismuth subnitrate three times a day. In case of severe pain in the night to take half a grain of codeine, and to repeat the same, if necessary, in forty minutes.

He continued under observation (coming in every week or two) until April 18, 1911, and then ceased his visits.

July 27th. Came in again to-day. He had been feeling well all this time and does not feel very badly now; he can eat nearly a whole chicken and sleeps ten hours every night. Last week, his grandmother (who had lived with his parents for many years and to whom he was greatly attached) died rather suddenly and he was very much affected thereby. He became nervous; had palpitations. He at once began taking the pills of zinc valerianate I had prescribed for him on a previous occasion and he was soon better. Then a pain in his stomach, sometimes spasms, set in, and this is his principle trouble now. Examination: Epigastrium, sensitiveness to percussion with the finger in the upper triangle. Abdomen, quite marked sensitiveness in the linea spina umbilicalis dextra at a point five cm. from the umbilicus, to the right.

<sup>1</sup>See NEW YORK MEDICAL JOURNAL, Dec. 10.



*Treatment:* Apply an ice bag to the appendicular region. For the stomach, a powder of bismuth subnitrate, calcined magnesia, and sodium bicarbonate. For the cramps in the bowels, in case they recur, camphor and codeine. Diet, only milk (warm) and soft boiled eggs. July 31st. Patient is better. No sensitiveness at all in the epigastrium; in the abdomen still slight sensitiveness over the point described. August 3d. Reported that on his way home, July 31st, he was suddenly seized with a pain so severe that he could hardly move. When he got home he at once applied the ice bag over the appendicular region, and was relieved in a short time. He still gets cramps in his stomach occasionally. He must eat as soon as he gets out of bed, or he will have a cramp. August 6th. Feeling very well. No pain or sensitiveness on percussion in the epigastrium or the right half of the abdomen. Continue the ice bag from eight to ten p. m. (is obliged to work throughout the day) for the next four nights; then every other night for a week; then twice a week for a week. Continue the diet first directed (for the hyperacidity).

November 12th. Came in to-day because of a lumbago. Abdomen normal; not the least trace of the attack of appendicitis.

February 3, 1913. Says he feels well, but at times has much flatulence; feels filled up with gas. Examination discloses slight sensitiveness over the middle of the linea spina umbilicalis dextra. He says that after a hearty meal he can hammer his stomach and bowels without feeling the least sensitiveness anywhere. Once in a while he becomes depressed; gets the blues. Continue the hyperacidity diet and put on cold compresses (Priessnitz) at night for two hours.

CASE III. September 19, 1911. Mrs. B. K., thirty, married; one child. Height five feet, five inches; weight last year, 175 pounds, now, here, 132½ pounds; no alcoholic liquors. She has had stomach trouble for the past ten years. She regurgitated her food; it came up very sour. Milk came up curdled. She had pain in the epigastrium and right hypochondrium all the time and it became worse after meals. Belched much, and not infrequently had hiccough. She came under the treatment of an eminent specialist for diseases of the digestive tract, was taken to a hospital, and kept there for five weeks, and was finally put to bed. A duodenal tube was introduced and kept in place for two weeks; through this she was fed during that period with milk and eggs. Under this treatment, she said, she grew worse, lost much flesh, became very nervous, and suffered greatly from soreness of the esophagus. When she left the hospital she went to the country, where she remained for seven or eight weeks, and there also she continued to grow worse. Now her symptoms are about the same. She complains of constant pain in the epigastrium and the right hypochondrium, which becomes aggravated after meals. Eructations, sour regurgitations, and occasionally hiccough. Her appetite might be called fair. (Breakfast, two soft boiled eggs, a cup of milk, and one or two slices of stale white bread; dinner, soup (of chicken), boiled spring chicken, or soft boiled eggs, and tea without milk; supper, eggs, milk and bread). She drinks no cold water, as this causes discomfort. Bowels regular; no headaches; sleep, not very good; she wakes up after two or three hours and cannot fall asleep again; tongue has a heavy white coat.

*Examination.* Epigastrium, nothing abnormal on inspection or palpation; sensitiveness to percussion in median line from xiphoid cartilage to umbilicus, also in the upper triangle of the right half of the epigastrium and about the bend of the right half of the costal arch. No splashing; water eight ounces, no splashing, no sound. Liver, normal in size, no sensitiveness or anything abnormal about it; spleen, normal; right kidney mobile (first degree), the left firm. Abdomen, no panniculus, nothing abnormal on inspection or palpation; percussion with hammer causes pain on the linea spina umbilicalis dextra, especially about the umbilicus and for two cm. downward; also in the left half of the abdomen, about the head of the rectum and across the pubic region.

September 21st. Test breakfast: one hour; tube; obtained fifteen c. c. stomach contents, bread and fluid, all well worked up together and presenting the appearance of an emulsion. Reaction, blue litmus +; congo +; phoroglucin vanillin +. Free hydrochloric acid, forty-five, total acidity seventy-six. Pepsin about normal, but

not in correspondence with the marked degree of acidity here present; rennet, normal. She brought with her a specimen (four ounces) of urine from a twenty hour collection; appearance clear, transparent; color yellow; odor —; sediment + (brick dust). Reaction, blue litmus +; specific gravity 1.025; reaction, heat —, heat and acid +, but very faint. Same reaction with the filtered urine. Faint trace of albumin, due most likely to the irritation caused by the uric acid gravel. *Diagnosis.* General debility; a certain degree of nervous depreciation; hyperacidity; lithemia. *Treatment.* Dietary directions for the hyperacidity. Because of the lithemia, allowed only chicken, lamb chops (well trimmed before broiling), and fish. Because of the faint trace of albumin in the urine I allowed her some cereal for breakfast (farina, hominy grits, corn flakes). Directed her to drink freely of cold water, from five to six glasses a day. Medication, a pancreatin pepsin digestant.

October 24th. Weight increased to 137½ pounds. She says she has not been free from the pain in her stomach, although at times it has been less severe. At such times the food does not regurgitate, as when the pain is more severe. She has a scalding sensation about the right half of the abdomen. On percussing the linea spina umbilicalis dextra she complained that it gave pain at a point 4½ cm. from the umbilicus. Still belches and has hiccough occasionally; the taste in her mouth is better, the tongue less coated. Her nose is obstructed, and breathing impaired by this; she has a chronic pharyngitis. *Directions.* Apply an ice bag to the appendicular region. Eight grains of bismuth subnitrate fifteen minutes after each meal. A specimen of urine brought to-day shows a large brick dust deposit. October 30th. Says she feels bad on waking in the morning and cannot eat any breakfast. Her stomach feels full. The appendicular region is now very sensitive. On flexion and extension of the right leg the sensitiveness is marked more on flexion than on extension. She says she feels soreness in this region when walking, but most of her suffering is in the stomach. Continue the ice bag. November 6th. She complains of the pressure in her stomach, mainly in the lower portion of the right half of the epigastrium and anterior portion of right hypochondrium. On examination, she cannot really locate the point of pain exactly, but the sensitiveness to pressure of the fingers is at and about the umbilicus. She came fasting, as she had been directed. Test breakfast; one hour; tube; forty-five c. c. stomach contents, bread and fluid. Bread well worked up. Reaction, blue litmus +; congo +; phoroglucin vanillin +. Free hydrochloric acid sixty, total acidity seventy-six. Stomach still in *status quo* as to hyperacidity. Nothing otherwise abnormal in the extracted stomach contents. To have her feces examined for occult blood. Meanwhile to subsist on milk and Vichy (celestins). November 13th. No blood found in the feces. Reexamined her to-day. The pain on palpation is not so much in the stomach as in the appendix. As she points to it, the pain extends from the crease to the umbilicus and is mostly felt in the right half of the abdomen. It is a constant dull pain, with modifications up and down. On flexion and pressure of flexed thigh and extension, the signs of inflammation of the appendix are positive. Per vaginam, nothing especial to be felt, but also there pressure made to the right causes pain. The ice bag did not help her greatly. Advised her to have the appendix removed, and sent her to a well known surgeon.

January 8, 1912. She came in to-day on her way home from the hospital, from which she had just been discharged. She said that on her admission to the hospital a diagnosis of gallstones was made. She was operated on for gallstones, but none being found, and there being otherwise nothing abnormal about the liver, an appendectomy was made. I was informed that the appendix presented a condition of catarrhal inflammation, as did also the cecum. Numerous adhesions were said to have been found about these parts. Patient complains that she still has a very sour stomach and occasionally some pain. To have milk, soft boiled eggs, white meat of chicken, stale white bread. Vichy (celestins) three times a day. If not relieved, to take the bismuth, magnesia, and belladonna powders.

February 2d. She says she is worse now than before the operation. Formerly she could eat, but since the operation cannot eat at all. When the pressure sets in, the configuration of her abdomen is changed. She is very



much depressed and cries freely and readily when speaking of her ailments. A specimen of urine she brought with her shows an abundance of uric acid gravel. She came fasting, and wanted her stomach contents tested. They gave free hydrochloric acid forty-six, total acidity seventy-one. To have her stomach washed out every night.

February 25th. Patient did not have her stomach washed out until yesterday. It was done too early, and she lost her supper in consequence. Her physician called me up on the telephone with regard to this, and I repeated the advice to wash out her stomach about 11 p. m. and to mix prepared chalk with the water.

April 22d. I was informed to-day by her physician that he had lavaged her stomach five or six times without any apparent benefit. She then became pregnant and he stopped the treatment. She is feeling much better since then. About three weeks ago, during a gang fight in her neighborhood, a bullet entered her room and struck just above her head. She was shocked and some hours later began to have uterine pains and slight flow. Her physician was called, ordered the necessary treatment, and she recovered quickly. There is no doubt in my mind that the pregnancy has had a most beneficial effect upon her digestive and nervous systems.

In this section also more cases could have been cited, but the number reported are sufficient for the purpose. In view of what has already been said, it is but natural that the question should present itself, Is there, in these cases, any relation between the hyperacidity and the appendicitis, i. e., has the hyperacidity furthered the development of appendicitis or is it merely an accident that the latter has thus supervened?

If the former view be taken, it can be supported on these grounds: In many cases of hyperacidity a subacute inflammation has developed, or develops, in the gastric mucous membrane, and the irritation therefrom could be communicated to the appendicular mucous membrane in the same way as the irritation from the appendicular mucous membrane is communicated to that of the stomach, as already described. Or, it may be that some of the highly acid contents of the stomach, passing down through the intestine, get into the appendix and cannot get out again, as described in my book on *Constipation*,<sup>13</sup> and there set up an irritation with spasmodic reactions in the same way as they produce, at times, cramplike attacks in the stomach itself (spasm of the pylorus).

### III. APPENDICITIS AND GASTRIC HYPERACIDITY COINCIDENT (at least in so far as I was able to determine).

CASE I. April 27, 1910. L. E., a Turk, twenty-one, single, shipping clerk. Height five feet, eight inches; weight 140 pounds. Smokes cigarettes, but has not smoked any for the last five weeks; no alcoholic liquors. Enjoyed good health up to a year ago, when he began to have headaches—about once in two weeks. Always a good eater.

About seven weeks ago he was seized one evening after supper with a severe headache; things became black before his eyes. He took a dose of salts, went to bed, and the next morning took a bottle of magnesium citrate. He remained in bed for three days; then got up and went to a dispensary. He still complains of dizziness; has chills and sometimes flashes of heat about the head and neck. His bowels are open (he is taking medicine from the dispensary, which seems to contain some laxative drug). Has pain in the epigastrium. Sleep, good.

Examination. Epigastrium, nothing abnormal on inspection or palpation; the whole epigastrium is very sensitive, especially in the median line, from the xiphoid car-

tilage to the umbilicus, and in the right half of the epigastrium. No splashing; water, eight ounces. Liver and spleen in normal position; abdomen, nothing abnormal on inspection; the right half very sensitive to hammer percussion and to the pressure of the hand. On flexion and extension<sup>14</sup> nothing very marked: an uncomfortable feeling—noted more by comparison with the left leg. When the abdomen is percussed he feels the pain in the epigastrium. Facies that of a patient in the prodromic or early stage of typhoid fever. No elevation of temperature. *Diagnosis*, reserved. Question: Appendicitis or typhoid? *Treatment*. To keep to his bed. Food: Milk and soft boiled eggs only. To drink freely of cool water. When bowels are costive, to take an enema. Medication, a pancreopepsin tablet with meals.

May 1st. Pain in right half of abdomen almost entirely relieved. Only felt on deep pressure, and even then much less than before. Tongue covered with a heavy yellowish white coat. Still some headache, which comes on after eating. Tincture of nux vomica, two drops every two hours, and strontium bromide, twelve grains at 10 a. m. and at bedtime. May 5th. Still pain and soreness over linea spina umbilicalis dextra, in the upper third; also in epigastrium; heaviness after eating; headache. Feels best when lying down. No elevation of temperature. To apply an ice bag over the appendix. For the epigastric pain a powder of bismuth, magnesia, and belladonna prescribed.

May 8th. In *status quo*. Over the appendicular region, and downward, soreness on deep pressure; in the epigastrium marked tenderness. May 15th. The case has been going on in this way: some days the appendicular region seemed entirely free from pain and the epigastrium was very sore; at other times the soreness was most marked over the right half of the abdomen. Test breakfast; one hour; tube; 100 c. c. stomach contents, bread and fluid; bread well worked up. Reaction, blue litmus +; congo +; phoroglucin vanillin +. Free hydrochloric acid forty-eight, total acidity sixty-six. On inquiry as to which pain came on first, he said he did not know; he had not noticed the soreness of the abdomen. May 16th. Last night he had an attack of very severe pain in the abdomen, as bad as at the beginning. All the pain is located about the umbilicus; right half of abdomen is very sore over the linea spina umbilicalis and in the inguinal region, near the median line; has some pain in left half of abdomen; epigastrium very sore. Advised him to consult a surgeon with a view to an appendectomy.

July 16th. Owing to various delays, he was not operated on until the 6th of this month. He was discharged from the hospital to-day, and on his way home came in. Feels well, no soreness over epigastrium, though he is still somewhat sore in the lower half of the abdomen. His weight is 125 pounds. To keep on a milk, eggs, and vegetable diet till the next week (though he has already had soup and meat in the hospital). July 19th. Yesterday he again had pain in the epigastrium; bowels were loose (due likely to some pears he ate). Test breakfast; one hour; tube; sixty c. c. stomach contents, bread and fluid; bread well worked up. Reaction, blue litmus +; congo +; phoroglucin vanillin +. Free hydrochloric acid, sixty-two, total acidity seventy-three. Gave him the necessary directions.

September 11th. Patient is feeling much better. Still some soreness in the epigastrium, though less than before the operation. Examination. Some sensitiveness in the median line, about crease; also in the right half of the abdomen and somewhat in the left. On pressure being made in the left half, about the middle of the linea spina umbilicalis, he said he felt pain in the epigastrium. Pulse 72, rather weak. Weight 138 pounds. Continue diet as before. Compound syrup of hypophosphites, a teaspoonful three times a day.

December 4th. The patient has varied as to his condition, now complaining of pain, now free from it. Bowels costive or even constipated, and then again rather loose. As he complained again of the pain in his stomach, he was ordered some codeine tablets; half a grain to be taken at bedtime. December 6th. Still some pain in epigastrium and soreness on pressure. Bowels as before, sometimes loose, sometimes constipated. Weight 146½ pounds. In view of this continued and steady gain in

<sup>13</sup>Constipation in Adults and Children, with Special Reference to Habitual Constipation and Its Most Successful Treatment by Mechanical Methods, by H. Illoway, p. 137.

<sup>14</sup>A Pathognomonic Sign etc., *Archives of Diagnosis*, June, 1908.

weight, and of his very good general appearance; I directed him to leave off all medicine, to be careful in diet, and to use cocoa in place of milk.

With all this, there is no reason for the creation of a special category of dyspepsia, to wit, "appendicular dyspepsia" for the first group of cases, no more than there would be for the creation of a special category to be called "dyspeptic appendicitis" for the second group of cases. The appendicitis does not give rise to a special form of dyspepsia; indeed, the dyspepsia differs in no way from that excited by other causes, as excessive use of acidulated drinks, of highly spiced foods and various other factors enumerated in the treatises and restated by me, with additions, in my studies of hyperacidity.<sup>16</sup> Moreover, the removal of the appendix does not of itself cure the hyperacidity or the dyspepsia. The gastric disturbance, of whatever form it be, must be treated in the same way as dyspepsia from other causes, and the patient must exercise the same care that is requisite for patients whose dyspepsia is of different causation, as can be readily seen from the histories here narrated and from quite a number of others that I could have adduced.

As recorded in the histories, I have advised all, or almost all, of these patients to have their appendices removed, and would under similar conditions again so advise; not, however, with the idea that an instant cure would result, but for the same reason that I prohibit (in hyperacidity) the use of acids, acid fruit, spices, etc., namely, in accordance with the old maxim *sublata causa*—when the cause is removed, the effect is more readily overcome—and to relieve the patient whose nervous system is already somewhat disordered by the dyspepsia from the further strain of the knowledge that he has an appendicitis. However, a refusal for one reason or another to submit to an operation does not preclude recovery from both the appendicitis and the stomach ailment, as is well shown by Case II, and still further demonstrated by the following history:

November 7, 1910. Mrs. M. L., thirty-two, married; two children. Height five feet, three inches; weight 200 pounds, average 189-192. Three years ago a hysterectomy with removal of ovaries; last summer an attack of appendicitis; for four weeks troubled with indigestion: pressure in epigastrium, heartburn, sticking pains in the back. The pains are at times extremely violent. She had two such sharp attacks last week. Is a hearty eater; partakes of all kinds of fruits, but abstains from sweets. Bowels regular; lately she has suffered much from headaches; is subject to attacks of muscular rheumatism. Tongue has a white coat. *Examination.* Epigastrium, nothing abnormal on inspection or palpation; marked sensitiveness over the whole epigastrium; even rather light pressure over the median line from the xiphoid process to the umbilicus makes patient wince. No splashing; water, eight ounces, no splashing, no sound. Liver, spleen, and kidneys in normal position. Abdomen, the whole right half very sensitive, especially over the linea spina umbilicalis and McBurney's point. Temporary directions: Diet, milk (warm) and soft boiled eggs, till chemismus examined.

November 10th. Patient has not had any burning since. Test breakfast; one hour (through some oversight, half a cup of tea was taken just half an hour before extraction); tube; thirty c. c. stomach contents, bread and fluid; bread well worked up. Reaction, blue litmus +; congo +; phoroglucin vanillin +. Free hydrochloric acid, thirty, total acidity thirty-nine. *Diagnosis.* Despite the

low degree of the total acidity, I was certain that I had here a case of hyperacidity. I ascribed this low degree to the diet of milk and eggs in the three preceding days. In addition thereto, there is present a chronic appendicitis. *Treatment.* To lie down in bed and apply an ice bag over the appendicular region. Adhere to the appropriate dietary directions. November 10th. Had again severe pain over the appendix. She put on an ice bag and was relieved. She is very costive. To take an enema. I advised her to have her appendix removed, but she will not consent to this, because she is afraid of the anesthetic.

November 22d. To-day she had an attack of nausea and vomiting consequent upon an enema taken shortly after a rather large dinner of roast beef, vegetables, and dessert. Later on, severe pains supervened both in the epigastrium and back. I prescribed some powders of bismuth, magnesia, and extract of belladonna, also some half grain codeine tablets, to be taken if the powders afforded no relief. The appendicular region is still very sore. To continue the ice bags and to eat only milk and eggs while confined to the bed. At 3 a. m. I was called to the telephone. She had taken one powder, fallen asleep, and slept till 2 a. m., when she woke up feeling the pain and took another powder. She was not relieved, and asked what she should do. Directed her to take a glass of warm milk and Vichy (Celestins); if not relieved in ten minutes, to take two codeine tablets.

April 11, 1911. She got along quite well as regards her stomach, till two or three days ago, when she drank a glass of wine and ate a plate of soup. Since then has again had pain and burning in her stomach. She is constipated, and is tired of salts and the purgative waters. Right half of abdomen still quite sensitive; her corset hurts her. To take one or more of the bismuth, magnesia, and belladonna powders, to loosen her corset, and to paint the appendicular region with tincture of iodine (slightly diluted). For the constipation, a tablet of phenolphthalein every other night.

In the spring of 1912 I met her at a social function. She had fully recovered from her appendicitis, and her stomach was in fine condition.

That a case of gastric disease, without the least evidence or symptom of appendicitis, should not have an appendectomy made merely because it proves refractory to the practitioner in attendance, is so self evident that it would seem unnecessary to make the statement; still, it is but lately that I have had occasion to see two such cases, and the patients were, as was to be expected, as ill after the operation as they had been before. There is no short cut to the cure of gastric ailments. An operation may become necessary to remedy a condition that has developed secondarily, e. g., stenosis of the pylorus after long continued hyperacidity with gastralgic attacks; but only by the avoidance of those factors that have produced the ailment can the patient, operated upon or not, expect to keep his stomach in good condition and himself thereby in good health.

1113 MADISON AVENUE.

## ACUTE RETROPHARYNGEAL ABSCESS.

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Acute retropharyngeal abscess is essentially a disease of infancy and childhood; the majority of the cases occurring between the ages of three months and two years. To appreciate why this is so short



a review of the anatomy of the parts is essential. The retropharyngeal space (Gillette) is the seat of a considerable number of lymph nodes. These nodes are intimately connected with the lymph vessels of the tonsils, soft palate, and other soft tissues of the nose, nasopharynx and pharynx. The lymph vessels are in turn connected with the deep cervical glands. Any acute process, as inflammation or infection, affecting the mucous membrane of any of these parts whose lymph channels drain in the way above described, may infect one or more of the lymph nodes situated in the retropharyngeal space, causing it to break down and form an abscess. After the third or fourth year of life these lymph nodes disappear, and therefore we then see considerably fewer cases; rarely they persist until a much later period of life.

Koplik (1) reports a series of seventy-seven cases occurring between the ages of one month and five years, the great majority (forty-one) occurring between the ages of six and twelve months. Our own experience of twenty-three cases certainly sustains Koplik's figures. Of twenty-three cases only one was over four years of age, the great majority (twenty) being under one and one half years of age. Nevertheless, acute retropharyngeal abscess may occur in adults. Shurly (2) of Detroit, quotes R. H. Herrold as reporting a case in a young woman twenty-two years of age, previously healthy. The case went on to spontaneous rupture and the patient was perfectly well again in a few days. Moore reported a case in a man aged forty years and Dunn one in a man aged sixty-two years. E. Delneuve (3) reported a case in a man aged sixty-five years.

The etiology of this disease is sometimes very obscure. Although occurring, as it does, most frequently in the poorly nourished, the tubercular, syphilitic, or rachitic child, it is occasionally met with in children who have previously been perfectly healthy. Tonsillitis, pharyngitis, or any of the acute inflammatory diseases of the nose, mouth, or pharynx may be a predisposing cause. The acute infectious diseases of childhood are sometimes complicated by retropharyngeal abscess. We have seen two cases following scarlet fever. Acute otitis media and acute external otitis (4) have also been mentioned as a cause by Olagna and Santurri of Naples. Foreign bodies in the esophagus are given as a cause by W. Hirose (5). Operative procedures in the nasopharynx or pharynx are likewise mentioned as a cause of acute retropharyngeal abscess. Personally, we have seen two cases following attempted removal of adenoids.

**Symptoms.** The fact that the disease occurs principally in infants unable to talk makes it impossible as a rule to obtain a very complete history. The mother has noticed that for a few days the child has had what she supposed was a cold; was irritable and restless, and had some difficulty in swallowing. When we see the child it has probably been sick three or four days. It usually appears very ill. Face anxious; temperature from  $101^{\circ}$  to  $103^{\circ}$  F.; pulse about 130. The respirations are hurried, and with each act of inspiration a peculiar croupy sound is produced. The cough is hard and metallic; with each attempt at coughing the child cries or

whines, as if the effort caused pain and suffering. It absolutely refuses to nurse or make any effort at swallowing. Prefers to be carried around; the head is held in a more or less upright position, with the chin drawn forward. The child has a very distressed expression, and every movement of the head seems to increase its suffering. When the abscess becomes large enough to press upon the tissues of the larynx severe dyspnea may ensue, completing a picture of suffering which, once seen, will not be easily forgotten.

An examination of the throat at this time will readily reveal the cause of all these symptoms. When the mouth is opened and the tongue depressed we may sometimes see a bulging forward of the posterior wall; this swelling may be so large as to push forward all the soft tissues of the throat in its immediate vicinity. But many times, with a crying, struggling child, or with a poor light, or, again, when the abscess is situated low down in the pharynx this method of examination is not satisfactory and certainly not to be depended upon. The use of a properly fitting mouth gag and the index finger of the right hand are the only reliable and dependable means for making a thorough examination in these cases. Not only can we feel the fluctuating tumor, but we can at the same time distinguish it from other tumors, such as prominent cervical vertebrae and osteoma; we can also feel any pulsation, if present. A. Sokoloff (6) reported the case of a child aged two years in which he attempted to open a large retropharyngeal abscess; when immediately a severe hemorrhage ensued, apparently from one of the large arteries of the neck, and the patient died in ten minutes. At the post mortem examination it was found that the source of the hemorrhage was an erosion of the internal carotid artery, and that the cavity of the abscess extended to the base of the skull. Had a proper digital examination been made in this case no doubt pulsation would have been ascertained.

Having made the diagnosis by palpation, the immediate opening of the abscess becomes imperative.

Our method of operating in these cases is as follows: No anesthetic, either general or local, is required. Child is wrapped snugly in a sheet (as for intubation). The nurse (standing) holds the child with the head downward, with its lower extremities over her shoulder. This is done to prevent the swallowing or inspiration of the pus. Inspiration of pus in these cases is followed by a septic pneumonia which is usually fatal. With the nurse holding the child in the position indicated, an assistant introduces the mouth gag. With a central location of the abscess it makes little difference upon which side of the mouth the gag is introduced, but should the bulging be lateral, the gag is introduced on the opposite side of the mouth to allow more room for operation. The operator now introduces his left index finger as a guide, and with the sharp elevator of a Killian submucous set in his right hand, tears through the abscess wall for about an inch or an inch and a half at its most prominent part. Considerable force is sometimes necessary to penetrate to the abscess cavity with this rather dull instrument. We formerly used a bistoury in these cases, but found that the wound closed too rapidly, so that sometimes



a secondary operation to reopen the cavity became necessary. Since using the tearing method we have never had to reopen the abscess cavity. The child is held in the inverted position until all the pus is thoroughly drained, after which the mouth is kept clean with mild alkaline washes used frequently, and especially before and after nursing. Treated in this manner, the relief is prompt; the child falls asleep almost immediately, the sleep of exhaustion. Usually upon awakening they are greatly refreshed and are ready and anxious to nurse; and in a week or ten days are as well as ever.

We would like to add one more point in regard to the operative technic in these cases. We noticed that sometimes the children became very cyanosed and stopped breathing just when we were about to open the abscess. When this occurs immediate removal of the mouth gag is indicated, as the back part of the tongue is being crowded back upon the abscess; thereby shutting off the air supply. A broad bladed tongue depressor is introduced between the teeth instead, and the operator then proceeds as before described.

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254 WEST 127TH STREET.

## IMMUNITY BY SCIENTIFIC BACTERINATION VERSUS NATURAL IMMUNITIZATION IN SELF LIMITING DISEASES OF BACTERIAL ORIGIN.

By C. G. ROEHR, M. D.,  
Fort Pierce, Fla.

The study of biology, including bacteriology, has given us the science of preventive medicine. This outranks, in importance to man, the effect of the gas engine with its automobile and flying machine, or the dynamo with its wireless.

Immunity, as a term in general use, is in definite and may mean anything from a thick dry skin, to keep out bacteria, to a trained brain that can avoid excess, unhygienic conditions, or exposure to infection. In this special class of diseases, it means the power in our tissue to kill the cause of such disease, in contradistinction to the term susceptibility, which means the power of such disease element to grow in or kill us. Such power of protection or resistance is called immunity. We are directly interested in this bactericidal protective power as resulting from or caused by the saturation with the autolytic or autoferment properties of such special varieties of bacteria.

Our effort to-day is to explain why it is preferable to gain such protection immunity by bacterination without symptoms of disease, instead of the natural method of saturation by disease, with its danger of toxic action and sequelae, called survival of the fittest. We study biological laws by analysis

of known facts. Our deductions must stand test. First, in the laboratory, as less expensive and errors less likely to kill; second, in the patient, Nature's laboratory where reactions are called symptoms.

Bacteria grown in the laboratory show modification by variation in culture media. We change a coccus into a bacillus, and *vice versa*; a toxic into a nontoxic, and *vice versa*; and by combination of two or more nonpathogenics develop pathogenesis, and *vice versa*, just as Burbank can change the offensive cactus into a valuable food product. This explains to the physician the variation in patients, of the same disease, mild or severe; also the natural law in biology: *Bacterin, to produce immunity, must be of the same variety and unmodified by culture*. So where bacteria grow without great modification in man, or in test tube of ordinary culture media, we can expect to use such cultures of bacterin and count on getting a normal immunity. A good example of this class is the typhoid bacillus, while the pest bacterium is an example of extreme modification by variations in culture media. This explains why the ordinary culture of pest bacteria does not give permanent immunity. Given a culture of typhoid in a tube of culture media, a few day's growth will saturate this with toxine causing inhibition or apparent death of the bacteria. If separated by filtration or centrifuge, these bacteria will grow if planted in a fresh culture media. Any living active typhoid bacilli placed in such toxine saturated media will show inhibition. This explains the Widal reaction. This filtered toxine free bacteria, if killed without destroying its autolysin or autoferments, will, even in fresh culture media, kill other living bacteria of the same variety before they can develop their full complement of toxine.

Such laboratory finding, culture variation, and autolysis explain:

1. One reason why the world is not a living mass of any one kind of bacteria.
2. Why the saturation of the human system with bacterin causes immunity.
3. Why we kill our bacteria by a temperature of from 55° to 65° C., or other methods to avoid destruction of the essential ferments that aid or teach our tissue to kill bacteria.
4. Why so called antitoxine and toxic bacterial preparation may contain some bacteriolysin through error, and be of some, though uncertain, immunizing value; and a combination of antitoxine and toxic bacterin give an atoxic bacterin. The objection to this is that the foreign serum may irritate.
5. Why bacterial disease, not self limiting, may, by modification, become immunizable by bacterination with autobacterin or modified bacterin. See Neisser coccus modified by extra urethral culture as gonorrheal rheumatism; also bacterin coli, extra intestinal modification, causing inflammatory reaction, see systitis and cellulitis, etc.
6. Why bacteria in self limiting diseases, if tamed or modified, can produce only partial immunity except when used alive by inoculation or vaccination with full knowledge that it may at any time, revert to virulence. Such knowledge is one scientific reason why bacterination is preferable to vaccination.

Toxine will cause symptoms in the immune. In-

fection in the mother may cause toxic milk; so toxine symptoms do not always prove infection. Toxine does not immunize. All symptoms including action and reaction in bacterial disease are a result of the toxine only. All tests depending on toxine, toxic inhibition, or toxic complement reaction are liable to modification in not less than twenty per cent. of cases. This uncertainty wipes out scientific reliability for diagnostic purposes. Toxine inhibits bacteria, making phagocytosis of living bacteria possible, and explains immunization by infection—bacterium will grow in autotoxin pure or alytic. Bacterin, toxine free, will not cause reaction unless the system is infected by this identical variety of bacterin.

This knowledge is of extreme value to the diagnostician on account of this positive scientific result, and is commonly known now as a test for tuberculosis with tuberculin and as a test for syphilis withluetin. It may be well here to refer to the fact that two or more so called nonpathogenic varieties of bacteria may in combination become pathogenic. This might require a combined bacterin for diagnosis, and is one explanation of the value of a mixed autobacterin treatment. The term *bacterin*, as we use it, means the unmodified culture of the same variety, toxine freed, killed in such manner as to retain its bacteriolysin or ferment. Therefore, *all self limiting bacterial disease*

1. Can be diagnosticated by bacterin;
2. Can be prevented by bacterination;
3. Can be cured by bacterination.

This last statement, it is to be understood, does not necessarily include repair of injury already resulting from the toxine. Here we use antitoxine to prevent injury or death until bacterination can cause immunity. Anaphylaxis is our index for the dosage of bacterin during infection, and, although pneumococcus immunity is only temporary, pneumococcus bacterin is of great value. A digression is justifiable here, to remark that as infection in man is seldom or never of one variety only, it would be advisable to use a pure bacterin for prevention and a mixed bacterin for treatment. Bacteria carriers are a result of increased bacterial resistance or modified bacteria; or if interference with circulation by the wall resulting from toxic irritation. They will be cured by excess immunity, made possible through bacterination excess. Only one or two per cent. will require surgical aid to drain or increase bactericidal blood supply.

We know that the experiments in yellow fever, malaria, typhoid, etc., have been made possible only by the voluntary sacrifice of the noblest men in our profession. We honor them—but why not use the condemned criminal for our biological study? Modified bacterin inoculation for tuberculosis and syphilis were experimented with years ago in France, and finally prohibited by law as dangerous.

#### METHODS NOW IN USE FOR LOCAL AUTOBACTERINATION.

##### Heat.

Steam infected uterus.

Hot water irrigation—infected wounds.

Poultice—Convenient and cheap.

Sun glass—in pressure anemia to favor penetration of heat. Can we focus x ray or radium or helium ray with sun glass? No.

##### Cold.

Ether or ethyl spray.

Liquid air.

Ice bag or pack.

CO<sub>2</sub> pencil.

##### Chemicals—Electricity.

X ray, ultraviolet ray, radium ray.

#### BACTERIAL DISEASE CLASSES.

##### Self Limiting Permanent Immunity.

Smallpox; scarlet fever; measles; whooping cough; mumps, pest or plague; Asiatic cholera; typhoid fever; boils or pimples; poliomyelitis; cerebrospinal meningitis.

##### Self Limiting Temporary Immunity.

Pneumonia (*Diplococcus lanceolatus*), la grippe. Erysipelas.

##### Racial or Partial Immunity.

Tuberculosis, leprosy, gonorrhea.  
(A:ntoinoculable to the individual.)

#### BIOBACTERIOLOGICAL CHART OF SELF LIMITING BACTERIAL DISEASE.

	Cause symptoms.	Relieve symptoms.	Diag. nosticate.	Prevent or minimize cure or help.	Sequelae.	Remarks.
Toxine .....	+	o	?*	o	o +	Opsonic index or complement test, etc. *Widal test, (uncertain in 20 per cent.).
Antitoxine .....	o	+	o	?*	*o ?†	†Objection—foreign serum. *Benefit due to bacteriolysin.
Infection .....	+	o	?	*†	*o +	Diagnosis uncertain.
Toxine free bacterinization ....	o	o	+	+	+	*Survival of the fittest. Prevention without danger.
Toxic bacterin ..	+	o	?†	+	†?	Prevention, partial, with danger.
Modified bacterin. ....	o	o	o	o	*o +	Uncertainty, danger.

#### GELATIN AND OLIVE OIL IN THE LIBERAL DIET OF TYPHOID FEVER.

BY ISRAEL BRAM, M.D.,  
Philadelphia.

In the very near future a strict milk dietary of the sufferer from typhoid fever will be looked upon with disdain as an antiquated, cruel, and even harmful method of procedure. Time, reason, experiment, and experience are responsible for changing the views and theories of medical men in the management of disease. Only a few years ago it was considered dangerous to administer a drink of water to a sufferer from fever, whose anxious expression and parched lips bespoke intense suffering from thirst, and whose organs were piteously begging for nature's cooling draught. During those days the higher the temperature of the patient, the more was he deprived of fresh air; and it was considered criminal to ventilate the chamber of the sufferer from croupous pneumonia.

But times have changed, and so has the mortality from the various acute febrile diseases. We quench

the thirst of a poor mortal with all the  $H_2O$  he can take; we admit a liberal quantity of fresh air to reoxygenate his blood; and if perchance the patient suffer with a condition characterized by pulmonary embarrassment, we place him on the roof, even though the atmospheric temperature be zero. And so in typhoid fever it will soon be discovered that a milk diet is usually harmful for the following reasons: (a) Many patients possess a natural aversion to milk; (b) it in time becomes monotonous to nearly every patient; (c) it is not really a "complete" food for adults, which fact assists the process of emaciation already being carried on by the existing toxemia, thereby reducing the patient's resistance to a minimum; (d) hard, cheesy curds resulting from the ingestion of milk are largely responsible for the irritation of the gastrointestinal mucosa, fermentative processes, tympanites, and even intestinal hemorrhage and perforation; (e) a prolonged milk diet renders the digestive processes so delicate as to lessen their ability to digest other foods for many weeks. This last factor explains why typhoid patients under a milk diet, when given more liberal feeding at any time during the course of the disease, fare badly, and oftentimes promptly present evidences of tympanites, sometimes leading to hemorrhage and perforation. On the other hand, it has been proved by many clinicians that patients fed liberally from the very onset of the disease fare much better than those on a milk diet.

It is necessary to employ five quarts of milk daily in order to furnish a sufficient number of calories to maintain the patient's nutrition. This quantity of milk is practically impossible for a person in health or disease, so that if the milk diet is insisted upon, the patient is slowly starved while combating a prolonged infection, during which his resistance and nutrition should be safeguarded in order to enhance prompt convalescence and recovery. Careful studies by clinicians in this country, including the consideration of twenty-six patients of my own, prove undoubtedly that the typical typhoid patient can cope very well with the ordinary proteids, carbohydrates, and fats with slight modification in their various preparations, and with especial preference for raw or soft boiled eggs, butter, and crackers, buttermilk, milk toast, junket, beef tea, scraped beef, cup custard, oatmeal, well boiled rice, gelatin, and olive oil.

The paper by Johnson and Watt entitled Typhoid Fever. Its Milk Free Treatment (NEW YORK MEDICAL JOURNAL, February 1, 1913) prompts me to make these remarks concerning gelatin and olive oil, with conclusions derived from the treatment of the beforementioned twenty-six patients who had suffered with this disease and who made prompt recovery, without complications, relapses, or any appreciable emaciation. Johnson and Watt call attention to the manifold virtues of gelatin in the treatment of typhoid fever, urging that it be administered continuously during the course of the disease (excepting in the presence of thrombosis). As a matter of fact, my experiences with gelatin in this disease as a food, a prophylactic, and a remedial agent in the treatment of intestinal hemorrhage, were outlined in a short paper in the *Dietetic*

and *Hygienic Gazette* of June, 1911, in which it was shown that the use of gelatin in typhoid fever is almost imperative in view of the numerous indications for it which arise. Moderate quantities of gelatin administered to these patients tend strongly to the prevention of intestinal hemorrhage. This seems to have been overlooked by the profession at large. It has been universally conceded that gelatin possesses hemostatic properties, and if this be true, it should be administered to all patients suffering with conditions in which hemorrhage may occur as a symptom or complication. Furthermore, gelatin possesses nutritive properties simulating the proteins, as well as serving to assist in overcoming the monotony of the sameness in the diet. Therefore in a measure it aids in the prevention of the starvation to which the enteric patient is usually subjected.

Pure gelatin is usually nearly colorless, odorless, and tasteless. The easily prepared gelatins on the market are often colored and flavored with chemical substances injurious to the economy, e. g., sulphuric acid, sodium benzoate, etc., and should be avoided. It should be made from government inspected calves' feet, treated with pure boiling water, and then delicately flavored with pure light wine or lemon.

In the *Medical Review of Reviews*, September, 1912, I pointed out that olive oil has a broad field of usefulness in typhoid fever and should be employed throughout the course of the disease. As a food administered in doses of from one to three ounces, three times a day, it is a valuable adjuvant to the diet. It not only assists in overcoming the tendency to emaciation, but in many cases the patients show a gain in weight during convalescence over and above the weight possessed by them before the onset of the disease. As a laxative, olive oil has no equal in typhoid fever. By its bland soothing influence it permits the intestinal contents to escape without irritating the inflamed Peyer's patches. In this way the tendency to intestinal hemorrhage is diminished. The intestine, kept clean and free from gas forming elements by this oil, is practically never distended, and thus, in the absence of tympanites, we have little fear of intestinal perforation. A high rectal injection of lukewarm olive oil as occasion demands is also very gratifying to these patients.

In conclusion, I would remark that I have noticed no untoward results from the free use of gelatin and olive oil in typhoid fever. I would therefore urge that these substances be added to the routine dietary of this disease.

1714 NORTH SEVENTH STREET.

**Treatment of Whooping Cough.**—Renigio, in *Lyon médical*, April 27, 1913, is credited with the advice to place in various parts of the sick room four or five grammes (one drachm to seventy-five minims) of the following mixture:

Methyl salicylate, .....	2 parts;
Eucalyptol, .....	1 part.

This should be done twice during the daytime and also once in the evening.



## EFFICIENCY AND HEALTH.\*

By SAMUEL HORTON BROWN, M. D.,  
Philadelphia.

The keynote of nearly every essay appearing in the popular magazines of the day is efficiency. We are kept informed how to become a foreman, how a better foreman becomes a better superintendent; and also that if the new superintendent does not show himself to be of much greater capacity than the previous incumbent, he is replaced by another. But if he follows the advice prescribed by this or that essayist, he is certain to fill the chair of the first vice-president, who "is getting old and expresses it through his ultraconservative views about everything." And so on, *ad nauseam*. Now, what becomes of the inefficient? This is probably being saved for the Christmas numbers to come, when the families of the efficient will carry Christmas baskets to the wives and children of the inefficient members of the community.

The question arises as to what extent have we taken, and must we take, this "efficiency propaganda" seriously. The inefficient are still managing to drag out a fairly comfortable existence, comparatively few are in the poorhouses and jails—there are not enough such institutions to hold them all! There do not seem to be sufficient drawbacks in "inefficiency" to discourage it as we would like, nor on the other hand, are there, apparently, enough compensations in "efficiency" to encourage a man to work himself to death to acquire the approbation and regard of the essayists of the beforementioned magazines. Really, after all, the greatest return to the efficient is the satisfaction of work well done.

In order to take a strictly nonpartisan view of the situation as it actually exists, we must first try to seek for ourselves the real disadvantages and advantages connected with either condition. The essayists assume that man is a collection of numerals which by skillful manipulation may be doubled, trebled, quadrupled, etc., to an infinite degree, whereas we know that man in a state of perfect health has a reasonable expectation of just so many years. His earning capacity cannot be counted upon until he has passed fourteen of these years, and from then on to thirty-five it will depend upon his special training and physical endurance. After thirty-five his work will be done largely by his head, as we well know, from the experience of athletes and athletic instructors, that man is past the zenith of his physical career at that time. From then on, for practical purposes, we find a static condition of affairs for about twenty years, and then an imperceptible decline, until he hears his call. Your popular magazines admit no such contingency, in the event of careful adherence to its directions. This is the picture of the healthy average man. It is reasonable to assume he has been fairly efficient.

Supposing, for instance, he had displayed an average degree of inefficiency, what would have been the result? Would it bring any especial calamity upon him as an individual? The most biased person of experience will fail to find any reason to believe that it would. A healthy man can always find

a job, and always manage to support himself, even though his training be limited and his independence overtrained. His greatest damage is not to himself, but to those about him, and as he has little interest in others, it is unlikely that any well written literary efforts are going to bring him up to the standard. His first bad effect is going to be felt by his fellow workers who are likely to be injured, perhaps maimed for life, by his ignorance, stupidity, and carelessness. In this way a large expense is unjustly thrown upon the shoulders of the innocent, perhaps those of the standard efficient class. There is no argument for efficiency to offset this. There is every reason to assume that a man of this inefficient class will follow the law of averages and probabilities, just as does the efficient man, and become a man of family. Here is where the real trouble starts, and the rest of the story is to be read in the reports of the Juvenile Court, the Children's Aid Society, the Society for the Prevention of Cruelty to Children, the day nurseries, the social service organizations, and eventually the police court and the so called Tenderloin.

Incidentally, it may be remarked that, while many investigators have tried to prove that no girl can live decently on less than six dollars per week, they have failed to make the point clear that all fallen women, with but very few exceptions, have come from homes that were homes in name only—the product of inefficient parentage. Poverty is not always avoidable, and a girl from a good home with good home training seldom if ever goes bad perpetually. The report of the Chicago Vice Commission will bear out this statement. It becomes obvious immediately that this is most expensive to the community, and that this expense must be borne by a part of the community not at all at fault in the matter, but in order to protect it from worse and greater evils, mostly disease. This is scarcely any incentive to efficiency, for the inefficient have little to lose; the Declaration of Independence and the Fourteenth Amendment protect them from any great infringements upon their individual rights. Somehow, something always turns up for them if they can count upon a redeeming virtue, a little patience.

Now, in order to hold your attention, we have referred to a healthy adult as an inefficient. This is a great rarity. Inefficiency and ill health are interchangeable factors similar to conjugate foci in optics. The healthy man is anxious to work, and usually finds a way to obtain it in order to carry out his obligations to his family and himself. No matter how ignorant he may be, nor what cramped and narrow views of political economy he may hold, he inclines to the best form of citizenship by his care of the units entrusted to him. The man endowed with good health at the start can nearly always "come back," after the ordinary indiscretions of youth. The man with poor physique or poor health, either congenital or acquired, may in rare instances by the cultivation of some one talent to the extreme attain great heights by reason of his genius, as is evidenced by the lives of Byron, De Quincy, Carlyle, Poe, Paul Leicester Ford, Pulitzer, and others; but it is questionable whether any of these have fulfilled the highest ideals of the normal average man.

\*Read before the Ex-Residents' Philadelphia Alumni Society, Mt Sinai Hospital, May 7, 1913.

In a novel written a few years ago by William J. Locke, entitled "The Beloved Vagabond," the author endows his principal character, Paragot, with a genius for architecture, while, together with this the man is possessed of a most marvelous range of education and a philosophy and wit which are very attractive to the reader. He drifts about the Latin Quarter in Paris and similar places in other cities, making friends and also inebriates among the riff-raff of the artistic colonies, but none among the ordinary well behaved citizens. A drunkard himself, but able to keep his mind clear through it all; dirty and unkempt at all times, he ultimately sees the light in the person of his stout, rugged, uneducated, in-artistic, peasant girl protégée, Blanquette, whom he marries, and with whom he goes into the country and finds the philosopher's stone in the peaceful life of a family and a farm. The man in this instance was lost to himself until the ordinary average basis of life was impressed upon him, and his inefficiency could be readily traced to his inebriety; but his drinking would never have reached inebriety had his inherited temperament been average, or had his food been as regular as a day laborer's.

Therefore we return to the original proposition of ill health or faulty constitution or physique as a basis of inefficiency, and as physicians we have little difficulty in demonstrating it to our own satisfaction. Starting at the very beginning, there is scarcely any need of reminding you of the expense and inconvenience attendant upon a maternity case. Even the most normal case is a great inconvenience to every one, physician included, no matter what the social or financial condition of the patient may be. Among the poorer people it is disproportionately greater, and the poorer the family the greater the number of children as a rule, and the greater the complications. The additional drain upon the family's resources will certainly be felt eventually, and usually when it can least be resisted. The father, the mother, or the children, which ever is the weakest component, ultimately succumbs to circumstances. In the case of the father this is manifested by a less satisfactory performance of his daily work, a shift of jobs, retirement, nervous breakdown, possibly tuberculosis; in the case of the mother, all sorts of gynecological conditions, operations, etc.; in the case of the children, all sorts of dietetic disturbances, marasmus, starvation, dissolution, etc. In any event the survivors are far below par, and are expected, in this more or less "crippled" condition, to cope with difficulties that have called forth the best efforts of the most healthy. Death in a poor family is a terrible economic misfortune, apart from any other consideration. Even in the presence of insurance, the expense lays an obligation upon the survivors that often takes months and frequently years to satisfy. In the case of the child, to have lived to maturity would have been less expensive, since the expense is more evenly divided, and there is always a possibility of a return in the wages of the child.

Is it, then, any great wonder that we encounter in the schools and homes such a great proportion of defectives of all grades, when we stop to consider the seed and the soil from which they spring! Do not these represent the bulk of inefficient, rather

than those who just do not care about working? These cases are the ones, at least, that come to our knowledge as physicians and are definite, tangible, demonstrable defectives. Those of you who are interested in school inspection work in the congested districts of the city are doubtless impressed by two things: first, the isolated instances of exceptional brilliancy, often surpassing children of the same age and grade in other portions of the city, and, on the other hand, the overwhelming proportion of children who require help of some kind, varying from a pair of glasses and a seat near the blackboard to the skilled attention of the backward school.

The first instance, while it may cause the chests of the fond parents to swell with pride, is as much of a disease as the latter. Precocity is as abnormal as chorea; in fact, the two may be considered analogous. The centres of inhibition for motor impulses are held in abeyance in the case of chorea, while in precocity the psychic impulses are given free rein. The subsequent histories of such children show that while they may develop some talent to the extreme, on the whole they lack the average qualifications, and in the long run cost the community as much as do the other children, oftentimes more. The other large group of children may belong to the tonsil and adenoid class. The definite views on the remote effects of enlarged tonsils and adenoids held by those who see most of them are much in vogue, and time alone can test the accuracy of these views. Personally, it would seem to me that these lymphoid structures become enlarged to ward off infections, and not as the result of pure "cussedness"; and I would hesitate to remove any that were not causing positive serious obstruction to breathing. But then I am not an otorhinolaryngologist, and, on the other hand, I do not suppose they would put glasses on so many people as I do. At present this necessarily causes a great interference with the school work and brings expense to the several departments concerned, and must deprive the child of a large part of its education. Any operation on a child is a shock to its highly sensitized immature nervous system and is certain to be followed with results that temporarily impair its reception of impressions properly. Yet we are in duty bound to give the child this advantage until it has been definitely proved to be otherwise.

At the same time, or in others of the same grade, we find tremendous defects of vision. Nearly every child in the downtown schools has some such defect. It may be very small and negligible in the lower classes, but, as many of you have noted, it increases in the higher grades, becoming quite pronounced if still disregarded. To those of you who have worked in the eye clinic of Mt. Sinai and other hospitals downtown, deficient vision in the school child is a very timeworn topic. To the up to date reader of medical literature, those who follow the publications from week to week and month to month, the relation of all sorts of neurological phenomena to eyestrain is equally ancient. But the relation of deficient vision in the school child to sociology and political economy has as yet been given only the most superficial attention. Education, whether manual, academic, or of whatever

variety, in these so called progressive times, is devised so that it is available only for those whose sight is absolutely perfect, and, on the other hand, for those whose sight is absolutely nil. But absolutely no provision is made for those of the intermediate class; they must worry along as best they can. Herein is to be found the greatest cause of inefficiency.

Were it possible for children and young adults to acquire education or master trades or become proficient in the several callings by the correlation of the special senses, and not by such a strain on one special sense, that of sight, the results would be different; but as such is not the case, we must adapt ourselves to circumstances and provide for the deficiency as best we can. The circumstances, social, financial, and otherwise, which influence the children's future in these downtown wards, constitute sufficient burden without the addition of physical defects, and if we are to live up to the ideals of the profession, not necessarily starving ourselves in the meanwhile, it becomes our duty and obligation to place the children of our respective communities in as high a physical plane as possible; otherwise the nation will suffer, and we ourselves become victims of the malign influences we have knowingly permitted to grow up among us.

1901 Mt. VERNON STREET.

### Prize Essays.

*Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:*

CXXXVI.—How do you treat cholera infantum? (Closed July 15th.)

CXXXVII.—How do you treat threatened abortion? (Answers due not later than August 15th.)

CXXXVIII.—How do you treat insomnia? (Answers due not later than September 15th.)

CXXXIX.—How do you treat chancreids? (Answers due not later than October 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXXV has been awarded to Dr. Joseph V. Klauder, of Philadelphia, whose article appears below.

### PRIZE QUESTION CXXXV.

#### THE TREATMENT OF BURNS.

By JOSEPH V. KLAUDER, M.D.,  
Philadelphia.

Treatment depends upon the degree, the extent, and the stages of the burn. In all burns the Snede open method of treatment at the appropriate stage is advocated, in which occlusive dressings are elim-

inated and strict cleanliness and good drainage are carried out, and combined with heliotherapy.

Depending upon the severity, as will be given, hydrotherapy is especially advocated, as well as hot sweat packs, steamed blankets, or the electric light pack.

Since the results are about the same clinically in burns resulting from contact with dry heat, acids or caustics, and scalds from hot liquids or steam, the treatment in a general way, excluding the neutralization of the caustics, is the same.

Burns of the first degree, of very small involvement, require no treatment excepting dusting with bland powders, such as stearate zinc or zinc oxide powder, and lotions of bicarbonate of soda solution or aluminum acetate solution, after first being cleansed with sterile normal saline solution, hydrogen peroxide, or tincture of green soap; adherent matter or home made remedies may be removed with sterile olive oil, alcohol, or benzine, depending upon the nature of the foreign material.

This same cleansing should be carried out in all burns, providing the condition of the patient permits, if too much time is not lost, except where there is charring or extensive and severe burns.

The prognosis is not easily made. It is usually given as fatal from burned areas involving more than two thirds, and often when more than one third. Comparatively small areas may result fatally, especially in children. It is grave, regardless of the degree, if involvement is one third or more of the body in adults, and about one ninth in a child, owing to the disproportion between body weight and skin surface. If there is the slightest doubt as to the prognosis the case should be treated as a severe one. In regard to the second and third degree burns, make a basal incision and evacuate the blebs in second degree burns; in third degree burns remove all necrotic fragments of tissue and clothing. In both degrees, if the lesion is a local one, treatment should be carried out on general surgical principles—local disinfection, drainage and removal of sloughing material. In regard to local treatment in the severe burns of both degrees, it becomes of subsidiary importance, nor is it a matter of great importance, which of the usual therapeutic agents are used. There is a mass of accumulative experimental evidence to show that death following burns is due to an autointoxication. According to the intoxication theory, the poison may be formed in the blood, in the skin, or may be a result of a change in metabolism, its presence being shown by the increased toxicity of the urine, as shown by Reiss, who has proved that the urine of burned patients is poisonous and causes the same symptoms as the burn itself. Klebs, from his experiments on rabbits, assumes the formation of a poison in the blood. Parabiosis experiments, recently performed, prove that the toxic substance is not a blood poison, but does not exclude the blood as a source of the poison. Burkhard found that the hemolysis occurring in the blood is a consequence of direct heat action upon the erythrocytes. Pfeiffer and Parascenaldo both arrived at the conclusion from their experiments that the toxine produced is a cytotoxine closely related to snake poison and nucleo-



proteids. According to Wilms and Spiegler, the toxine is one of the byproducts of overheated albumin. The exact nature of the toxine with which we are dealing has not been determined.

From the basis of treatment then we are dealing with an autointoxication, in which there is evidence to show that it can be combated by any local application; the latter is of importance later, and is governed by the surgical principles underlying the treatment of any similar surgical condition of necrotic sloughing area, and still later, granulating and healing surface.

The indications for treatment are: Treat the shock, which does not occur any oftener in burns than in other grave injuries. Treat the burned areas aseptically and surgically and, at first, from a standpoint of shock. Combat the autointoxication. Treat the conditions arising during convalescence. In a severe burn, when the patient is first seen, too much time should not be lost in local treatment, or in a too thorough or prolonged cleansing at this time. Infection in burns plays but a small part in the final result. Again, the area is an open one, and drainage and appropriate treatment can readily be established later.

Our attention, in treatment, should be directed primarily to the shock, as the maximum of two evils; our attention can be directed to the burned area later. The patient is given morphine for pain, and is stimulated at appropriate intervals by atropine, strychnine, camphorated oil, caffeine, or digitalis. He is placed on a bed between blankets, surrounded by hot water bottles, the foot of the bed elevated, autotransfusion practised if possible, and a pint of saline solution, containing adrenalin, is administered intravenously or by hypodermoclysis or enteroclysis. Throughout the stage of shock continuous enteroclysis is given.

From the standpoint of shock, I do not place the patient in a saline bath, or apply saline solution locally on the burns, as I do not believe reaction from shock is favored by having the patient surrounded with wet dressings. Consistent with the shocked condition of the patient, I cleanse the areas hastily, or not at all if they are fairly clean, and apply boric ointment and sterile dressings, for their soothing and protective effects, and the minimizing of heat radiation. Oxygen is administered, preferably through the pulmotor, for the good it may do, in the way of repairing any damage sustained by the blood. After the reaction from shock, stimulation is continued if necessary. Potassium citrate, ten to twenty grains every four hours or so, is given for its diuretic effect, and a milk diet of sufficient caloric value. Large quantities of water are given by mouth. Normal saline, up to four litres daily, is administered subcutaneously or per rectum. The bowels must be kept freely open. At this stage, as shown clinically and by necropsy, acute parenchymatous nephritis is always present and active elimination is our aim. Skin elimination is favored by keeping the patient warm and between blankets. Hot sweats are advocated, preferably by means of the electric pack, which is placed over the uninvolved regions or even the whole body, the burned area being covered by sterile dressings. I have given these packs in high tem-

peratures with no harmful effects. The state of the circulation is watched, if possible the patient is sweated about twenty minutes once or twice a day. Hot enemas precede the pack, and the patient is kept warm by the application of external heat. The treatment is continued during the stage of intoxication the first four to six days. If the hot pack is not applicable on account of the patient's low condition, I use normal saline or bicarbonate of soda baths at a temperature of 100° F., the patient remaining in the bath about a half hour or longer, once or twice a day; these baths always supplant the hot packs later on, and are given occasionally during the first six days, mostly for their cleansing effect. They are sedative and soothing to the patient, eliminative, stimulative, relieving the internal congestion of organs by directing the blood toward the skin; they are cleansing and retard suppuration, prevent absorption, favor nutrition and healing processes in the skin, and augment the heat withdrawal.

As early as possible, I use the open method of treatment. The areas are left undressed, being protected by cradles covered by blankets; all necrotic and sloughing material is cut or flushed away, cleansed with peroxide, sterile normal saline or bichloride solution, and dusted with stearate of zinc or thymol iodide, all crusts or hardened necrotic material being softened with boric ointment spread on gauze; on removing the latter, the former is usually adherent or easily removed. The lesions are then exposed to the direct rays of the sun one hour or more daily. Early skin grafts by Thiersch's method, or amniotic membrane, are applied; the latter I have used with fair results. Scarlet red ointment may be applied to the margins to stimulate the regeneration of the skin; I have used it with good results.

The parts involved should be subjected to passive motions early, and attention paid to posture, to prevent deformities resulting from cicatrices. Hygienic and dietetic treatment should be carried out. The patient should now be well nourished, with due attention paid to his damaged kidneys. The anemia should be combated with iron and tonics. With appropriate treatment meet all complications as they may arise.

The mortality of burns under the new form of treatment has decreased. Mention may appropriately be made, particularly of one case, of a third degree burn of the entire chest anteriorly and laterally, and a small portion of the upper abdomen, the anterior and lateral portions of the neck and the entire scalp. The patient, an adult, was burned about four months ago; recovery has taken place.

EPISCOPAL HOSPITAL, PHILADELPHIA, PA.

*Dr. Frank K. Boland, of Atlanta, Ga., states:*

Pain, infection, and shock are the principal conditions to be met in the treatment of burns. In a bad case nothing is better for pain and shock than morphine hypodermically. Other means of preventing shock, such as keeping the patient warm and the administration of stimulants, must be used when necessary. In any except very mild cases the patient should be put to bed, and the diet, bowels, and kidneys given attention. For the treat-

ment of ordinary burns I have found nothing so good as a one per cent. aqueous solution of picric acid. It is mildly antiseptic and relieves pain better than any other application. Its discoloration of the skin and clothing is its only objection.

To meet emergencies I always carry in my satchel several powders containing seventy-five grains each of picric acid, kept in a tightly stoppered bottle. One of these powders, dissolved in a pint of boiled water, gives approximately a one per cent. sterile solution. Since cases of poisoning have been reported from the use of this drug (though I have never seen one), if the burn covers a very wide area I use a weaker strength. After half of the first pint has been used I generally fill the bottle with sterile water and from then on employ a solution of about one half of one per cent.

The burned area is first washed as clean as possible with normal salt solution, which causes much less pain than plain water. The picric acid solution is applied on sterile gauze or lint, never on cotton, and loosely bandaged. Too much thickness should not be used, because the dressing is to be kept continuously moist. The dressing should be changed only as often as cleanliness requires, probably every twenty-four or forty-eight hours at first, and then less frequently. Remove very gently, moistening with saline solution. Blebs should be opened with a sterile instrument, but otherwise left undisturbed.

In small burns I have frequently continued this dressing until healing was complete, but if the burned area is large, when granulation begins I usually apply sterile petrolatum or ten per cent. boric acid ointment. If granulation is slow, or becomes exuberant, I apply nitrate of silver solution as strong as compatible with the comfort of the patient, the pure stick preferably. I have always found silver nitrate better than balsam of Peru or scarlet salve.

Should the burned area cover a flexor surface, such as the front of the elbow or the palm, the danger of contraction must be thought of, and antagonized by suitable splints. A light splint gives much support in any extensive burn of the forearm. Where adjacent fingers or toes are involved, they must of course be kept separated, to prevent adhesions.

If the burn is very dirty, or infection is feared, it is best to anesthetize the patient and scrub and asepticize the wound thoroughly. Antitetanic serum must not be forgotten in such cases. Anesthesia is especially indicated in burns of the scalp, where shaving is necessary.

In burns covering a large proportion of the surface of the body, on several occasions I have abandoned all dressings and placed the patient in a bathtub containing a warm weak solution of sodium bicarbonate. The patient can be made comfortable and thus treated for several days. The prognosis in such cases is generally bad, but the agony of the change of dressings is done away with.

Next to picric acid I prefer some other moist dressing, such as normal saline or ten per cent. boric acid. Ointments and oils are not so clean and do not absorb discharges. A moist dressing

must always be kept moist. The main thing always is to avoid infection. Skin grafting must not be done too soon, unless contractions are feared. Many apparently hopeless raw areas, especially in the young, will heal if proper treatment is kept up.

*Dr. Louis R. Brager, of New York, remarks:*

Burns, as we all know, are classified according to their degree, each with their characteristic train of symptoms, and each requiring treatment consistent with the degree of burn and extent of area involved.

In burns of the first degree, with its erythema and heat persisting for hours or days, followed by some degree of desquamation, and an amount of discomfort depending upon the extent of the area involved, the patient should be made comfortable by the early application of an alkali, as sodium bicarbonate, or borax, best in solution and used in the form of a cold compress, until the inflammation has been controlled. In from six to twelve hours the application of some mild ointment, as boric acid or zinc oxide, in ten per cent. strength, will be all that is necessary to control and cure the condition. We must keep in mind the fact that very extensive burns even of the first degree may be attended by fatal shock.

In burns of the second degree, we have an inflammation of the skin, with vesication. Here large and small blebs filled with clear, and later with cloudy serum, form on the skin at once, or after several hours. The constitutional effect in this degree of burn depends upon the size of area involved. The area should be thoroughly cleansed and the vesicles punctured with a sterile needle to allow the serum to flow out, but the pellicle should not be removed, but simply allowed to drop on the moist, red sensitive true skin beneath. The application of a one per cent. watery solution of picric acid as a wet compress, or the use of a five per cent. picric acid ointment, is beneficial. This relieves the pain, prevents suppuration, lessens the discharge, and lessens frequency of the dressings, which are always painful. Ointments of boric acid or zinc oxide, in ten per cent. strength, are recommended. Where picric acid is employed the patients should be watched, as absorption of this drug frequently produces an albuminuria.

Where the patient has a rise of temperature, the part affected should be treated with a mild wet antiseptic dressing preferably, as solution aluminum acetatis, Thiersch's solution, boric acid solution, salt solution, hydrogen peroxide, etc., and later followed by the mild ointments. If the area involved is extensive, the patient is usually in a condition of shock, and this must be overcome at once by the hypodermic use of morphine, grain  $\frac{1}{4}$ , and atropine, grain,  $\frac{1}{120}$ , repeated frequently, if necessary. Then stimulation with strychnine, camphor, whiskey, and other supportive measures described in detail later. When the shock has been overcome, the entire area should be cleansed and treated as above described. Fingers and toes, when burnt, should be separated by wet pieces of gauze or lint, so as to prevent webbing. In this degree of burn there is no scar formation, but frequently a smooth pigmented surface remains.

In burns of the third degree, under which head are included all burns involving actual destruction of skin and subjacent tissues to varying degrees, up to complete charring of the parts. Much of the subsequent scarring and deformity results not from the primary injury, but from consecutive sloughing and gangrene, and contraction of the new formed tissue during and after healing. These patients are always in a condition of shock, and treatment must be active.

Give hypodermic injection of morphine, grain  $\frac{1}{4}$ , and atropine, grain,  $\frac{1}{120}$ , frequently repeated. Stimulants are indicated as strychnine, grain  $\frac{1}{30}$  to  $\frac{1}{20}$ , camphor in sterile oil, ether, whiskey, given hypodermically. Epinephrin, using one drachm of a 1/1,000 solution to a pint of normal saline solution, may be given intravenously in extreme cases. The temperature being subnormal, the patient should be wrapped in hot blankets to maintain and add to the body heat. Hot saline enemas, or hot coffee, by the bowel, are excellent.

After he has reacted from shock, it is advisable to give the patient an anesthetic, and remove all the sloughing tissue, so as to produce quick healing and leave as little deformity as possible. If the patient cannot withstand an anesthetic, this can be done under morphine, for the patient must be protected from pain.

In babies, shock may be overcome by giving the patient a warm alkaline bath. Shock is usually followed by a reactionary fever due to sepsis, from absorption of necrotic tissue. If this reaction is excessive, it results in inflammatory processes elsewhere in the body, from which these patients usually die.

Ulcerations following burns of this degree are at first treated with mild wet antiseptic dressings, and later stronger ointments may be used, as ichthyol ointment, or balsam of Peru and castor oil in equal parts. Picric acid should not be used here, as absorption will take place and poisoning result. When granulations form the skin edge should be protected with rubber tissue. If granulation is slow stimulate it by touching up the area with silver nitrate or copper sulphate in mild solutions. Exuberant granulations require burning down with pure silver nitrate. If healing is slow, or the area involved is extensive, skin grafting is advisable. This should be done early, so as to limit the formation of scar tissue.

When burns begin to heal, if deep, they heal with a degree of scar tissue which is greater than any other healing process in the body. All burns in the region of joints should be treated on splints to avoid contractures, although this is often most difficult to accomplish. Secondary plastic operations are sometimes done after severe burns.

In first degree burns extending over a large area, and in burns of second and third degrees, the urine should be examined daily for signs of nephritis. Potassium citrate, twenty grains, with spirit of nitrous ether, twenty minims, in plenty of water, should be given three times a day. Free action of the liver, kidneys, and bowels must be maintained. When an extremity has been carbonized, amputation should be performed. In severe burns of the head there is a strong tendency to inflammation of

the brain, in burns of the chest to inflammation of lungs, in burns of abdomen to inflammation of abdominal organs; inflammation and ulcer of the duodenum may follow any burn. These patients usually die when such complication sets in, consequently treatment must be active to avoid such complications, for when they occur treatment is of not much avail.

**Summary.**—Treatment is local and constitutional.

**First Degree**—Rest to the part, application of wet compresses of sodium bicarbonate, or of boric acid, followed in a few hours by the application of boric acid ointment or zinc oxide ointment, ten per cent. In extensive burns treat shock with morphine and atropine, then stimulate with strychnine, camphor and whiskey. Treat locally, as stated.

**Second Degree**—Clean area with antiseptic solution, open vesicles by puncture, apply picric acid in one per cent. watery solution, or five per cent. ointment. If fever be present apply wet antiseptic dressing—Burrow's solution, Thiersch's solution, boric acid solution, salt solution, or peroxide of hydrogen. Later use mild ointments—boric acid, or zinc oxide in ten per cent. strength. Treat shock, if present in extensive burn, with morphine, grain  $\frac{1}{4}$ ; atropine, grain  $\frac{1}{120}$ ; use hot blankets to maintain body heat; give strychnine, grain  $\frac{1}{30}$  to  $\frac{1}{20}$ ; camphor, whiskey, ether, epinephrin (one in 1,000); and hot rectal enemas. The fingers and toes to be separated with wet lint to prevent webbing; watch kidneys for nephritis. Liver, kidneys, and bowels to be kept active. During convalescence give plenty of food, fresh air and exercise. Use iron as a tonic.

**Third Degree**—Treat shock as described above. Anesthetize or put patient under influence of morphine on account of pain and remove charred flesh as quickly as possible; apply wet antiseptic dressings, as in second degree burns. Later use stronger stimulating ointments—ichthyol, or balsam Peru in castor oil (equal parts). Charred extremities should be amputated. If area is extensive use skin grafts early. Resulting contractures require plastic surgery. Avoid kidney irritation by prompt local treatment, together with diuretics. Potassium citrate, twenty grains, and spirits of nitrous ether, twenty minims. If burnt area is near joints, use splints to overcome contractures.

Complications, as meningitis, pneumonia, nephritis, and duodenal ulcer, require their appropriate treatment.

During convalescence give iron, plenty of food, fresh air and exercise.

(To be continued.)

## Therapeutic Notes.

**Prophylactic and Curative Treatment of Intertrigo.**—Milian, in *Paris médical*, April 19, 1913, states that the prophylaxis of this affection consists in keeping the skinfolds scrupulously clean and in the local use of alcohol or iodized or camphorated alcohol.

Where the affection is established the measures suitable are those which will kill the parasitic



streptococcus and render the local conditions less favorable to its pullulation. Free use of soap and water is useful to remove the superficial coccus bearing skin layers, but the region must be very carefully dried. A better plan is to cleanse the area with alcohol or camphorated alcohol, and this should be done three times daily. Once in each day an application of diluted tincture of iodine may be substituted for the alcohol washing:

R Tincturæ iodii, .....3ss (2 c. c.);  
Alcoholis, .....3ii (8 c. c.).  
Misce.

Only in rebellious cases may the pure tincture be applied, and this should be done only once, or at least, only after an interval of four or five days.

After each alcohol ablation, the area involved should be dusted over generously with sterile talcum powder. Wads of cotton may also be used to keep the adjacent surfaces apart.

The above mentioned simple measures are generally sufficient. In very obstinate cases, however, the area may be painted every four days, by means of absorbent cotton, with a solution of silver nitrate:

R Argenti nitratis, .....3ss (2 grammes);  
Aqua destillatæ, .....3x (40 grammes).  
Solve.

The surface should be carefully freed of all fatty material before applying the silver solution. Afterward, a rod of metallic zinc should be passed over the skin. The silver salt becomes reduced thereby, and the silver is precipitated on the affected area, which becomes black. Finally either talcum powder or the following zinc paste is applied:

R Zinci oxidi, ..... }  
Petrolati, ..... } .....ãã 3ss (15 grammes).  
Adipis lanæ hydrosi, }  
M. ft. unguentum.

This preparation is very advantageous in isolating the diseased surfaces, yet permits of evaporation from the skin, by virtue of its porous consistence. The silver nitrate and zinc lead to the action of nascent nitric acid on the tissues, and give rise to some pain. But the results are excellent.

No special diet is necessary in the treatment of intertrigo.

**Treatment of Chorea.**—J. Comby, in *Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, February 7, 1913, points out that by giving arsenic in large doses for a short period only, therapeutic results are obtained with much less danger of toxic phenomena than when small doses are given for weeks and months. He advises the following measures for chorea:

1. Rest in bed for two weeks, with relative isolation; no playing with other children or mental work.

2. Milk diet, consisting of 200 grammes (six ounces) of milk every two hours. This facilitates the taking of the arsenic. Vegetable foods should be added after the ninth day.

3. Arsenic in the form of Boudin's solution (one to 1,000 arsenic trioxide in water), given in a flavored gummy mixture, of which one tablespoonful is given every two hours, with the milk. Each day a new mixture is made, the successive preparations containing, respectively, 5, 10, 15, 20, 25, 20,

15, 10, and 5 grammes of the Boudin solution in admixture with 120 grammes of the gummy menstruum. The entire arsenical treatment thus takes up only nine days. In children, five to seven years old, the amounts of Boudin's solution employed are reduced from the scale mentioned, ranging from three to fifteen grammes, while in those under five years the amounts are from two to ten grammes.

If vomiting should appear, the arsenic is left off for one half to one day. If it still recurs after this, arsenical treatment should be abandoned. In this way all possibility of serious toxic effects is eliminated. Among over 300 cases treated with arsenic in the last thirty years, but one case of arsenical polyneuritis—with subsequent recovery—occurred; in this patient, a little girl, seven years old, treated nearly twenty years ago, the dose of Boudin's solution had been carried up to thirty-five grammes a day. As a rule, the remedy is well borne and the effects are promptly manifested. The choreic movements stop in a week, and in two weeks the chorea is cured. Among 175 children treated since 1906, 135 were given the arsenic, the remaining forty being milder cases. The average stay in the hospital of the arsenic treated cases was twenty-eight days.

Albuminuria and very hot weather contraindicate the arsenical treatment. In hot weather the copious perspiration and diminished urinary flow decrease the tolerance for arsenic, as well as for antipyrin or any other active drug. In such periods hydrotherapy, especially the cold pack, should be relied on to subdue the nervous excitation.

**Treatment of Otorrhea.**—G. Laurens, in *Nouveaux remèdes*, April 24, 1913, is credited with recommending that in simple forms of otorrhea the external auditory canal be filled morning and evening with hydrogen dioxide solution, which should be allowed to remain two minutes, evacuated, then reintroduced two or three times more. The canal should then be carefully dried with cotton on an applicator and the following solution instilled:

R Acidi picrici, .....gr. xv (1 gramme);  
Aqua destillatæ, .....3vi (25 grammes).  
Fiat solutio.

**Treatment of Acute Articular Rheumatism.**—Roch, in *Revue médicale de la Suisse romande*, February, 1913, writes concerning a case of rheumatic fever in which, although sodium salicylate appeared at first to be giving excellent results, the pain, joint enlargements, and fever later returned, the heart rate increased, and the systolic sound became muffled. Ten days' energetic treatment with the salicylate proving completely ineffectual, eight grammes (two drachms) of antipyrine were administered in two days, and the salicylate in daily doses of five grammes (seventy-five grains) resumed immediately after. The fever was thus rapidly overcome and convalescence entered upon. The return to a massive dose of the salicylate after the two days' intermission seemed to the author the essential factor in the benefit obtained. Interrupted administration of the salicylates has already been recommended for obstinate cases, and antipyrine seems especially suitable for use during the intervals.

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## CLINICAL EUGENICS.

Much is written nowadays concerning the influences of heredity and the many conditions which favor the procreation of defectives. The new science of eugenics, though in its infancy, is asserting its right to perpetuation by opening channels which possess all the attributes of success: a useful purpose and clearly defined lines of research, with many data, biological, medical, and statistical, as working factors. Yet reckless, unwise, and even cruel legislation will soon compromise its future if, while providing for future generations, the present generation is caused unjustly to suffer.

Physicians should not forget that modern resources increasingly render possible what might be termed "clinical eugenics" in the sense that many unfortunate victims of parental defects are now amenable, through therapeutic and hygienic resources, to improvement attaining at times a degree well calculated to excite wonder. We have but to recall the transformation witnessed in cretinic idiots under thyroid preparations, followed by grafts of thyroid tissue to compensate for the defective gland, to convince ourselves of the purely organic character of the underlying cause and of the potency of the means to correct it within our reach. That the stigmata of the cretinic idiot lurk behind a fair

proportion of our patients is familiar to those who can read what modern thought has taught. Defective development, as obtained in animals through removal of the thyroid apparatus, is as clearly depicted in these cases as are the physical phenomena of fully developed mitral disease to the trained diagnostician. We may witness twenty symptoms or we may recognize but one. The whole gamut of myxedema may at once reveal itself or the early morning occipital pain may alone be present to attract attention to a general condition which the further detection of many apparently minor phenomena will then demonstrate. Not a small proportion of our cases of rheumatism, so called, belong to this type of hypothyroidia—the underlying and removable cause of a form of feeble-mindedness even now under the ban of the law in several States.

No less prominent is the influence of the adrenals on development. The puppy deprived soon after birth of one of its adrenals, as compared to a normal control from the same litter, is feeble and thin, the muzzle being small and tapering, the hair short and woolly, and the bones slender. Corresponding stigmata and many others may readily be discerned in the hypoadrenic child. The pale, pampered offspring of the rich, as well as the waif in the slums, are on equal terms on this score. The emaciated figure, the pale, pasty, or senile facies, the cold extremities, the muscular weakness, etc., recall few or many of the symptoms of Addison's disease—the maximum type of adrenal insufficiency. This disease, as every physician knows, includes in its wake vulnerability to infectious diseases—the bane of such sufferers. Here again, we meet disorders, increasingly placed under the ban of the law, that are traceable to an organic cause—one increasingly within the reach of therapeutics.

The ductless glands, owing to their—now established—influence on development, physical and mental, and many other facts which the laboratory and the clinic are steadily accumulating, are increasingly asserting themselves as organs which bear the brunt of certain hereditary influences and through which at least some stigmata affecting the organism at large may be counteracted. And this is but one of the many directions in which we could at least try to defeat morbid hereditary influences.

Clinical eugenics, thus understood, will be an extension of eugenics proper which aims to improve the physical and moral qualities of future generations; it will strive to rid of stigmata, not only in those who have inherited them, but also in their offspring. But it will do what present efforts do not include, namely, providing for those whose unfortunate fate it was to inherit paternal defects before preventive measures had ever been devised.

## THE ETIOLOGY AND TREATMENT OF BLACKWATER FEVER.

No satisfactory degree of unanimity has hitherto been reached as to the circumstances favoring the development of blackwater or hemoglobinuric fever in malaria. Some have considered the condition due to pernicious malarial infection in cases where quinine brought relief; others, directly to quinine intoxication. Newell and Chalmers agree that there is both a quinine hemoglobinuria and a malarial hemoglobinuria. In the treatment of blackwater fever the practice generally followed has been that of Bastianelli, who gives quinine provided malarial parasites are present in the peripheral circulation. In an article recently published by Lovelace (*Archives of Internal Medicine*, June, 1913), based on 514 cases of blackwater fever treated by American physicians in the hospital of the Madeira-Mamore Railway, Brazil, considerable light is thrown on some of the obscure points relative to this affection. In the first place, the direct causal relation of malarial infection to it was rendered obvious, no case of blackwater fever being observed in which there was not a history of fever, apparently malarial, a few days or weeks previously; almost invariably there had been numerous attacks extending over many months. Again, it was noted that, in contrast to previous observations, patients harboring the tertian parasite were nearly twice as liable to hemoglobinuria as those with the estivo-autumnal; whence the author concludes that the condition is not due to any particular species of malarial parasite. Another significant fact was that quinine, in large or small doses, had invariably been taken a few hours before the onset of hemoglobinuria; recurrences of the latter, after the patient had become able to be up and about, likewise followed the use of quinine.

With regard to the treatment of the condition, Lovelace warns against giving quinine during the period of hemoglobinuria, and for several days thereafter. The paroxysm itself has the effect of a drastic, but only temporarily acting, therapeutic agent, decimating the malarial parasites in the blood much as does salvarsan the spirochetes of syphilis in the lesions of that disease. The chief indications in the treatment are to supply water abundantly and to nurse carefully. Saline solution, given continuously as the "Murphy drip," at the rate of seventy-five drops to the minute, is usually necessary. Vomiting is to be treated by starvation and a mustard plaster; if these fail, by the administration of a glass of water containing two or three drachms of sodium bicarbonate, and, ultimately, by morphine. Measures sustaining the blood pressure are urgently indicated. Digitalis and caffeine, both

given intramuscularly in full doses, are of decided value. Every particle of the patient's strength must be saved. Neither the presence of parasites in the blood nor chills and fever indicate quinine until the urine has been clear for several days. Lovelace then begins cautiously with one grain doses of quinine tannate, three times a day, and gradually works up to twenty or thirty grains of the hydrochloride daily.

Although quinine precipitates blackwater fever, the systematic and adequate quinine prophylaxis of malaria constitutes also the prophylaxis of hemoglobinuria. Lovelace observed that among laborers who took regularly ten grains of quinine daily blackwater fever was very rare; in the few cases in which it did occur there had been numerous mild attacks of malaria, in spite of the quinine. Among those, on the other hand, who neglected to take their quinine until they became ill, hemoglobinuria was common.

## VENEREAL DISEASES IN CANADA.

How best to cope with venereal diseases, to eradicate them if possible, is the problem which, at last, is being openly recognized as the one which most greatly needs solution. By the medical profession the question of averting, of abolishing, or at least of minimizing, the menace of syphilis and gonorrhea has been regarded always as paramount. But in English speaking countries, up to the past few years, the medical profession, although profoundly cognizant of the gravity of the situation, has feared to face the matter squarely. That is to say, the public has been so prudish with regard to the subject that mention of it has been virtually tabooed by the lay press. Thus, in this country and in Great Britain and its dominions, the people at large are to a great extent ignorant of the awful effects which may and do follow the contraction of venereal disease, and especially of syphilis. However, recently a decided change has come over the attitude of the man in the street in this respect. Intelligent men and women of the English speaking race are becoming alive to the dangers of venereal diseases and to the foolishness of a *laissez aller* policy. For this altered outlook in the country perhaps the chief credit is due to the late Dr. Prince A. Morrow, who was insistent and persistent that measures should be taken at once to abate the evils that go in the wake of syphilis and gonorrhea, and who urged continually that the main means of achieving this object was to educate the community at large.

At the opening meeting of the first public health section, held under the auspices of the Canadian



Medical Association, in London, Ontario, on June 24, 1913, over which Dr. Helen MacMurchy presided, the discussion of venereal diseases was made a special feature. During this symposium on venereal diseases as a practical public health problem papers were read by Dr. H. W. Hill, of London, and Dr. F. A. Clarkson, of Toronto. Doctor Hill drew a comparison between syphilis and typhoid fever, and concluded by contending that syphilis should be dealt with in the same arbitrary manner as typhoid fever had been dealt with. Typhoid had been completely robbed of its sting by the stringent methods put into force, and he saw reason to believe that syphilis might be controlled if measures intelligently thought out and rigidly enforced were put into practice. Doctor Clarkson's paper pointed out the great dangers of existing conditions, and proposed a resolution that the Public Health Section of the Canadian Medical Association should take action (which he specified) calculated to ameliorate such conditions. In the discussion which followed the reading of these papers several speakers took part, and while somewhat diverse views were expressed, the consensus was in the direction of employing educative measures. Professor George Adami, of Montreal, for instance, was strongly in favor of instructing the public as to venereal disease, and he referred to a popular lecture he gave on the subject at the meeting of the Canadian Medical Association at Edmonton last year. Professor Adami thought that, as a first step, statistics should be procured bearing on the prevalence of venereal disease, and suggested that the medical profession, in waging a campaign of education against such diseases, should lay particular stress on the health point of view and ignore as much as possible the moral aspect. Professor Halpenny, of Winnipeg, agreed that the moral side of the question should not be dwelt upon, and thought it might be wise to request hospitals and jails to report separately on venereal diseases. Dr. R. E. Wodehouse, of Port Arthur, gave it as his opinion that sexual hygiene should be taught by medical men to parents, this knowledge to be passed on to children, or even that medical men should instruct boys and girls directly in the principles of sexual hygiene.

The conditions in Canada as regards venereal diseases are similar to those which prevail in this country, and it is encouraging to note that in Canada, as here, the medical profession and a small proportion of the general public are arousing themselves to fight the hydraheaded monster. Progress must naturally be slow, for the whole matter bristles with difficulties. The public generally is still apathetic, and it will take a considerable amount of

education to bring the mass of the population to a sense of the danger to the race and the individual presented by unchecked venereal disease. The hopeful feature of the situation is that some of the most intelligent of the community now recognize the true state of affairs, and that it is likely that they will act as the apostles of reform in this direction.

#### RADIUM TREATMENT OF MYELOGENOUS LEUCEMIA.

According to the *Presse médicale* for June 18, 1913, radium treatment has been shown by Rénon, Degrais, and Dreyfus to exert an immediate very powerful action on myelogenous leucemia when applied over the enlarged spleen for twenty-four hours in relatively large amounts. After three or four applications of from thirty to thirty-three centigrammes of radium sulphate, the spleen was found by these observers to return to its normal size and the total and differential leucocytic counts to their physiological level, while all the general symptoms disappeared. These effects were noted in five cases, all of which had previously been subjected to the Röntgen rays. In two patients recurrence took place two and sixteen months, respectively, after cessation of the treatment, and its resumption failed to yield the results previously obtained, possibly owing to insufficient dosage. The authors call attention to this mode of treatment, however, because it may prove useful in dealing with patients that cannot be removed to the office of the röntgenologist, and is capable of arresting for a considerable time the progress of the disease. In view of the possibility of a difference between the physiological effects of radium and those of the x ray, the authors suggest that these two agents be tried in alternation or association.

#### THE WASSERMANN REACTION.

Although this reaction has received much attention and is generally recognized as being of the greatest value, there are many who do not understand its theory. They believe it to be a very specific reaction, one that takes place only when syphilitic tissues are used. Yet, strange as it may seem, the presence or absence of syphilitic changes in the material used as antigen is of no importance; all that is needed is the presence of lipoids, for it has been found that in syphilis, and in a few other diseases, there are formed certain antibodies that have no affinity for any special cell, but which have the power of reacting with substances belonging to the class of lipoids. These antibodies are not

formed by the *Treponema pallidum* when grown in cultures, but are present in the blood and tissues of the infected individual as secondary products. The treponema is of little value as an antigen, the Wassermann reaction not being satisfactory when an extract of the culture is used. Consequently, it must be remembered that we are not dealing with a true specific immune reaction, but with one that is more of a group type. Therefore, those other conditions that may give rise to the formation of these lipid combining substances must be ruled out. Fortunately, they are few in this part of the world, and a positive Wassermann test will generally be a true indication of syphilis, although the combination is that of a nonspecific antibody with complement and lipid.

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### Obituary.

JOHN S. WARREN, M.D.,  
of New York.

Dr. John S. Warren died at Atlantic City, N. J., on Friday, July 18th. Born in Middletown, N. H., on July 4th, 1841, he received his education at Dartmouth College, and at the Jefferson Medical College in Philadelphia, from which he was graduated as M. D. in 1866. While still at college, he saw active service during a portion of the civil war, being stationed at Paducah, Ky. From 1866 to 1898 he practised in New York city, where he took active part in the medical societies. In 1908, he retired from practice.

GREGORY DOYLE, M.D.,  
of Syracuse, N. Y.

Dr. Gregory Doyle died at Syracuse, N. Y., on Wednesday, July 23d. Born in Ireland on March 28, 1840, he came to America the following year, and was a student at the Niagara University from 1857 to 1860 (LL. D., 1898); and at the University Medical College (New York University), from which he was graduated as M. D. in 1865. After graduation he settled in Syracuse, where he practised until his death. Doctor Doyle was Health Commissioner of Syracuse from 1899 to 1904, president of the United States Pension Board at Syracuse from 1885 to 1889, and Surgeon and Major, N. G. S. N. Y., from 1872 to 1890. He wrote extensively on medical subjects and was the author of *Incidents of European Travel* (1910). Doctor Doyle was one of the foremost surgeons of Syracuse. He died after a long continued illness, aged seventy-three years.

JOSEPH KIRBY CORSON,  
of Plymouth Meeting, Pa.

Dr. Joseph Kirby Corson died at Plymouth Meeting, Pa., on Thursday, July 24th. Born at Plymouth Meeting in 1837, he entered the service of the medical corps of the Sixth Pennsylvania Re-

serves early in 1861, and at the close of the Civil War was transferred to the regular army, receiving a major's commission, and being retired, at his own request, in 1897. He received a gold medal from Congress for heroic work at the battle of Bristoe Station, Va., where he, with other members of the corps, distinguished himself by carrying off wounded Union soldiers under artillery fire from the enemy. Most of the thirty years of service were spent in Indian campaigns and in army posts in Wyoming, Idaho, and Arizona. He was the son of Dr. Hiram Corson, deceased, and is survived by his widow and one son, Dr. Edward F. Corson.

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### News Items.

**Hospital for Pellagra Patients.**—It has been reported that the United States Public Health Service will establish a receiving station in Spartansburg, N. C., for pellagra patients.

**Examination for License as Assistant Director of Educational Hygiene.**—The Department of Education of New York city has sent out a notice containing the conditions of the examination which will be found in our Miscellaneous column.

**Salvation Army Free Dispensary.**—A free surgical dispensary is being installed by the Salvation Army at 206½ East State Street, Columbus, Ohio. Emphasis will be laid on the treatment of diseases of the eye, ear, nose, and throat, but all diseases will be treated. The dispensary will be largely for the benefit of children of the 1,300 families on the visiting list of the Salvation Army. Children sent from the juvenile court also will be given care. It is planned to have the dispensary ready for operation by the middle of August. Among the physicians who will donate a part of their time to the work are Dr. G. G. Sanor, Dr. A. C. Miller, Dr. Robert Leach, Dr. Caspar H. Benson, and Dr. J. W. Ranner.

**Medical Society of the Missouri Valley.**—The twenty-sixth annual meeting of this society will be held in Omaha, Neb., September 18-19, 1913, under the presidency of Dr. H. B. Jennings, of Council Bluffs, Iowa. The oration in medicine will be given by Dr. Alfred C. Croftan, and the oration in surgery by Dr. Charles Mayo. The scientific programme will comprise twenty-five papers, including a symposium on pregnancy. The arrangements are in the hands of a committee, of which Dr. W. O. Henry is chairman, and the Omaha-Douglas County Medical Society will be the host. Those desiring to read papers should send titles to the secretary at once, as only twenty-five papers can be entered. Programme will be closed August 1st. Contributions from internists especially welcomed.

**Death Rate for New York City for the Week Ending July 12th.**—There were 1,270 deaths and a rate of 12.30 in 1,000 of the population reported during the week ending July 5th, as against 1,390 deaths and a rate of 14.02 for the corresponding week of 1912, a decrease of 120 deaths and 1.72 points. If the increase in population be taken into consideration, the decrease is represented by 177 deaths. The most noteworthy fact of the week's mortality was that for the first time in many years no death was attributed to scarlet fever. Measles, diphtheria, croup, and whooping cough showed a slight decrease from the figures of last year; typhoid fever a considerable decrease. Diarrheal diseases under five years of age showed a much decreased mortality, due in part to the more favorable atmospheric conditions prevailing compared with the same week of 1912, which were accountable for the large decrease in the number of deaths from heatstroke. The reduced mortality prevailed at all ages, there having been thirty-nine fewer deaths among infants under one year of age, sixty less between five and sixty-five years, and twenty-eight less at ages over sixty-five years. The death rate from January 1 to July 12, 1913, was 18.48 as against 14.94 in 1,000 during the corresponding period of 1912.

**The New York Ophthalmic and Aural Institute.**—This institute, founded by Dr. Herman Schnapp in 1869, will move from 44 and 46 East Twelfth Street to its new building at Fifty-seventh Street and Tenth Avenue, on October 1st. The new hospital is a specially constructed seven story building for the treatment of eye diseases.

**Typhoid Fever in Orphan Asylum.**—It has been reported from St. Louis that thirty-five cases of typhoid fever have appeared at St. Mary's Female Orphan Asylum; four deaths from the fever have occurred at the home in the last few days, and the institution has been put under quarantine. The source was traced to a girl who had suffered from typhoid fever and was found to have been a typhoid bacillus carrier. There are 250 inmates in the home.

**Golden Jubilee of the Milwaukee Hospital.**—The Milwaukee Hospital celebrated on August 31 and 31st, its golden jubilee. Founded in 1863, with fifteen patients and a staff of four physicians and a few nurses in a small farm house, its first hospital building was erected in 1884. It turned to the ground, when just completed, and was rebuilt during the next year. Within the last ten years, several extensions have become necessary. Its capacity is 150 patients, and it has a staff of fifteen physicians and fifty-two nurses. Since the founding of the hospital, 26,687 patients have been cared for.

**Hospital for Criminal Insane at Waupun, Wis.**—The new \$200,000 hospital for the criminal insane at Waupun, Wis., which has been in process of construction for the past year, will be ready for occupancy about September 1st. At that time it will be ready to care for fifty patients, most of whom will be insane criminals to be transferred from the Northern Hospital at Oshkosh. The institution will care for insane criminals, criminal insane, and vicious insane, and will have quarters to care for fifty the first year and 150 the second year. The structure, which is built of terra cotta brick with Bedford stone trimmings and reinforced concrete where needed, is located on seventy-two acres of land just west of the Chicago, Milwaukee & St. Paul tracks, southwest of the city. It is absolutely independent of the State prison in location and has no connection in administration or any other way with the prison. The buildings, which are of fireproof construction, are arranged on the unit plan, the only suggestion of a prison being the barred windows of the inmates' rooms and the wall in the rear, which will enclose the exercising park. The management of the institution will be much as the one at Matteawan, N. Y.

**Money for Hospitals in New York State.**—The Board of Supervisors in Cattaraugus County on July 8th appropriated \$18,000 to build a county hospital and appointed a committee to acquire a site which had been recommended by an investigating committee previously appointed by the board. The day before that, the Board of Supervisors of Onondaga County approved plans calling for an expenditure of \$154,000 for the building of a tuberculosis hospital in that county. The board also appropriated \$37,000 to pay the award of the court and costs in the condemnation proceedings to acquire the Hopper's Glen site. This is a successful termination of a long fight in the courts for a site which the Board of Supervisors of that county selected three years ago. On Wednesday, July 2d, the Board of Supervisors of Schenectady County appropriated \$10,000 for a twenty bed addition to the County Tuberculosis Hospital. The hospital in that county has been in operation three years and has won public approval to such an extent that only one vote was recorded in opposition. The only expressed opposition to the appropriation was from a supervisor who wanted to build a forty bed addition to the hospital. The hospital is now filled and has a waiting list, although eight patients are being cared for in tents. The Board of Supervisors of Saratoga County on Tuesday, July 1st, increased its appropriation for a county tuberculosis hospital from \$8,000 to \$30,000 and let contracts for the construction of the hospital. The Board of Supervisors of Suffolk County on Tuesday last voted to buy a site at Holtsville for the establishment of a tuberculosis hospital. While no appropriation was made for construction, the actual acquisition of the site by the county for this purpose undoubtedly means that the tuberculosis patients in Suffolk County are soon to be provided for.

## Pith of Progressive Literature.

### DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

June 5, 1913.

**New Experiences with Melubrin.**—M. Schmid says that melubrin, 1, is a harmless remedy: even in daily doses of eight grammes no exanthema or gastric disorders were observed; it does not irritate the kidneys, and has no unfavorable action on the circulatory system. 2. Melubrin is practically tasteless, soluble in water, and easily taken by children. 3. Melubrin accomplishes, at least, the same specific action in acute articular rheumatism as the salicylates; heart complications offer no contraindication. 4. It is very valuable as an antipyretic and analgesic. In view of its harmlessness, it renders good service.

**Clinical Usefulness of the Abderhalden Reaction for Pregnancy.**—W. Jonas believes that this dialysis method, by its relatively simple technic, is a new important aid in diagnosing pregnancy, and, to a certain extent, carcinoma; it must find a permanent place in clinical medicine.

**Preparations of Bromide.**—R. Ammonn states that bromide is the safest and most harmless of sedatives in spite of the many new remedies of this character. The practitioner orders it in nervous excitement, neurasthenia, and insomnia, and as an antiprodisiac. It is the only reliable remedy for repelling the attacks of epilepsy; it also decreases the reflex excitement of mucous membranes, and is therefore used by dentists and laryngologists, and to allay night cough. Urologists also use it to diminish gonorrheal irritation, and to facilitate catheterism. The author does not believe that there is an effectual bromide preparation which will not cause skin affections or cerebrospinal bromism; because the essential action of bromide is by means of ionized bromide in the blood serum, and this affects the skin. The central nervous system becomes saturated, giving rise to cerebrospinal bromism. The preparations brought forward to replace bromide, which, it is asserted, produce no untoward bromidic results, are of doubtful efficacy.

June 12, 1913.

**Precipitation of Uric Acid in the Blood by Means of Uranium Acetate.**—A. Oszacki states that the separation of albumin from serous fluid by means of uranium acetate is also of value, clinically, for distinguishing uric acid in the blood. The principal advantage of this method is its simplicity and accuracy, the achievement of which has, up to now, offered the greatest difficulty in determining uric acid in the blood.

**Removal of a Plate with Three Teeth from the Esophagus without Opening.**—F. Franke says that under narcosis he made a long lateral incision on the side of the throat, close to the esophagus, without incising this. The teeth, which were quite firmly lodged, could not at first be removed; this could not be effected until they had been forced upward, and could be held by a forceps inserted through the mouth, when, by pressure from below, and pulling with the forceps from above, and by



means of several cautious manipulations, they were withdrawn. The patient suffered pain for thirty days after removal. The author advises this method before resorting to esophagotomy.

June 1, 1913.

**Character and Treatment of Heatstroke.**—A. Hiller presents the following: The heat of our climate (Berlin) does not act directly on body temperature, but on the nervous system, diminishing physical and mental capacity. It also develops neurasthenia and hysteria. Heatstroke, on otherwise healthy people, usually causes them to fall in a faint on the street; face pale, covered with sweat, lips blue, pulse small and rapid, respirations shallow and frequent, temperature not high, and the patient temporarily unconscious. Placing the patient in the shade, relieving the pressure of clothing, and sprinkling the face and chest with cold water, usually restores consciousness, and a drink of freshly made coffee (free from chicory) enables him to walk home. But should heatstroke fell a neuropathic or psychopathic individual, the author mentions four different types of serious consequences which may result: the exhaustive, asphyxiative, paralytic, and psychopathic. In these the blood is dark red, caked, with the power of coagulation lost, and an acid reaction. By microscopic examination there is found great decrease in red blood corpuscles, a colorless stroma, yellow colored plasma, and quantities of detritus. The clinical aspect presented may be (1) deep coma; (2) periodic cramps; (3) vomiting and diarrhea; (4) high temperature. Treatment consists in exciting the natural excretory channels, the kidneys, skin, and bowels; plenty of sleep and rest; suitable nourishment, with wine. The mental state becomes normal in a few weeks under this treatment, and recovery follows in variable periods of time, though some patients may retain permanent disabilities.

**Experience with Noviform.**—R. Patek says that noviform is odorless, nonirritating, exsiccative, and astringent, and may be used as a preferable substitute for iodoform.

June 21, 1913.

**Sedobrol.**—Engelen says that sedobrol is the latest bromide preparation. It is a pleasant tasting remedy, free from sodium chloride. In appearance, odor, and taste, it resembles a concentrated bouillon. It has no ill effect on the mucous membrane of the stomach. The author considers the remedy an important addition in psychotherapy.

**Contribution to Anodal Treatment.**—A. Schnée explains that in dry and sunny weather the atmosphere contains greater quantities of ions than in damp and cloudy weather. There is a constant excess of either positive or negative ions, these free ions being chiefly derived from radioactive gases emanating from the earth, but also originating in part from an ionization of the air by means of the ultraviolet rays of the sun. During the months from June to October the negative ions of the air are relatively higher than during the months from November to May. Winter fogs cause a decrease in negative ions. Equally noticeable changes are also observed daily. The author quotes Steffins as having considered that atmospheric conditions in-

fluence rheumatic, gouty, and nervous conditions in patients. Steffins compared the changes in human health and the varying ion contents of the atmosphere with the fact that the human being needs a certain number of ions, especially the negative, in its immediate environment, as much as it does nourishment, light, warmth, etc. By the artificial administration of negative ions, as in moor and fango applications, radioactive baths, and other such treatments in rheumatism, gout, nervous phenomena, etc., good therapeutic results are attained.

#### ZENTRALBLATT FÜR CHIRURGIE.

June 7, 1913.

**Treatment of Closed Pneumothorax by Aspiration and Overpressure.**—W. Greiffenhagen reasoned that if a lung were collapsed from a pneumothorax it could be expanded to its normal position by removing the pressure in the pleura, and at the same time increasing the pressure in the bronchi, and tried out his theory on a patient twenty-seven years old who had previously been operated on for a tumor of the right kidney. Dieulafoy's aspiration needle was introduced in the sixth intercostal space, in the posterior axillary line on the right side, continuous aspiration was made, and at the same time the patient was made to breath compressed air. The lung began at once to expand and soon filled its normal space. All of this was done under control by the x rays. Some days later the patient developed a dry pleurisy on the other side, which recovered in about a week. He considers that the operation of combined aspiration and careful inhalation of compressed air, always under control of the x rays, is indicated: 1, in delayed absorption of a noninfected closed pneumothorax caused by an internal injury, as in pertussis or by the rupture of a small tuberculous focus; 2, in postoperative pneumothorax, the diagnosis of which is made toward the end of the operation, or which could not be avoided, and has not been absorbed; 3, in uninfected hemothorax when the hemorrhage has certainly ceased; 4, after aspiration of serous pleural exudates when the x ray shows that the lung is not sufficiently distended.

**Autoplastic Thread for Use in the Operation of Herniotomy.**—J. Golanitzki takes a narrow strip of tissue from fascia or peritoneum and uses it as a suture. He obtained thirty-five such strips from the hernial sacs of twelve patients. After the sac was stretched out he cut from it three or four strips from one and one half to two cm. broad, and from twelve to fifteen cm. long, which could be threaded into needles after they had been twisted a little. The ends of these sutures he secures with catgut, or some other form of ligature. They are about equal in strength to No. 1 silk, or No. 0 catgut, when twisted to form a thread from three quarters to one mm. thick, and are stronger the wider the strip is before twisting.

#### BEITRÄGE ZUR AUGENHEILKUNDE.

April, 1913.

**Injuries of the Eyes of the Japanese during the Russo-Japanese War.**—Ch. Oguchi devotes 228 pages to this subject. First he deals with injuries of the eyes in general, gives statistics con-

cerning them in other wars, and discusses the general nature of the wounds of the eye received in battle. In the second portion of the work the injuries of the various parts of the eye, the cornea, iris, etc., are taken in detail, while the third part is devoted to the clinical histories and pathological findings of forty-five cases in which eyes were enucleated on account of injuries.

(J. H. M.)

**Clinical Studies of Occlusion of the Central Artery of the Retina.**—Paul Kober gives first the clinical histories of sixty cases of this nature, and then discusses the clinical conditions found and the course of the disease, beginning with the prodromal symptoms, then the onset of the permanent blindness or visual disturbance, the ophthalmoscopic findings, the visual field, the treatment, the course and prognosis. Then follows a comparison of the symptoms that favor embolism with those that favor thrombosis, together with a consideration of cases that seem to favor neither. The general diseases found in his sixty cases were: Heart disease in eleven, 18.33 per cent.; local arteriosclerosis of the retina in eleven, 18.33 per cent.; general arteriosclerosis in fourteen, 23.35 per cent.; cerebral arteriosclerosis (apoplexies) in three, 5 per cent.; nephritis in two, 3.33 per cent.; no general disease in seventeen, 28.33 per cent.; no observations made in two, 3.33 per cent.

ZEITSCHRIFT FÜR AUGENHEILKUNDE.

June, 1913.

**Etiology of Phlyctenular Inflammation of the Eyes.**—Z. Belenky-Raskin reports the investigation of 100 cases of phlyctenular eye disease with the following results: The cutaneous tuberculin reaction was positive in ninety-two per cent. of these cases; among the children under five years the proportion was somewhat smaller, eighty-five per cent. The cases in which the reaction was negative do not justify the assumption that the phlyctenular inflammation of the eye finds its foundation in some other disease than tuberculosis, for even some of the negative cases presented positive clinical signs of tuberculosis. Indicanuria is not present with special frequency, so there is no ground for ascribing phlyctenular disease to an autointestinal intoxication. The fundamental tuberculosis demands attention in every case, in addition to the usual local treatment of the lesion.

**Failures of Magnet Extraction when the Findings of the Sideroscope Are Positive.**—Max Dalmer gives as the causes of failure of the magnet to extract a foreign body, the presence of which is positively detected by the sideroscope, 1. A particle of iron that is outside of the eyeball; it may have pierced the coats of the eyeball twice and be lying in the orbital tissue, or it may be caught in the skin of the brow, lid, or cheek. 2. In very rare cases a piece of iron sticks fast in the walls of the globe or the ciliary body. Sometimes it is encapsuled in an exudate or an organized hemorrhage, but this is the case only when it has been *in situ* for a long time. 3. The magnetic properties of the foreign body are too slight in proportion to its size.

LYON MÉDICAL

June 22, 1913.

**Pneumothorax Occurring in the Course of Tuberculous Empyema.**—Bouchut and Gravier report three cases illustrating the fact that a "cold" pleural abscess may become complicated with pneumothorax. Such a pneumothorax remains latent until paracentesis permits the air, previously confined by fluid, to spread more easily through the pleural cavity, when auscultation reveals its presence. The air enters, not because of evacuation of the pleural contents through the bronchi, but as a result of caseation and fistulization of a subpleural tubercle. This variety of pneumothorax, according to the authors' observations, does not result in inoculation of the pleura with fresh microorganisms, and, different from the ordinary tuberculous pyopneumothorax, does not aggravate the empyema and render the prognosis worse.

June 22, 1913.

**Processes of Disintegration of Nervous Tissues and the Rôle of the Leucocytes.**—E. Malespine discusses the fate of the myelin in foci of myelitis, encephalitis, secondary degeneration of nerve trunks, etc. While it is well known that the myelin breaks up into rounded bodies, which are taken up by macrophages (either leucocytes or fixed tissue cells) in the form of large granules, the ultimate destination of these macrophages or "granular bodies" is unknown. Malespine concludes from his researches that while most of these bodies are discharged into the lymphatics, some directly reenter the blood, with the contained granules.

PRESSE MÉDICALE.

June 28, 1913.

**Hepatoptosis and the X Rays.**—M. Letulle states that, as has been revealed through x ray observations, so called "hepatoptosis" is merely a congenital condition. The digestive tract plays no active part in the production of liver deformity, but Letulle reports two cases, illustrating the fact that there may exist a simultaneous malformation of the liver, and the beginning of the large intestine, whereby the latter becomes abnormally movable, and may slip upward behind and even above the liver, in a recess provided for it on the posterior aspect of this organ. The term hepatoptosis is in reality inapplicable, as there has been no descent of the liver.

**Permanent Congenital Cyanosis.**—G. Heuyer reports three cases of cardiac malformation, all of which were found at autopsy to present the following four abnormalities: Narrowing of the pulmonary artery; interventricular communication; displacement of the aorta to the right; hypertrophy of the right ventricle. This combination constitutes the commonest anatomical condition underlying permanent congenital cyanosis. The author discusses the various theories advanced in explanation of these cases, and concludes in favor of the theory of endocarditis during fetal life.

SEMAINE MÉDICALE.

July 2, 1913.

**Hemolytic Splenomegaly and the Rôle of the Spleen in Hemolysis.**—Guido Banti reports a severe case of hemolytic anemia with splenic en-

largement, and an aplastic or anhemopoietic condition of the bone marrow in which splenectomy clearly saved the patient's life and led to ultimate complete recovery. The interest of the case lay in that it was the first aplastic one in which splenectomy had been performed, all others having been associated with an abnormally active bone marrow, which tended to compensate for the hemolysis. In Banti's case the operation was followed by an evident reawakening of the hemopoietic function, and this fact showed all the more plainly the value of the operation. The author then describes elaborate experiments which lead him to conclude that, *in vivo*, hemolytic agents fall into two classes: (1) Those which, like distilled water, act directly and almost or quite exclusively upon the red cells, without active cooperation on the part of the organism; and (2) those which not only act directly on the red cells, but also possess the power to excite in the hemolytic organs—the spleen, and in less degree, the liver, lymphatic glands, and bone marrow—an excess hemolytic function. To the latter class belong the sera, toluenylenediamine, phenylhydrazine, etc. Four factors contribute to the formation of hemolytic splenomegaly: (1) An agent causing hemolysis, of unknown nature and situation, and producing toxins which excite the spleen to excessive hemolytic activity; (2) hemolytic hyperactivity of the spleen, due to cytohemolysis, and manifested in enlargement of this organ; (3) an anemia, and (4) icterus, both the result of the excessive hemolysis. Thus, in hemolytic splenomegaly, and in other conditions which the author includes in the "splenohemolytic" group, such as acquired chronic hemolytic icterus, and congenital icterus, splenectomy might prove beneficial in that, even though the hemolysis engendering agents should persist, the chief organ (spleen), through which they did harm, would be eliminated.

#### REVUE DE CHIRURGIE.

June, 1913.

**False Spina Bifida.**—E. Estor and E. Etienne point out that there may occur, posterior to the spinal column, congenital tumors containing nerve tissue and enclosed in a sac with walls of varying thickness. A distinction must be made, both pathologically and clinically, between these tumors and spina bifida. They may be accounted for either by defective embryonic development or by the presence of a second, abortive embryo; in the first instance, the point of origin of the tumor would be either in residual portions of the neural ridge, or in some glandular *Anlage*, either normal or adventitious. The authors propose to call these tumors medullomas, or medulloembryomas. In their clinical differentiation from spina bifida, the absence of nervous disturbances, and of spinal deviation, as well as the totally different external appearance, are important features. The treatment consists of operative ablation, which in the two cases the authors refer to—both with the tumors in the cervical region—gave excellent results. Care should be taken, however, to ligate the pedicle, to prevent loss of cerebrospinal fluid in case the sac or interior of the tumor should happen to communicate with the meningeal space.

**Sarcomas of the Tendon Sheaths.**—J. P. Tour-

neux collected ninety-three cases of tendon sheath sarcoma in surgical literature, and includes brief accounts of each in his article. The tumor was on the upper extremity in sixty-six cases (forty-eight times on the fingers), and in only twenty-seven cases on the lower limb, usually in the plantar or malleolar regions. The growth was on the right side of the body in sixty-six cases, and its appearance had been preceded by traumatism in fifteen. After discussing the pathology, clinical features, and diagnosis of these tumors, Tournoux refers to the fact that the prognosis should always be guarded, for while the growth of the neoplasms is slow, and metastasis tardy, the ultimate course of the disease resembles that of cancer. Early wide excision, with conservation of the tendons, may yield a permanent cure, especially where histological examination of the tumor shows a marked preponderance of multinuclear cells. If infiltration of the sheaths and tendons is such, however, that prolonged, careful dissection brings about only incomplete removal, or if the tumor is of the round cell type, secondary amputation of the limb will be required. Recurrence also imperatively indicates operation, though, as a matter of fact, recurrence should not be awaited before amputating in the—histologically—more malignant forms.

**Formation of an Artificial Vagina.**—E. Quénu and A. Schwartz discuss the operative technic of forming a vagina from a loop of intestine in cases where the former canal is congenitally lacking. They prefer the Mori modification of Baldwin's method, in which one extremity of the excluded loop of ileum is sutured to the perineum, to the original Baldwin technic, in which the loop is drawn down at its centre, and opened there, a double vagina resulting. In some cases, however, suture of an extremity of the loop would involve excessive tension on the mesentery, with its vessels; where this is the case, the authors have found that opening and implanting the loop at a point only fifteen or twenty millimetres from its extremity will avoid both undue tension and the necessity of producing a double vagina. The ends of the ileal loop used should both be closed by sutures as soon as the loop has been cut away from the remainder of the intestine, and the lower end opened only at the end of the operation. The authors report a case of their own, and also give histories of the thirteen other cases previously operated by various surgeons, in all of which the results had been good.

#### REVUE DE MÉDECINE.

June, 1913.

**Pathogenesis of Opsuria.**—L. A. Amblard refers in the term "opsuria" to a delay in the elimination by the kidneys of ingested fluid, as was first brought out by Gilbert and Lereboullet. Whereas in the normal subject the ingestion of 600 grammes of water in four divided doses on an empty stomach in the morning is followed by urination within the first few hours of a larger amount than that ingested, under abnormal conditions, including cases of biliary cirrhosis with splenic enlargement, the period of maximal output may be delayed for a number of hours and the increased elimination even take place during the following night. Amblard has found that in some patients the recumbent posture



removes entirely the tendency to delayed elimination, while in others the period of elimination only occurs during the second half of the night, without regard to the time of day at which the fluid was ingested, or to recumbency or exercise after such ingestion. In still others, moderate exercise in the afternoon, or even mental preoccupation, will cause a drop in the ordinary output of urine on the succeeding morning. The author reviews critically the theories advanced to account for "opsiuria"—delayed absorption, general circulatory disturbance, altered renal circulation, and retention of fluid in the tissues—and concludes that the last named is the most frequently applicable, though in some cases delayed absorption manifestly occurs, owing to resistance set up in the liver. Definite information concerning renal efficiency cannot be obtained from the presence or absence of opsiuria.

**Variations of Cholesterin in the Blood of Hepatic Patients.**—Biscons and Rouzaud measured repeatedly the content of cholesterin in the blood of a large number of patients with hepatic disorder under treatment at Vichy. Those with cholelithiasis and cholecystitis showed an abnormally high proportion of cholesterin, which, especially in the gallstone cases, was usually more or less markedly diminished after the Vichy "cure," though in a few instances it was increased, owing to too vigorous treatment. In the patients with hepatic disorders other than the above, the cholesterin was either but slightly in excess to begin with, or, if high, was uninfluenced by the treatment.

#### REVUE MÉDICALE DE LA SUISSE ROMANDE.

June 1913.

**Intradermal Tuberculin Test in Pediatric Practice.**—L. Jeanneret asserts, after experience with the Mantoux intradermal tuberculin reaction in 1,012 cases, in which altogether over 5,000 tests were made, that this reaction is of great value in the diagnosis of tuberculous disease in children less than seven years of age. A positive reaction reveals the presence of any tuberculous focus, whether active, torpid, or healed. It may fail, however, in cachectic states, and in the presence of measles, typhoid fever, or influenza. The size of the area of reaction on the skin generally parallels the extent of the tuberculous focus, though the state of activity of the focus, the cutaneous sensitiveness of the individual, and the degree of resistance of the organism to the infection are to be thought of also as modifying factors. Series of tests, which can be made without any risk, may be of prognostic value, the reacting area becoming smaller as the condition improves. They also proved of distinct value as a guide in tuberculin treatment, the area enlarging where excessive or too frequently repeated doses of tuberculin were being given, and becoming smaller again as the amounts administered were diminished. The test was carried out every two weeks.

**Treatment of Rheumatic Nephritis.**—G. Turretini reports a case of rheumatic valvular disease, with repeated attacks of visceral rheumatic involvement and of nephritis, in which salicylic medication regularly caused prompt disappearance of albumin and casts. Such treatment would seem to be directly indicated in similar cases, in spite of

the fact that salicylic acid is generally considered a renal irritant. In carrying it out one should make sure, however, of the permeability of the kidneys to salicylic acid by adding to the urine a few drops of ferric chloride solution. A history of nephritis previous to the rheumatism necessitates especial caution in the dosage.

**Tuberculous Pneumonia Followed by Recovery.**—Tecon reports the case of a young woman who, after a prolonged period of gradual loss of weight, suddenly developed a pneumonic condition, the subsequent course of which, however, was much less acute than that typical of ordinary pneumonia. The sputum contained tubercle bacilli. The general condition remained fairly satisfactory, the appetite good, and the body weight constant, notwithstanding the fever. After six months' of illness, recovery took place. In the presence of but few tubercle bacilli in the sputum, and of the other favorable circumstances noted in this case, the prognosis in tuberculous pneumonia should be considered better than in the average cases of this kind met with.

#### JOURNAL OF TROPICAL MEDICINE AND HYGIENE.

June 2, 1913.

**Hepatic Cirrhosis of Malarial Origin.**—Lucius Nicholls classes the malarial liver changes as a monolobular biliary cirrhosis, the fibrous tissue being increased primarily around the bile capillaries and single lobules of liver tissue. The production of the cirrhosis depends upon the presence of adhesions in the transverse fissure of the liver, thickening of the walls of the gallbladder, and swelling of the neighboring lymphatic glands. The sequence of changes appears to be: (1) The formation of adhesions and enlargement of the lymphatics, pressing upon the bile duct; (2) the swelling of the liver at each attack of malaria; (3) as the adhesions and perihepatitis increase the organ is held as in a vice; (4) thus there is an increased internal pressure, acting against pressure on the bile ducts and in the gallbladder; therefore, fibrous tissue is formed around the bile capillaries as a compensatory act; (5) malarial "toxines" are formed in the liver, and being excreted under unusual pressure along the bile capillaries, add a further irritating factor. The deleterious products which should normally be excreted with the bile are absorbed into the system, and cause the enlargement and profound changes that take place in the spleen.

June 16, 1913.

**Clinical Study of Malarial Fever.**—J. P. Bates applies the term "malarial fever" to all malarias which do not pursue a distinctly tertian or quartan course, whatever variety of parasite be responsible. He describes in detail his observations of the parasites causing irregular fevers, and concludes that there are only two varieties giving rise to such fevers and having gametes of crescentic form, and that both are pigmented in some of their stages of development. These varieties he terms *Plasmodium falciparum subtertianum* and *P. falciparum quotidianum*. The so called "nonpigmented parasite" is not a definite variety, but merely a form showing pigment late in its development. Bates next considers fully the symptomatology of

irregular and pernicious malarias. Among 200 cases of malaria of all types in Panama in which the urine was examined, albuminuria was found in forty-two per cent. In the pernicious cases albumin and various casts were observed to be very common. In the rare cases of "algid" and "choleraic" pernicious malaria witnessed the symptoms were so strikingly like those of heat exhaustion that the author thinks there must be a coexistence of heat exhaustion and a severe malarial infection to give rise to such manifestations. Although a number of observers have held that there is a variety of dysentery caused directly from malarial infection, Bates agrees with Mannaberg that the former is an accidentally coexistent infection. As regards the differential diagnosis of malarial fever, Bates points out that only the indifferently treated or untreated cases show symptoms of diagnostic value, as mere rigor, fever, and sweating may occur in many other diseases, *e. g.*, tuberculosis, suppurative affections, sepsis, and protracted typhoid. In the poorly treated cases the most marked of the diagnostic symptoms are a peculiar color of the skin, melanemia, jaundice of the sclerae, and splenic enlargement. One feature in the acuter malarias that may be of diagnostic value is the bodily distress and pain which so quickly subside with the intermission or remission of temperature, whether these be spontaneous or due to quinine. Aside from these few diagnosis symptoms, the quinine test is regarded by the author as final. A fever continuing for more than five days unchecked by quinine in full dosage is not malarial fever. The author makes it a rule, however, to consider malaria out of the case if the fever is uninterrupted by quinine to the morning of the third day; and, likewise, if the fever is once completely controlled by quinine and a second later rise of temperature occurs without any decrease of dosage or change in the patient's regimen.

#### BOSTON MEDICAL AND SURGICAL JOURNAL.

July 10, 1913.

**The Typhoid Carrier Problem.**—C. L. Overlander doubts the advisability of detaining typhoid carriers in quarantine until some more easy, rapid and accurate method has been devised to determine the presence of the typhoid bacillus in the excreta. Successive negative findings are of doubtful value, and the discharge of such a patient involves a false confidence in his freedom from infected material. He thinks it would be more practical, less arduous, and better conserve the public health to regard each person recovering from typhoid fever as a potential carrier, to carefully instruct such persons concerning this subject and the precautions they should take, and, if possible, forbid them to personally handle public food supplies.

**Report of Eighteen Cases of Separation of the Lower Femoral Epiphysis at the Boston City Hospital.**—Horace Binney and Fred B. Lund discuss the etiology, pathology, and treatment of these cases, and draw the following conclusions: 1, Owing to danger of subsequent interference with growth, absolute reduction and fixation at the earliest possible moment is of great importance. 2, Early and repeated x ray examinations are necessary

to control the completeness and permanency of the reduction. 3, In simple cases, where immobilization in flexion fails to hold the fragment in correct position from the start, open reduction with the use of a small nail or bone plate is indicated. 4, In compound separation the same means of positive fixation is to be recommended. 5, The foreign body should be removed soon after union has begun, in order to avoid interference with growth. This should be done not later than the third week.

July 10, 1913.

**The End Results of Operative Treatment in Thirty-three Cases of Spastic Paralysis.**—Herbert E. Harris found a complete failure in only one case, an idiot. It is generally admitted that when the mentality is deficient and the patient refuses to cooperate by trying to walk, surgical interference with spastic paralysis is likely to be of little use. In the remaining cases subcutaneous tenotomies gave excellent results, whether they were zigzag or not, and in none of the twenty-two cases was there any permanent and undesirable lengthening of the tendo Achillis. Children who have not taken a step have been able to walk as a result of simple division or resection of the adductors and hamstrings. Apparently much can be expected from the Tubby procedure of transferring the pronator radii teres to work as a supinator. Although the operative procedure may be that properly suited to the individual case, it has been shown that without careful aftertreatment and the long continued afteruse of plaster and apparatus, the various operations are likely to be of little use.

**A Study of 197 Cases of Endocarditis in Children at the Massachusetts General Hospital; with Special Reference to the Treatment of Acute Endocarditis.**—Louis W. Gilbert concludes from this study that acute endocarditis should be considered as acute over a much longer period than has been the custom, and that treatment should be carried out over months, and perhaps years, until all possible signs of acute disease have disappeared, and even then, until adolescence is passed, at least a certain amount of restraint should be exercised.

**Fracture of the Carpal Scaphoid in Childhood and Adolescence.**—William Pearce Coues says that this is one of the rarest of injuries, but that the possibility of its presence should be thought of when children receive injuries of the wrist. Particularly is this true in cases where there is no tenderness over the lower end of the radius and ulna, but pain and tenderness over the dorsum of the hand just distal to the lower end of the radius and in the snuff box. A marked swelling of the dorsum of the hand, stopping abruptly at the radius and ulna, may be of considerable diagnostic importance. A radiograph should always be taken of these injuries, and the scaphoid scanned searchingly for a possible fracture.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

July 10, 1913.

**The Qualifications of the Surgeon,** by William D. Haggard.—See this JOURNAL for July 5, p. 38.

**One Hundred and Seventeen Cases of Infantile Diarrhea Treated by Intestinal Implantation of**

**the *Bacillus Lactis Bulgaricus* at the Babies' Hospital of the City of New York.**—Ralph O. Clock cites most impressive facts which stand out boldly as the result of this method of treatment. There is a gain in weight, in spite of the number of stools, the color of the latter changing rapidly to yellow; and an absence of mucus and blood from the stools at the end of forty-eight hours, accompanied by a rapid decline in the febrile movement. The hygienic surroundings of the patients and the degree of intelligence of the mothers do not influence the results. A starvation diet, accompanied by purgation, which is productive of loss of weight and strength, and which prolongs the course of the disease, can no longer be considered a rational method of treating infantile diarrhea. Infantile diarrhea, even when associated with fever, does not impair the digestive powers to such an extent that the digestion and assimilation of a milk diet are prevented. Corroboration of this fact is found in typhoid fever, where the high caloric diet, in contrast with the starvation diet, has markedly reduced the mortality. Moreover, the cases recorded by the writer prove the value and good judgment of continuing a milk diet in infantile intestinal conditions, as illustrated and emphasized in the diagram of the weights. In severe cases the administration of a large number of the tablets during the first two or three days of the treatment appears to yield the best results. Very young babies have taken as many as forty-two bulgaricus tablets in twenty-four hours without untoward effects. The implantation method of treatment has progressed beyond the experimental stage; the results of its use are beyond question and dispute. It is practical, of clinical and scientific value, and so simple that it should appeal to every practitioner. It is needless to state that a pure culture of the true *Bacillus lactis bulgaricus* must be used if we would secure the best results; otherwise disappointment will follow. It has been found by bacteriologists that the same organism, isolated from different sources, will vary in virulence and in certain other characteristics, and the *Bacillus lactis bulgaricus* is no exception. The bacillus isolated from Bulgarian soured milk has been proved to possess the greatest antagonism to putrefactive bacteria. The culture should show only viable organisms in sufficiently large numbers.

**Skin Diseases among Full Blood Indians of Oklahoma,** by Everett S. Lain.—See this JOURNAL for July 5, p. 43.

**Study of the Collateral Circulation in Some Cases of Spontaneous Gangrene of the Foot,** by James E. Thompson.—See this JOURNAL for July 5, p. 38.

**Midoperative Diagnosis in Urologic Operations.**—G. Kolischer insists that this midoperative diagnosis is of great importance, as evidenced by the fact that the operative procedure must often be readjusted to the conditions discovered. He elucidates this by giving some striking examples. In external urethrotomy, in most cases, the indication for a mere severance of the stricture tissue, or for a more or less extensive resection of the fibrous tissue, cannot be finally decided until the urethra or its remaining portion is exposed to view and to immediate palpation. In Hagner's epididym-

motomy, the location and extent of the depleting incisions cannot be decided on until the testicle and its appendages are fully exposed, or whether or not, after puncture of a testicular hydrocele, the tunica testis ought to be removed. It is also evident that in tuberculous disease of the epididymis, the extent of the interference can be determined only after the whole organ is made accessible to sight and manual examination. In suprapubic prostatectomy, the gross differential diagnosis between simple hypertrophy and malignant disease of the gland is only possible when the bladder is opened, and the eventual diagnosis of cancer will influence the decision either to desist from a radical operation or to excise and not to enucleate, if operative measures are at all to be considered. The writer discusses serially the uses of the midoperative diagnosis in many diseases of the bladder, the kidney, and the perineum, and demonstrates beyond a doubt the truth of his assertions as to the value of the midoperative diagnosis in urologic operations.

**Cutaneous Affections of Childhood,** by Alfred Schalek.—See this JOURNAL for July 5, p. 43.

**Occlusion of the Posterior Inferior Cerebellar Artery. Report of a Case,** by G. Wilse Robinson.—See this JOURNAL for July 5, p. 47.

**The Solubility of Lead Salts in Human Gastric Juice and Its Bearing on the Hygiene of the Lead Industries,** by A. J. Carlson and A. Woelfel.—See this JOURNAL for July 5, p. 49.

**Phenolsulphonephthalein in Estimating the Functional Activity of the Kidneys. A Further Contribution to Its Value.**—Charles Goodman refers to a former paper by him, which set forth the advantages of this test. The writer finds that in clinical influenza the small output of phenolsulphonephthalein is out of line with the findings in other general diseases, which show a good output as a rule when there is clinically no evidence of renal involvement. The findings in regard to the value of this test in nephritis, both from a diagnostic and prognostic viewpoint, confirm former conclusions, and the test reveals the degree of functional derangement, and whether the nephritis be acute or chronic. In several of the writer's cases this test revealed a degree of renal insufficiency not evident from the clinical condition of the patient, but confirmed by the fatal outcome of the case. The test has demonstrated renal insufficiency in instances where operation was contemplated, and in which, though chemical and microscopical examinations were negative, subsequent developments confirmed the existence of the renal insufficiency. The writer's findings, in cases of ureteral or renal obstruction, agree with those of Rowntree and Geraghty, in that he found a marked improvement, as indicated by the test, following the removal of the obstruction. In unilateral and bilateral renal disease, the test has revealed the functional capacity of each kidney, and to such a degree as to be of assistance in determining on the course of operative procedure. An absence or very small output of the dye from one kidney, with an increased output from the other side, indicates a seriously diseased kidney on the one side, with a compensatory hypertrophy of the other kidney.



**The Treatment of Anginal Pains**, by Charles L. Greene.—See this JOURNAL for July 5, p. 49.

**Potassium Permanganate as a Local Anesthetic to the Genitourinary Mucous Membranes.**

—Wilfred M. Barton accidentally found (case history given) that the injection of a solution of potassium permanganate into the urethra and bladder caused a transitory but complete desensitization of the mucous membrane of the anterior and posterior urethra, of such a degree and character as to permit the painless passage of sounds. From a series of experiments, the writer has found that anesthesia of the mucous membrane of the urethra so completely and satisfactorily produced by solutions of potassium permanganate in the strength of one to twenty-five hundred, or even in one to five thousand, is incomplete and unsatisfactory when the dilution is raised to one to ten thousand. The minimum dilution producing satisfactory anesthesia is one to five thousand. Solutions in excess of one to two thousand should not be used in the posterior urethra.

#### MEDICAL RECORD.

July 19, 1913.

**Experiences with the Abderhalden Test in the**

**Diagnosis of Pregnancy.**—Jacob Gutman and Samuel J. Druskin remind us that the biological pregnancy test of Abderhalden is based upon the fact that at certain periods of gestation detached chorionic cells are found floating in the maternal circulation. This occurs during the development of the placental chorionic villi, their penetration into the maternal tissues, and the formation of intervillous spaces. The proteins of the above mentioned chorionic cells are different in their composition from those of the mother and foreign to the organism in whose circulation they are floating. The maternal organism reacts against this invasion by a foreign protein with the production of a specific proteolytic ferment. The latter destroys the invader by decomposing it into its primitive or fundamental constituents. These primitive building stones are then utilized for the reconstruction of proteins peculiar to the maternal organism. The ferments concerned in the disintegration of the more complicated higher nondialyzable albumins of placental tissue into lower, less complicated, dialyzable substances are to be found only in the blood of persons in whom chorionic cells are circulating, i. e., those of pregnant women, and especially in the earlier months of pregnancy. The writers conclude by comparing the results of their experiments with those obtained by a majority of investigators, that the Abderhalden test is perfectly reliable and commendable, but that it is to a certain extent objectionable because somewhat complicated and attended with some difficulties, its performance being therefore necessarily limited to special laboratories. For use by the general practitioner there is need of simplification.

**Castration and Operations for Varicocele and Hydrocele without Wounding the Scrotum.**—

Charles A. Bucklin favors the inguinal incision in castration and in operations for varicocele and hydrocele. These operations can be performed under local anesthesia, induced by the hypodermic injection, into and around the parts, of twenty minims

of a ten per cent. solution of novocaine. If a general anesthetic is required the writer prefers pure ether. Where there is a redundant scrotum it can be readily perfected by the removal of a sufficiently large elliptical piece, uniting the edges of the resulting wound by a continuous suture of No. 0 catgut or silk.

**Hemorrhoids and Office Practice.**—Eric C. Beck claims that operations on hemorrhoids in the office, unless the case is an extreme one, can become the rule rather than the exception. The patient is placed in the Sims position, with the knees well flexed, and is asked to strain. A needle threaded with plain catgut is placed beneath the mucosa into the cellular tissue at the base of the hemorrhoid selected for obliteration, where the bloodvessels enter, and brought out on the other side, thus embracing both the bloodvessels and a small portion of the mucosa. The suture is tied, the loose ends are cut off, and the hemorrhoid is allowed to recede into the rectum. A second hemorrhoid may be likewise operated on at the same sitting. An opium suppository is inserted into the bowel to inhibit peristalsis and to relieve pain. There is no sloughing because only the bloodvessels entering are tied and the blood supply of the mucosa is sufficient without these. There is usually some pain for from twenty-four to forty-eight hours after the bloodvessels have been tied. The writer advises the use of eucaine in weak solution for local anesthesia before operating. The operation is practically the same as that described by J. M. Lynch.

#### NEW YORK STATE JOURNAL OF MEDICINE.

June, 1913.

**The Present Status of Nerve Injection.**—O. Kiliani reports that in over four hundred cases of facial neuralgia treated by injection in the past few years he has not had a single failure, so far as the relief of the pain was concerned. He uses eighty per cent. alcohol and injects from one to 2.5 c. c. Kiliani regards the treatment as a cure only in so far as it frees the patient entirely of his pain and anxiety. Recurrences are frequent, if not the rule, and in his experience he has seen only about twenty-two per cent. remain free from pain for longer than three years. In the rest of the cases recurrences have appeared in from eight months to two and a quarter years. In the cases of recurrence the attacks are much milder and of less frequent occurrence than they were before the first treatment. Where the recurrences follow one another in a given case at short intervals they are very difficult and unsatisfactory to treat. But of nearly five hundred cases thus treated only two have so far come to operation. The injections should be made without any form of narcosis, because the accurate localization of the needle is then possible. The procedure is painful, but the patients are all quite ready to endure a short pain for the prolonged relief to follow. The dangers of the treatment are very slight; one death seems to be attributable to the procedure and destruction of the Gasserian ganglion by faulty injection may lead to corneal ulcer or even loss of the eye. Kiliani has employed the same method with success in the treatment of intractable cases of intercostal neur-

algia and in herpes zoster. In the latter cases the injection has been with from 100 to 170 c. c. of ice cold normal salt solution.

**Pituitrin in Obstetrics.**—J. K. Quigley reviews the literature and contributes his own observations on twenty-six cases, concluding that: 1. In pituitary extract we have the most powerful stimulant to uterine contraction yet discovered; 2. Its greatest value is in its use in uterine inertia; 3. The ideal time for its administration is in the second stage of labor, but good results follow its earlier use; in such cases it is usually necessary to repeat; 4. No untoward results were seen in his own series, for either mother or child; 5. Its use shortens the third stage; 6. It renders post partum catheterism almost never necessary. The dose is usually 1 c. c., given intramuscularly, repeated in from sixty to ninety minutes if there is no result, or if its effects wane. Elevated blood pressure, myocarditis, nephritis, marked disproportion between the fetus and the pelvic bony canal, or other obstruction, constitute the contraindications to its employment.

**The Symptoms and Diagnosis of Involvement of the Heart in Syphilis.**—Harlow Brooks and John H. Carroll base their conclusions on the study of two hundred cases. They find that symptoms of cardiac involvement are manifested in a large proportion of cases of syphilis. The symptoms of such involvement of the heart may appear very early in the secondary stage, though they are usually not discovered until the third stage, chiefly because the patient attributes all his symptoms to the general disease, and special visceral signs are neglected. The signs differ from those of idiopathic or simple cardiac cases in a greater tendency toward the involvement of the heart muscle and the coronaries. Precordial pain is probably the most constant symptom and among the earliest. This is often definitely anginal. Cyanosis, dyspnea, and other signs of cardiac incompetence are usually present long before true incompetence is evident. The greater number of cases show combined aortic and mitral lesions in the way of endocardial involvement. Recognition depends primarily on the diagnosis of lues and the association of a cardiac defect, either of a definite or supposititious nature. Wassermann reaction, etc., finds its place in the diagnosis of the primary lues, but the most conclusive and important diagnostic test is the therapeutic one.

**Auscultation at the Acromion Process.**—Robert Abrahams says that when the apices are perfectly healthy they yield markedly exaggerated normal auscultatory signs when auscultated at the acromions, and the physiological differences between the right and left are exaggerated. In very early infiltration the right shows an appreciably prolonged expiratory sound, a louder spoken voice and increased whispered sound at the acromion; none of which can be heard over the apex on the chest. In first stage tuberculosis this region reveals tubular breathing, bronchophony, and whispered pectoriloquy. Similarly, the left apex yields distinct signs long before the ordinary methods of auscultation would reveal them. The clavicles seem to pick up the sounds and transmit them to the acromion processes with great distinctness.

**Thrombosis of the Mesenteric Artery.**—Ernest Laplace prefaces his case report with the remark that this, of all the affections of the abdominal cavity, is perhaps the most obscure and most perplexing as to diagnosis and treatment. The etiology is equally obscure, and the condition results in gangrene of the bowel and death. In the majority of the reported instances the condition has been attributed to an endocarditis. The symptoms are usually those of sudden shock, accompanied by abdominal pain, which gives rise to the suspicion of the presence of intestinal obstruction. This latter is promptly ruled out because purgation will always result after thrombosis. In most cases, also, the patient soon begins to improve, there is very little pain, and operation is postponed. In the meantime the intestine is becoming gangrenous, a condition which progresses, so that later an operation is performed only to find a mass of matted and gangrenous gut. If this is removed it is invariably found that the remaining gut undergoes gangrene beyond the limits of the resection, and the end is always in death. One of the most remarkable features of the condition is that the temperature and pulse remain throughout the earlier stages at a point about normal. Laplace's case differed in three very material points from the usual run of such cases. The patient had had two previous attacks of a similar, though very mild, nature, suggesting acute pancreatitis. The last attack, which resulted fatally in spite of operation, presented many symptoms suggestive of acute pancreatitis, and post mortem it was found that such a condition was present. Lastly, there was no suspicion of the existence of a previous endocarditis. Laplace suggests that the extravasation of fluid containing the pancreatic enzymes into the peritoneal cavity during the course of a sub-acute, or in recurrent attacks of acute, pancreatitis, may lead to the destruction of mesenteric tissue, with the resulting formation of a mesenteric thrombus. This he believes to have been the etiology in his own case, at least.

**Acute Membranous Vaginitis in Pregnancy, Due to Enterococcus.**—George E. Shoemaker's experience of this condition seems unique, and is confined to two cases seen within a short time of one another. Each of the women was nearing the end of pregnancy when the first symptoms were noticed. The symptoms are local, and consist of the most intense itching and burning, sufficient to prevent any sleep; local soreness, swelling, and a copious discharge of material consisting partly of whitish fluid, and partly of yellowish, cheesy, semi-solid masses. Local examination shows redness and swelling of the parts, which are bathed in the white discharge and to which large areas of the semi-solid material are found adhering. Removal of this material does not cause abrasion of the underlying mucosa. No ulceration was found. The process involved the entire vaginal tract and extended even into the os of the cervix. Bacteriological examination showed the masses to be made up entirely of the enterococcus, and no epithelial cells or detritus whatever could be detected in them. In the second case the condition was complicated by thrush, which

caused slight ulceration of parts of the vaginal mucosa. Both cases responded well to the local removal of the masses and the use of potassium permanganate as a douche. In each case the child was born without infection, and the mother in each instance had an uneventful puerperium, although labor took place very shortly after the local condition had yielded to treatment.

## Proceedings of Societies.

### MEETING OF THE AMERICAN THERAPEUTIC SOCIETY.

*Held at Washington, D. C., May 5 and 6, 1913.*

**President's Address** was delivered by Dr. NOBLE P. BARNES, of Washington, D. C. After treating of recent advances in therapeutics the paper dealt with the medical needs of the day, especially the need of a properly limited materia medica with a rational scientific classification for the use of lecturers, examiners, and students. Many students were so confused in the study of pharmacology, so drowned in the enormity of its proportions, so discouraged in the monotonous memorizing of the meaningless mass, that they failed to collect and retain the wheat, and in due time became drug nihilists, or thoughtless prescribers of proprieties. If we would treat and practice with the absolutely proved drugs, materia medica, and drug therapy would be placed upon a sound and rational basis. Such a work should include only indispensable drugs, and so far as practicable, only those that had been assayed chemically or tested physiologically. The accurate knowledge gained from the study and use of these drugs would soon restrict the multitude of recognized and unrecognized remedies, give better control and better quality to these remedies and enable the student to master everything from solubility to insolubility, everything from methods of administration to variance in action.

**The Absurdities and the Commercialism of the Proposed Ninth Decennial Revision of the Pharmacopœia of the United States.**—Dr. OLIVER T. OSBORNE, of New Haven, dealt with the drugs which in his opinion should not appear in the coming edition of the pharmacopœia. Among them were drugs having no therapeutic value. In this connection he emphasized the absurdity of putting articles like lemon peel, condurango, and saffron in the pharmacopœia with drugs like digitalis; metals and chemicals of no drug value, like aluminum hydrate and uranium nitrate; drugs not needed or whose effects could better be obtained from other drugs already official (anethem, cimicifuga, yerba santa, gambir, cotton root bark, leptandra, sarsaparilla, snakeroot, sumbul, prickly ash, etc.); to this class belonged also certain preparations inferior to others, for example, fluid extract of digitalis (tincture better), fluid extract of gentian, fluid extract of cinchona, etc.; mixtures and compounds (in this connection he mentioned such preparations as compound infusion of senna, Basham's mixture, Brown mixture, elixir adjuvans, and pointed that some of these contained as many as nineteen ingredients); drugs that could not be standardized, like lemon peel. It was also unnecessary to include the parent substance because it was desired to include a derivative. For example, there was no necessity for making the spices official just because it was desired to include their volatile oils.

Dr. HARVEY W. WILEY, of Washington, D. C., had had an opportunity to express an opinion as to the substances that should or should not be admitted to the book. He had no doubt but that some of Doctor Osborne's criticisms were justified, but there was a great difference of opinion upon this point among medical men. If 15,000 prescriptions from physicians were collected and it was found that one particular ingredient appeared in a considerable number of them, it seemed reasonable to conclude that the ingredient had some therapeutic value. Some of these humble drugs might yet become the head of the corner. He himself had objected to some of the drugs mentioned by Doctor Osborne, and in case of a number of them had asked a reconsideration, which had been granted. While

it was true that some of them could not be adequately standardized it could at least be required that they be pure and made of wholesome materials.

**The Treatment of Diabetes and Pregnancy.**—Dr. REYNOLD WEBB WILCOX, of New York, stated that the treatment of a diabetic woman who had become pregnant was as follows: If hydramnios existed, usually in about one third of the instances, or the amount of glucose in the urine was excessive and uninfluenced by treatment, or the loss of flesh or strength was marked and, absolutely, if the fetus was dead, the uterus should be emptied at once. The viability of the child was usually problematical. A diabetic woman should not marry, or, if married, should not be allowed to become pregnant. If a pregnant woman had become diabetic, the dangers of labor were increased, not only from impaired vitality and lessened resistance to infection on the part of the mother, but because in severe diabetes a dead and even macerated child might result, or, if the disease was mild, one of inordinate size, which, if the time of labor was not anticipated by operative interference, might endanger the life of both. By succeeding pregnancies a curable might be converted into an incurable diabetes. In the glycosuria of pregnancy each patient must be carefully studied, and the procedure adopted that was justified by the condition of the patient and the persistence of this symptom.

Dr. ROBERT T. MORRIS, of New York, said that pregnancy was somewhat out of his line, but he believed that in many cases glycosuria was due to pancreatitis and consequent squeezing of the islands of Langerhans caused by the effects of bacteria escaping from the duodenum. As soon as the pancreatitis was relieved the glycosuria disappeared. The indication was to do away with the bacterial infection if possible.

Dr. J. J. KINYOUN, of Washington, D. C., said that in 200 autopsies at the tuberculosis hospital in this city he had noted changes in the pancreas with squeezing of the islands of Langerhans in a considerable proportion of the cases. Only in rare instances however did such patients give a history of diabetes.

Dr. OSBORNE said that he had already spoken of uranium nitrate. There was good authority for the statement that it was a poison, particularly to the kidneys, and he did not believe that it could be given without danger. Its therapeutic value was not commensurate with the dangers attending its use.

Doctor WILCOX said that there was no doubt but that uranium nitrate was a poison, but the danger to the kidneys could be obviated through frequent examination of the urine.

**The Treatment of Arteriosclerosis.**—Dr. LOUIS F. BISHOP, of New York, stated that most cases of arteriosclerosis could be traced to the substances derived from food proteins. It was the reaction of the individual to the proteins that caused the disease. Arteriosclerosis set in when something occurred in the individual to make him more susceptible to damage by protein material. Accordingly he had adopted a system that he called the "few protein diet." All eggs, fish, meats, fowl, and soup were excluded. Cheese was allowed as furnishing protein in a safe form, and later chicken was added tentatively. An ounce of castor oil was ordered every forty-eight hours for three doses, then another dose at the end of the week, and later, a dose not less than once a month. Nitroglycerin was the great symptomatic remedy for all emergencies, whether dyspnea, pain, vertigo, or even edema of the lungs. Exercise and out of door life were essential. For the cure of the arteriosclerosis the underlying causes should be removed, and among these mental stress was important.

Dr. J. MADISON TAYLOR, of Philadelphia, spoke of the importance of the early recognition of the disease. Doctor Bishop had said in a former paper that there were practically no manifestations in the early stages to bring the case to the attention of the physician. This being true it was fortunate for the individual if he had some other form of breakdown, because then the arteriosclerosis might be recognized and treated in its incipient stages.

Dr. EDWARD D. FISHER, of New York, spoke particularly of the etiology. Arteriosclerosis was not a general disease of the whole body but primarily a diseased condition of the vessels. At first it did not affect the body as a whole, but was a localized condition. Gradually, however, it might affect one organ or part, after another, the heart, kidneys, nervous system, until the body as a whole



suffered. Alcohol, overeating, gout, etc., were only predisposing causes in most cases. Laboring men were especially susceptible to arteriosclerosis, but as a rule they were neither excessive eaters nor drinkers. But they were hard workers, and work and heredity were important factors in the etiology, whether the individual was a laborer or a financier at his desk. Everyone was furnished with vessels good for a given time under proper conditions. If he used them conservatively he might live out his allotted time. If he did not his life was shortened. Treatment must of necessity be symptomatic only. The best that could be hoped was to stay the progress of the disease. A proper diet, open air exercise, a quiet life and freedom from worry and care—all of these were important factors. The diet should be regulated to suit the need of each individual patient. It should not be too strict where the patient was weak or where his occupation required great exertion. In case of a laborer, for example, it would not do to take away meat. General principles of treatment should be broken as conditions necessitated.

Doctor MORRIS suggested that the response of the blood pressure to certain proteins might be utilized as a test for arteriosclerosis in its early stages.

Doctor BLACKADER said that he always hesitated to say that a drug was a specific, and in the same way he hesitated to accept the statement that there was only one cause for a disease. He could not help feeling that Doctor Fisher's point about heredity was well taken. It was, however, a depressing view. If we felt that a man's arteries were destined for a certain length of life we were apt to do less for him in the way of treatment. He preferred to think that some individuals were more susceptible to certain poisons than others. Such substances should be excluded from the diet of those susceptible to hardening of the arteries. Until the things causing the disease were removed, treatment would prove unavailing. He agreed with the previous speakers that all protein food could not be excluded. Alcohol and tobacco were conducive to arteriosclerosis in a certain proportion of cases. What would hurt one man, however, would not necessarily hurt another. The treatment should be primarily directed toward undue susceptibility of the tissues—the heart, kidneys, liver, nervous system. He commended the use of castor oil and salines in these cases.

Doctor OSBORNE emphasized the danger of changing the diet suddenly or radically. The same was true of exercise and other factors ordinarily employed in the treatment. He had obtained good results from the use of potassium iodide.

Dr. SPENCER L. DAWES, of Albany, said that the salines or calomel were preferable to castor oil. He had found the constipating aftereffect a decided objection to its use. He agreed with Doctor Fisher as to the span of life of the vessels. The same might be said of the heart.

Dr. GEORGE HERBERT EVANS, of San Francisco, said that greater efficiency in treating the condition must be based upon a better classification of the patients along etiologic lines. He had been impressed with the frequency with which syphilis occurred in arteriosclerotic patients, and he did not believe that the Pacific coast was worse than the Atlantic coast in this regard. Cases ascribed to overwork, overeating, etc., were not infrequently the result of syphilis. The disease should be eliminated as an etiologic factor before treatment was instituted.

Dr. F. M. POTTERING, of Los Angeles, said that Doctor Taylor had asserted a few years ago that typhoid fever was not infrequently followed by hardening of the arteries. In his own work he had observed that some hardening was usually present in tuberculous patients after two years.

Doctor KINYOUN said that in the post mortem examination of tuberculous subjects he had found marked arterial changes in forty per cent. of the cases. They must have been due to causes like alcoholism, syphilis, etc., as they antedated the tuberculosis.

Doctor BISHOP said that in his own experience no cause could be assigned in about nine tenths of the cases. In the remaining one tenth the causes were alcohol, lead, syphilis, or one of the other causes ordinarily cited. Too much attention was paid to the advanced cases, and not enough to the incipient cases, although the latter were the most important. Bacterial arteriosclerosis was due to protein poisoning, as suggested by Doctor Morris. Heredity was only a matter of susceptibility after all. He com-

mended Doctor Osborne's definition of iodine as a thyroid stimulant rather than an alternative in these cases. He did not believe in excluding all protein from the diet. The efforts should be to ascertain the particular protein causing the trouble and eliminate it. It was revealed by the special craving of the patient for it when it was withdrawn. As to laborers, many of them had syphilis, and all of them overate. As to salines: A circular issued by the physicians of Carlshad advised against sending patients with advanced arteriosclerosis there as they did not do well. It was the custom to send them to Nauheim—in other words, to put the patient into the mineral water and not the mineral water into the patient. Table salt and all salts were unfriendly to arteriosclerosis. He saw many patients who had taken salines for years and it was necessary for him to overcome the prejudice in their favor.

**Antityphoid Inoculations.**—Dr. F. F. RUSSELL, of the Medical Corps, U. S. A., largely by statistical tables and graphic charts, summarized the effects of antityphoid vaccination up to the close of the year 1912 in the United States Army, both at home and abroad, among the officers and enlisted men. During the last four years approximately 200,000 persons had been immunized, entirely without fatalities, or any untoward results. In the Army none but the healthy was immunized, any illness, of whatever nature, automatically postponing vaccination until after recovery. The immunity, no doubt, diminished gradually, as after vaccination against smallpox. The custom at present was to revaccinate at the beginning of each four year period of enlistment, not because all immunity had disappeared, but because it seemed unwise to trust to anything less than the maximum immunity obtainable. The practice of vaccinating against typhoid had been a pronounced success in the Naval and Military services, in hospitals, schools, institutions, among pleasure seekers and in contractors' camps, especially those located on watersheds; in fact, everywhere in civil and military life where it had been used. Its more general use, especially among the young, was advisable. The fact that it occasionally failed to afford complete protection was not a valid objection to its use, but rather an indication for its repetition, at intervals to be determined upon in the future. It would certainly prove as efficacious in civil life as in the Army, and its extended use would hasten the time when typhoid fever would become a negligible factor in our public health problems.

**Current Developments and Problems in Vaccine Therapy.**—Dr. A. PARKER HITCHENS, of Glenolden, Pa., suggested that the limitations which at present characterized the treatment of infections by means of vaccines were not permanent and that further investigation would result in a wide extension of their field. After discussing autoserotherapy, regional infections, anaerobic bacteria, the preparation of vaccines, etc., the writer said that mixed vaccines were often of service in the common acute, subacute, and chronic catarrhal inflammations of the respiratory mucous membranes. The most promising field of study for the laboratory man today was the relation of the infecting bacteria to the blood and lymph supply,—the possibility of bringing the antibodies formed as a result of the injections into contact with the infecting bacteria. He suggested the use of drugs in infection of the organs to whip up the circulation locally, when the blood was stagnant, as in certain catarrhal conditions of the nose and throat, to remove the stagnation and renew the blood locally, and when the content of blood in antibodies was greatest, to cause a temporary local congestion with a resulting hypersecretion of mucus and increased outflow of lymph. There were such drugs, and it was through studies along this line, in conjunction with a more practical knowledge of the pathological changes in infection, that better results in vaccine therapy were to be obtained.

Dr. F. E. STEWART, of Philadelphia, suggested that some of the good results reported after antityphoid inoculation might be due, in part at least, to modern hygienic methods, screening from flies, etc.

Doctor KINYOUN said that he could not fully agree with Doctor Hitchens as to the use of mixed vaccines. His experience with them had been unsatisfactory. The best results were obtained from individual sera. The secret of success lay in determining the cause of infection in each case as nearly as possible, and acting accordingly. There was no doubt but that a great advance had been

made in the prevention of typhoid by the introduction of antityphoid inoculation in the army. Among the people at large, however, the reaction to the injections interfered with its usefulness. People were loath to submit to vaccination, and still more loath to submit to antityphoid inoculation, particularly after they had had one injection. Some way should be found to lessen the unpleasant effects of the first dose.

Doctor HITCHINS said that according to Robertson, who had had considerable experience in this line, the vaccines were of value in pneumonia. Not infrequently they failed, however, and it was impossible to predict when failure would occur. He had felt as Doctor Kinyoun did about the use of mixed vaccines until after he had had considerable experience with them, and he had waited before expressing his views until he had become convinced that his conclusions were fully justified by the results. A hodgepodge or shotgun vaccine could not be condemned too severely; but in some cases of mixed infection the indications were clear, and mixed vaccines could be used to advantage.

Doctor OSBORNE asked Doctor Hitchens whether he had had any experience with antirheumatic vaccination.

Doctor HITCHENS replied that he had had no personal experience with it. If, however, rheumatism was caused by a specific microbe and that microbe was employed in treatment he believed that a clinical result could be obtained provided that the antibodies came into contact with the infecting bacteria. Therein, however, lay the difficulty. In rheumatism, as in tetanus and tonsillitis, by the time symptoms appeared the toxins had united chemically with the cells and the problem was to get the antibodies to reach them.

**Di oxydiamidoarsenobenzenemonomethane Sodium Sulphonate in Syphilis of the Nervous System.**—Dr. EDWARD D. FISHER, of New York, stated that this comparatively new remedy was an important aid in the treatment of syphilis of the nervous system, both in the early manifestations (i. e., cerebrospinal syphilis) and in the so called parasyphilitic forms of tabes and general paresis. With the control examinations of the blood and cerebrospinal fluid it was a rational method of treatment, indicating by the presence or absence of the Wassermann reaction the necessity for continuance or cessation of treatment. With the discovery of the spirochetes in the brain and spinal fluid in tabes and general paralysis, the indication for removing the active agent of syphilis became mandatory. It should be remembered, however, that after definite pathological changes had taken place nothing further could be accomplished, beyond preventing the extension of the disease by the still active agent. Too much emphasis, therefore, could not be placed upon the importance of early diagnosis. If employed at the proper time, the remedy could effect much in staying further progress of syphilitic disease of the nervous system.

Doctor KINYOUN said that during the last two and a half years he had examined a number of tubercular patients for syphilis and had found a strong positive Wassermann reaction in about thirty per cent. of the cases. He was still pursuing the investigation at an institution for boys between twelve and eighteen years of age. So far he had found a positive reaction in twenty-three per cent. of the boys examined.

Doctor FISHER, in closing, said that the effect of the new remedy in neuritis had been rather favorable than otherwise. The Wassermann test was of great value in doubtful cases, like hereditary syphilis, and where there was doubt as to the nature of mental disease, for example, in some cases of general paresis. The use of a new remedy like this, so easy of administration, was liable to be carried to extremes; it sometimes fell into wrong hands and hopes of cure were engendered that were not to be fulfilled; on this account he thought it well to sound a note of warning as to the small proportion of cases in which a cure could be expected after a certain point had been reached.

**Copper Chemotherapy with Special Reference to the Double Tartrate of Copper Oxide and Sodium.**—Dr. WILFRED M. BARTON, of Washington, D. C., explained that the experimental part of the investigation was divided into the following headings: 1. Chemical and pharmacological; 2, bacteriological and therapeutic; 3, summary and conclusions. The conclusions were in part as fol-

lows: 1. The only compound of copper at present available for intravenous injection was a double salt, such as the double tartrate of copper oxide and sodium; 2, the minimum fatal dose in terms of CuO for frogs was 0.0005 gramme, for rabbits (1 kilogram), 0.0159 gramme, and for dogs (3 kilos) 0.15 gramme; 3, the chief effects of poisonous doses was a primary stimulation and subsequent paralysis of the peripheral terminations of the motor nerves, involuntary muscle, and the heart muscle; 4, the solution of the double salt was powerfully antiseptic; 5, a quantity corresponding to 0.0053 gramme of CuO prevented the development of an otherwise fatal pneumococcus peritonitis in rabbits, and a like quantity would arrest staphylococcemia in the rabbit; 6, one half c. c. of the solution of the double salt representing 0.0026 gramme of CuO could be injected intravenously into a rabbit weighing two pounds without any subjective or objective symptoms; 7, the chief objection to the method lay in the fact that the double salt was unstable and the solution must be freshly prepared and specially titrated before being used.

**The Application of Some Muscular Tissue Adapted to Physiologic Standardization.**—Dr. F. E. STEWART, of Philadelphia, with the collaboration of PAUL S. PITTINGER, Phar. D., of Philadelphia, presented a paper which was a preliminary report describing experiments for the standardization for fluid extract of ergot by measuring its physiological action upon nonstriated muscular tissue. The muscular tissue of uteri from nonpregnant guinea-pigs was used. The technic was explained in detail and the results shown upon charts.

**The Treatment of Pneumonia with Mercury and Sulphur Internally.**—Dr. LOUIS KOLIPINSKI, of Washington, D. C., remarked that the treatment was applicable in both croupous and catarrhal pneumonia and in patients of all ages. It appeared to end the infectious process in the lungs in a very short time. In patients who responded to the remedy there was a speedy decline and cessation of the fever and the expectoration of much mucopurulent sputum. In croupous pneumonia the rusty sputum was not abundant and was much less tenacious and gluey. Treatment should be given for several days, long enough to determine whether the patient reacted favorably. The medicine was administered regularly at two and three hour intervals (two hours by day and three hours by night) for two or three days. When the thirty-second dose did not produce catharsis, half an ounce of castor oil was given to empty the bowels. It was also useful to lessen the discomfort in case the mercury and sulphur combination caused free purgation and colicky pains. When the evening temperature was normal and recovery began, the mixture was given for several days at four to six hours' intervals. Should no change in the symptoms occur by the end of the third or fourth day, the treatment had failed, and the cause would be found in a complication not previously detected or in an error of diagnosis. The formula of the mercury sulphur combination was as follows:

Hydrargyri bichloridi corrosivi, .....	gr. ss	.03;
Sulphuris præcipitati, .....	3ii	8.00;
Aque destillatæ bullientis, .....	f3iv	120.00.

M. S. Shake and give quickly one teaspoonful every two and three hours.

(To be continued.)

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

**The Health Care of the Baby.** A Handbook for Mothers and Nurses. By LOUIS FISCHER, M. D., Attending Physician in Charge of the Babies' Ward of Sydenham Hospital, and to the Willard Parker and Riverside Hospitals, etc. Fourth Revised Edition. New York and London: Funk & Wagnalls Company, 1913. Pp. 148. (Price, 75 cents.)

In this fourth revised edition of his book for mothers Doctor Fischer has incorporated the latest ideas regarding infant feeding, a subject which is constantly under-



going improvement and at the same time becoming more simple for home management. The author gives the simple whole milk method and also the top milk method, unfortunately not indicating a preference or giving reasons for the use of one rather than the other. As a rule, the directions given for the mother are lucid and leave nothing to the imagination, a necessary precaution in a book of this kind. The book is written in the spirit of helpfulness, not only to the mother but also to the doctor—for the parent learns when it is necessary to obtain aid and how she may be of assistance until the physician arrives. Several inconsistencies have crept in, such as advice to syringe the nose for colds and warning never to syringe it, and again, the use of force and puffed rice in the dietaries, only later to be told that all cereals must be steamed for two hours. It might also be better to recommend a mosquito screen or bar than an essential oil for the pillow, as a prophylactic against malaria. These handbooks are much used by mothers, and this one can safely be recommended, as the knowledge gleaned by the mother will inspire confidence and answer the innumerable questions propounded by the new mother to her physician.

*Die vergleichende Methode in der Experimentalphysiologie.* Von WILHELM TRENDLENBURG, in Innsbruck. Nach einem vor der medizinischen Fakultät und den Zuhörern der physiologischen Vorlesung am 23. Oktober 1912 gehaltenen Antrittsvortrag. Jena: Gustav Fischer, 1913. Pp. 27.

Professor Trendelenburg in his lecture on the comparative method in experimental physiology calls attention to the great value of this form of investigation. There are so many most important questions as yet unsolved that can be approached only by way of comparing results. As yet the question remains unsettled as to where the site of the irritability of the heart is situated, whether within the muscle or the nerves. In regard to the function of the central nervous system very much information has been obtained by studies on the ape. In fact there is no function of the body that cannot be rendered clearer by such comparative study. This small pamphlet of twenty-four pages contains an interesting review and forecast of the possibilities of such a method.

*Analyse des Harns.* Zum Gebrauch für Mediziner, Chemiker und Pharmazeuten, zugleich elfte Auflage von Neubauer-Huppert's Lehrbuch. Bearbeitet von A. ELLINGER, H. EPPINGER, F. FALK, F. N. SCHULZ, K. SPIRO, und W. WIECHOWSKI. Zweite Hälfte. Mit Textabbildungen, 6 lithographischen Tafeln und einer Logarithmentafel. Wiesbaden: C. W. Kreidel, 1913. Pp. xxi-683 to 1657.

This is an exceptionally complete reference book on analysis of the urine. It is of the nature of an encyclopedia. The references are extraordinarily complete and the printing excellent. It has, of course, because of its completeness, a limited field of usefulness. To the physiological chemist, or the clinical pathologist, it should be invaluable.

*The Practice of Urology.* A Surgical Treatise on Genitourinary Diseases, Including Syphilis. By CHARLES H. CHETWOOD, M.D., LL.D., Professor of Genitourinary Surgery, New York Polyclinic, Visiting Genitourinary Surgeon to Bellevue Hospital, etc. Profusely Illustrated. New York: William Wood & Co., 1913. Pp. viii-816.

It is rather a commonplace to praise a new textbook without reserve, and yet it is difficult to find fault with the one in hand. The subjects are well arranged and clearly exposed. The illustrations are unusually good, those illustrating the passage of sounds and catheters under various conditions being far more illustrative than any we have seen. One could dispute the author's views on certain topics, but this only where these topics are confessedly unsettled. One could find little evidences of carelessness in this as in all other books; such as, for example, figure 248 (representing a renal calculus that looks like a comet), which is upside down. The use of black faced type within the paragraph is much too lavish in certain portions of the book, since it spoils the appearance of the page and by emphasizing too much succeeds in emphasizing almost not at all. But these are minor defects in what is after all the best book upon urology that has been published in English in many a day.

*Die Gesetze der Leukozytenmigration bei entzündlichen Prozessen.* Von Dr. med. M. LÖHLEIN, a. o. Professor an der Universität Leipzig. Jena: Gustav Fischer, 1913. Pp. 26.

This monograph of twenty-five pages was written as a criticism of H. Schridde's studies of inflammatory processes. Löhlein, after a brief general introduction, discusses the method by which an increase of leucocytes obtains in the circulating blood. The laws governing the emigration of the leucocytes are next taken up, and this requires considerable space for its presentation. The third portion is devoted to the laws governing the actions of leucocytes in inflammatory areas and in pus. The author cites many references in order to prove his case, but it always remains a question as to whether such discussions bring one any nearer to a correct conclusion.

## Official News.

### United States Public Health Service Intelligence:

*Official list of changes of stations and duties of officers of the United States Public Health Service for the seven days ended July 23, 1913:*

**Anderson, J. F.**, Surgeon. Detailed to represent the Service at the Annual meeting of the Association of Massachusetts Boards of Health at Gallop's Island, Boston, July 31, 1913. **Burkhalter, J. T.**, Passed Assistant Surgeon. Directed to proceed to Tuckerton, N. J., to arrive on the morning of July 23, 1913, thence to Atlantic City, N. J., to arrive July 26, 1913, for the purpose of making the annual physical examination of keepers and surmen of the Life Saving Service. **Creel, R. H.**, Passed Assistant Surgeon. Upon being relieved by Surgeon W. W. King, directed to proceed to Washington, D. C., and report to the Director of the Hygienic Laboratory for duty. **Francis, E.**, Surgeon. Directed to proceed to Savannah, Ga., and other localities in Georgia and South Carolina on special duty in connection with the investigation of pellagra. **Gochicoa, A. E.**, Acting Assistant Surgeon. Granted four months' leave of absence, without pay, from May 16, 1913. **Grimm, R. M.**, Passed Assistant Surgeon. Directed in connection with field studies of pellagra in Georgia and South Carolina, to extend the investigations, when necessary, to the State of Mississippi. **Hart, G. G.**, Acting Assistant Surgeon. Directed to make the annual examination of keepers and surmen of the Life Saving Service who may present themselves at the Delaware Breakwater Quarantine Station. **King, W. W.**, Surgeon. Relieved from duty at Naples, Italy, and directed to proceed to San Juan, P. R., for duty as Chief Quarantine Officer. **Neill, M. H.**, Assistant Surgeon. Relieved from duty at the Hygienic Laboratory and directed to proceed to Cincinnati, Ohio, and report to Passed Assistant Surgeon W. H. Frost for duty in connection with the investigation of pollution of the Ohio River. **Ridlon, J. R.**, Passed Assistant Surgeon. Directed to proceed by way of Washington, D. C., to Raleigh, N. C., on special temporary duty. **Rucker, W. C.**, Assistant Surgeon General. Detailed to represent the service at the Annual Conference of Health Officers of the State of Vermont, at Burlington, August 4 to 7, 1913. **Sprague, E. K.**, Surgeon. Leave of absence for one month from July 1, 1913, amended to read, "One month and seven days' leave of absence from July 6, 1913. **Stimpson, W. G.**, Surgeon. Directed to make the annual physical examination of keepers and surmen of the Life Saving Service who may present themselves at the Marine Hospital office, 410 Chestnut Street, Philadelphia, Pa. **Stoner, G. W.**, Senior Surgeon. Directed to proceed to Asbury Park, N. J., not later than the morning of July 22, 1913, for the purpose of making the annual physical examination of keepers and surmen of the Life Saving Service. **Sundwall, John**, Assistant Surgeon. Granted one year's leave of absence, without pay, from July 1, 1913. **Vogel, C. W.**, Surgeon. Granted one month's leave of absence from August 4, 1913. **Warren, B. S.**, Surgeon. Directed to proceed to Ocean City, Md., about July 21, 1913,



thence to Chincoteague and Wachapreague, Va., for the purpose of making the annual physical examination of keepers and surmen of the Life Saving Service. **Wertenbaker**, C. P., Surgeon. Directed to proceed to Cape Charles, Va., not later than the morning of July 24, 1913, for the purpose of making the annual physical examination of keepers and surmen of the Life Saving Service.

#### Appointments.

Dr. Daniel S. Baughman, Dr. James B. Laughlin, and Dr. Harry M. Thometz, commissioned Assistant Surgeons in the Public Health Service.

#### Board Convened.

Board of medical officers convened to meet at the Marine Hospital, San Francisco, Cal., at 11 o'clock a. m. Monday, July 28, 1913, for the physical examination of First Lieutenant H. G. Hamlet, United States Revenue Cutter Service, to determine his fitness for promotion. Detail for the board: Surgeon R. M. Woodward, chairman; Passed Assistant Surgeon J. M. Holt, recorder.

### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending July 25, 1913:*

**Carr**, D. P., Captain. Will make not to exceed eight visits to New York city between August 1 and November 1, 1913, for the purpose of special study in eye refraction, and upon the completion of the duty enjoined will return to his proper station after each visit. **Davis**, A. D., Captain. Granted two months' leave of absence with permission to apply for an extension of twenty-five days. **Dosher**, J. A., First Lieutenant Medical Reserve Corps. Is ordered to active duty in the service of the United States for the period from July 21 to 30, 1913. He will proceed on July 21st to Ft. Caswell, N. C., and report for duty and on the completion thereof will return to his home by July 30th, and stand relieved from active duty in the Medical Reserve Corps. **Gilchrist**, H. L., Major. Will proceed to Montgomery, Ala., and report to the governor of Alabama for the purpose of assisting in the reorganization of the sanitary troops of that State, and upon the completion of this duty will return to his proper station in Ft. Hamilton. **Goldthwaite**, R. H., Captain. Returned to Ft. Hamilton, July 20th, from temporary duty at Fort Jay. **McDiarmid**, N. L., Captain. Ordered to Fort Winfield Scott, Cal., for temporary duty from Presidio of San Francisco, Cal. **Michie**, Henry C., Jr., First Lieutenant Medical Corps. Will proceed to the Walter Reed General Hospital, District of Columbia, and report in person to the commanding officer of that hospital for observation and treatment. **Miller**, Reuben B., Major. Is relieved from further duty with the Second Division, Texas City, Texas, and will proceed to Fort Wayne, Mich., for the purpose of transferring the public property for which he is accountable. Major Miller will stand relieved from duty at Fort Wayne upon the completion of the transfer and will then repair to Washington and report in person to the commandant, Army Medical School, for assignment to duty as professor of sanitary chemistry, relieving Major Carl R. Darnall of that duty. **Rhoads**, Thomas L., Major. Relieved from duty at the Walter Reed General Hospital, District of Columbia, and will proceed to Winchester, Va., and report in person to the commanding officer, Provisional Cavalry Brigade, for duty, and upon the completion thereof will proceed to Philadelphia, Pa., for duty as attending surgeon in that city. **Shields**, W. S., Captain. Arrived at Texas City, July 18th, assigned to Fourth Infantry.

The following named medical officers are relieved from duty in the Philippine Department to take effect after August 15, 1913, and will proceed to the United States and upon arrival report by telegraph to the adjutant general of the army for further orders: Lieutenant Colonel Henry A. Shaw, Captain Charles T. King, Captain Mark D. Weed, Captain Wayne H. Crum, Captain W. Cole Davis, First Lieutenant, Medical Reserve Corps, John R. Hereford.

The following named medical officers are relieved from duty in the Philippine Department, to take effect after

September 15, 1913, and will proceed to the United States and upon arrival report by telegraph to the adjutant general of the army for further orders: Captain Thomas D. Woodson, First Lieutenant, Medical Reserve Corps, Elmer S. Tenny.

The following changes in the stations and duties of officers of the Medical Corps are ordered: Major William H. Wilson is relieved from duty at Fort McKinley, Me., and will proceed to Fort McDowell, Cal., and report in person to the commanding officer of that post for duty. Major James L. Bevans is relieved from duty at San Francisco, Cal., to take effect upon the expiration of the leave of absence heretofore granted him, and will then proceed to Fort McKinley, Me., and report in person to the commanding officer of that post for duty and by letter to the commanding general, Eastern Department. The travel directed is necessary in the military service.

The operation of paragraph 8, Special Orders No. 138, June 14, 1913, War Department, relating to Major Percy M. Ashburn, Medical Corps, is suspended for a period of four months.

### United States Navy Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy was reported during the week ending July 26, 1913:*

**Camerer**, C. B., Assistant Surgeon. Detached from South Dakota and ordered to temporary duty at Washington, D. C. **Crandall**, R. P., Medical Inspector. Detached from Norfolk receiving ship, ordered to command Naval Hospital, Canacao, P. I. **Dollard**, H. L., Passed Assistant Surgeon. Detached from Arkansas and ordered to New York Hospital, for treatment. **Halsey**, W. H., Assistant Surgeon. Detached from Montgomery; granted sick leave. **Higgins**, S. L., Passed Assistant Surgeon. Detached from New York Hospital and ordered to Arkansas. **Walton**, D. C., Assistant Surgeon. Ordered to Naval Hospital, New York.

## Births, Marriages, and Deaths.

### Married.

**Mason—Steiner**.—In Montgomery, Ala., on Tuesday, July 15th, Dr. E. Marvin Mason and Miss Helen Steiner. **Richardson—Mathey**.—In Needham, Mass., on Monday, July 21st, Dr. Frank Linden Richardson and Miss Constance M. Mathey. **Simkins—Saul**.—In Philadelphia, on Thursday, July 17th, Dr. James J. Simkins, and Miss Anna D. Saul. **Tanquary—Robertson**.—In Effingham, Ill., Dr. Ruel Tanquary, of St. Louis, Mo., and Miss Eva W. Robertson.

### Died.

**Basham**.—In Little Rock, Ark., on Tuesday, July 8th, Dr. John P. Basham, aged fifty-two years. **Blume**.—In Baker, Ore., on Friday, July 18th, Dr. Samuel Blume, of Riverhead, L. I., aged sixty-eight years. **Cravens**.—In Chicago, Ill., on Sunday, July 20th, Dr. James F. Cravens, aged seventy-eight years. **Doyle**.—In Syracuse, N. Y., on Wednesday, July 23d, Dr. Gregory Doyle, aged seventy-three years. **Ellis**.—In Detroit, Mich., on Saturday, July 12th, Dr. Lucien E. Ellis, aged sixty-three years. **Evans**.—In Kansas City, Mo., on Sunday, July 20th, Dr. W. H. Evans, aged seventy-three years. **Fulton**.—In Kansas City, Mo., on Tuesday, July 15th, Dr. A. L. Fulton, aged seventy years. **Glass**.—In Johnstown, Pa., on Saturday, July 10th, Dr. Joseph H. Glass, aged fifty-eight years. **Kemp**.—In Baltimore, Md., on Thursday, July 10th, Dr. William A. Kemp, aged sixty-four years. **McCormick**.—In Leavenworth, Kan., on Thursday, July 17th, Dr. John McCormick, aged eighty-seven years. **McLellan**.—In Quincy, Mass., on Wednesday, July 23d, Dr. Roderick McLellan, aged fifty-four years. **Osborne**.—In Milton, Pa., on Tuesday, July 22d, Dr. James A. Osborne, aged seventy-three years. **Schaefer**.—In Canajoharie, N. Y., on Saturday, July 19th, Dr. John Frederick Schaefer. **Wright**.—In Paris, France, on Saturday, July 19th, Dr. A. L. Wright, of Iowa, aged sixty-three years.

# New York Medical Journal

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### Original Communications.

#### DYSENTERY IN THE TROPICS.\*

BY EUGENE R. WHITMORE, M. D.,

New York,

Major, Medical Corps, U. S. Army.

Dysentery was known in old Egyptian and Indian medicine, and the disease, "atisar," described in old Sanskrit writings, corresponds exactly to the picture of dysentery. Herodotus described as the "war plague" what is probably the epidemic form of today. The later writers of the Greek and Roman periods distinguished "lienteria, dysentery, and tenesmus," and since that time the disease has been known as dysentery. In the Middle Ages it was frequently called "soldier's plague."

Dysentery is endemic throughout the tropics, and epidemics are extremely common there. However, the disease is by no means confined to the tropics, but is met with in subtropical, temperate, and cold climates. Most of our diseases are cosmopolitan in distribution, but their prevalence varies greatly with the climate. Dysentery is the same disease in the tropics that it is in temperate climates; but it is one of the commonest diseases in the tropics, is one of the leading causes of death there, and is prevalent the year around. The United States Army Board for the Study of Tropical Diseases,<sup>1</sup> in speaking of an epidemic of dysentery in the Philippine Islands, in 1911, says: "Clinically, the most striking feature was the tremendous mortality. Not a convalescent was found or reported, and only one living patient sick more than a week was seen." Castellani and Chalmers<sup>2</sup> say: "In the tropics dysentery is a more potent factor in the death rate than is malaria, though the latter may cause more illness."

It had long been known that there were two types of dysentery; one which was "endemic," without any great tendency to spread in epidemic form; and another form which had a great tendency to develop extensive epidemics in the tropics and subtropics, and also in temperate and cold climates, especially in armies and institutions. In 1875, Lösch<sup>3</sup> considered that amebæ were the cause of dysentery, and Kartulis<sup>4</sup> and others confirmed this work; but the point remained in dispute, as amebæ were not generally found in the epidemics of dysen-

tery, and, on the other hand, amebæ were often found in the stools of healthy men. Councilman and Lafleur (1891)<sup>5</sup> made an extensive study of amebic dysentery, which they distinguished from the diphtheritic form of the disease. They considered the *Ameba dysenteria* to be the cause of amebic dysentery, and suggested that there were several species of amebæ, which under certain conditions and in certain localities may inhabit the colon.

In 1898, Shiga<sup>6</sup> found a bacillus as the cause of an epidemic of dysentery in Japan. In 1900, Flexner<sup>7</sup> found a bacillus in dysentery cases in Manila, and very soon this work was confirmed from all parts of the world; and so dysentery without amebæ was explained. In 1903, Schaudinn<sup>8</sup> showed that there were two species of amebæ parasitic in the intestine of man—one, a harmless commensal, frequently found in the intestine of healthy men, and a pathogenic species that causes ulcerative dysentery. Thus was explained the frequent finding of amebæ in the intestine of healthy men.

So, leaving aside the rare forms, we have two forms of dysentery—amebic and bacillary—which differ in etiology and morbid anatomy, and require different treatment.

Amebic dysentery, also spoken of as "endemic" or "tropical" dysentery, has its home in the tropics, though it is by no means limited to the tropics, as it occurs in the temperate zone. The disease is endemic in the southern part of the United States, and sporadic cases are met with in the Northern States. The disease is due to a parasitic ameba which was first properly described by Viereck<sup>9</sup> and Hartmann,<sup>10</sup> in 1907.

**Morbid anatomy.** The lesions in the intestines begin as areas of infiltration in the submucosa of the large intestine—the lower part of the small intestine is rarely involved. The amebæ may pass through the mucosa, directly to the submucosa, but there is generally a small area of erosion, with three or four gland ducts involved. The amebæ pass down the gland duct, and, by their necrotising action, destroy the cells lining the duct, and so gain entrance to the submucosa. This superficial area of erosion is surrounded by normal mucosa, and, as the main part of the process is in the submucosa, the process has been likened to a boil in the submucosa, and pointing on the surface of the mucosa. The tissue in the in-

\*Read before the Medical Association of the Greater City of New York, May 29, 1913, and published with permission of the Surgeon General, U. S. Army.

<sup>1</sup>Report of the Surgeon General, U. S. Army, 1912.

<sup>2</sup>Castellani and Chalmers: *Manual of Tropical Medicine*, 1910.

<sup>3</sup>Lösch: *Virchow's Archiv*, 1875.

<sup>4</sup>Kartulis: *Ibidem*, 1885, 1889; *Centralblatt für Bakteriologie*, etc., 1887, 1890, 1891.

<sup>5</sup>Councilman and Lafleur: *Johns Hopkins Hospital Reports*, 1891.

<sup>6</sup>Shiga: *Centralblatt für Bakteriologie*, etc., 1898.

<sup>7</sup>Flexner: *Johns Hopkins Hospital Bulletin*, 1900; *Centralblatt für Bakteriologie*, etc., 1900.

<sup>8</sup>Schaudinn: *Arbeiten aus dem kaiserlichen Gesundheitsamte*, 1903.

<sup>9</sup>Viereck: *Archiv für Schiff- und Tropen-Hygiene*, xi, Beih. i., 1907.

<sup>10</sup>Hartmann and Pleschke: *Archiv für Protistenkunde*, x, 1907.

volved area becomes necrotic, the mucosa over this area breaks down, and, as the slough separates, an ulcer is left, with its base in the submucosa, or in the muscular coat; or it may extend to the serous coat. As the necrosis is more extensive in the submucosa, the ulcer has undermined edges, and two ulcers may join in the submucosa, leaving a bridge of practically normal mucosa between them. The mucosa between the ulcers is everywhere practically normal (Fig. 1). Great areas of mucosa may be-

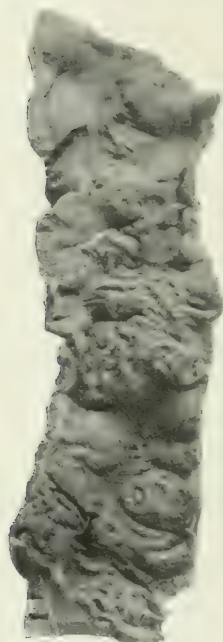


FIG. 1.—Descending colon; amebic dysentery.

come gangrenous; but this is probably due, in part, to a mixed infection. The scar tissue formed in the healing of these ulcerations may give rise to distortion or stricture of the bowel. The ulceration may involve the appendix, and it may be limited to the appendix.

The amebæ, burrowing deep in the tissues around the ulcerations, get into the bloodvessels and the lymph spaces, and may be carried to the liver, and there produce the so called tropical liver abscess. Councilman and Lafleur were of the opinion that the amebæ traveled directly through the peritoneal cavity to the liver. The abscess contains necrotic material which is usually bacteriologically sterile; the

walls of the abscess are ragged, and consist of necrotic liver tissue which contains amebæ. Outside of this necrotic layer is a layer of infiltration, and outside of this, the normal liver tissue. Here, as well as in the intestine, the infiltration is due to proliferation of the connective tissue cells, and there is an absence of purulent inflammation, unless there is a secondary infection with pyogenic bacteria. The contents of the abscess are not like bacterial pus—they are composed of necrotic liver tissue, and contain only such leucocytes as were in the tissue which has become necrotic. The process is not so clear in the intestine, as there granulation tissue is formed from the bacterial infection which always occurs. When a liver abscess points, it may rupture into the lungs or the pleural cavity, or it may rupture in any direction and into any structure around the liver.

**Symptoms.** The disease is usually subacute from the onset. There is slight fever, pain in the abdomen, and diarrhea, with mucus and blood in the stools; but it may be acute in onset, with fever, great prostration, great pain, and frequent passage

of bloody, mucous stools. The disease may be very mild, or liver abscesses may develop without there being any symptoms of dysentery at all. Possibly some of these abscesses occur in cases where the ulceration is confined to the appendix, and it is possible that, in the same way, we can account for some of the cases reported in which the dysentery ameba is found in the stools of persons who have no dysentery. Amebic dysentery does not tend to spontaneous recovery, but rather to become chronic, with periods of latency.

**Complications.** The great danger is liver abscess, which occurs in one in four, to one in ten, or less, of the cases. There may be perforation of the bowel, or peritonitis. Hemorrhage from the bowel may occur as a result of bloodvessels being opened up by the ulceration; but the vessels are usually thrombosed, so that hemorrhage is rather rare.

The diagnosis is made by finding the amebæ in the stool. The stool should be fresh when examined, and should be kept warm; otherwise the amebæ will not be motile, and it is dangerous to attempt to make a diagnosis of amebæ, in the fresh state, unless ameboid motion is seen. Swollen epithelial cells, or swollen connective tissue cells, may have the appearance of amebæ. Unless ameboid motion is seen, smears should be made and stained for study in the ordinary way. In case of doubt, the material may be fed to, or injected into the rectum of young kittens. In liver abscess, besides the physical signs of abscess, the leucocytes usually run from 18,000 to 20,000, while in uncomplicated amebic dysentery they run from 10,000 to 11,000. If the abscess ruptures into the lung, there is a chocolate colored sputum containing amebæ.

**Prognosis.** The tendency to relapse is characteristic. The great danger is liver abscess, and, in the tropics, the mortality from amebic dysentery and its complications runs as high as sixty per cent.

**Treatment.** The patient is to be put to bed and placed on a liquid diet. For years ipecac has held its place as the most satisfactory remedy in the treatment of amebic dysentery, and all other treatments have been tried merely to find a substitute, on account of the difficulty attendant upon the giving of ipecac. Vedder<sup>11</sup> undertook to find out what principle in ipecac was active against amebæ. He found that emetine killed culture amebæ in very high dilution, and that deemetinized ipecac had no special action against culture amebæ. Some specimens of emetine killed amebæ in higher dilution than did other specimens, and Vedder considered that this depended on a difference in the amount of emetine in different preparations. Some preparations of emetine are a mixture of two alkaloids, emetine and cephaeline. The alkaloid emetine is the principle which has a special action against amebæ. The amebæ are deep in the tissue; so, a drug, in order to get to them, must be carried in the blood. Rogers<sup>12</sup> treated a series of cases of amebic dysentery and liver abscess with emetine hypodermatically, and found that the dysentery was cured promptly, and that no nausea resulted from the use of the drug. Other observers have used emetine with uniformly good results, though some of them believe that the emetine is to be pushed

<sup>11</sup>Vedder: *Bulletin of the Manila Medical Society*, 1911.

<sup>12</sup>Rogers: *British Medical Journal*, 1912.



until slight nausea results. One case of liver abscess, draining through the lung, has been reported, in which there was prompt recovery following the administration of emetine.

One must be sure that he has a good preparation of the drug, and it is to be given subcutaneously or intravenously. Baermann and Heinemann<sup>13</sup> suggest that the treatment begin with one or two intravenous (in 100 c. c. of physiological salt solution) or subcutaneous injections of 150 to 200 milligrammes, followed, in the course of eight or ten days, by four or five subcutaneous injections of 100 to 120 milligrammes at intervals of two or three days. These authors consider that some amebæ, deep in the tissues, may escape the action of the emetine, and that the ulcers may heal over these amebæ. These amebæ may remain for days or months, and then start up the process again, and in this way amebæ may reappear in the stools from ten to seventy days after the first treatment. On this account, the stools must be watched for months, and treatment is to be repeated at intervals of three or four weeks. Baermann and Heinemann found that the emetine killed the amebæ in the tissues, and that the ulcers healed, even in the severe cases which terminated fatally. The cysts are not directly destroyed by emetine, and there are some strains of amebæ that are emetine "fast."

The treatment generally advised for liver abscess is prompt opening and drainage. Rogers advises emptying the abscess through a cannula, injecting one grain of emetine, dissolved in an ounce of water, through the cannula before it is withdrawn, and sealing the opening with collodion. He believes that most abscesses will heal promptly with this treatment, and will not require drainage to be left in. Emetine is to be given subcutaneously or intravenously at the same time.

Bacillary dysentery, also known as epidemic dysentery, frequently occurs in the tropics in the form of extensive epidemics. It also occurs in epidemic form in subtropical countries; and in temperate and cold countries sporadic cases occur from time to time, and at times epidemics prevail, especially in armies and institutions. During the civil war, the federal army had 285,000 cases of dysentery. Epidemics prevail in Japan, especially in the summer and autumn. In 1899 there were 126,000 cases in Japan, with 27,000 deaths. Bacillary dysentery is caused by the dysentery bacillus, of which there are two groups—the Shiga-Kruse group and the Flexner group. There are several strains in the Flexner group. The Shiga-Kruse<sup>14</sup> group causes a severe disease, with a mortality of twenty to thirty per cent., or even fifty to sixty per cent. The Flexner group, which is the one commonly met with in the United States, generally causes a milder disease with a lower mortality; otherwise, the morbid anatomy, symptoms, and treatment are the same for both groups.

The morbid anatomy of bacillary dysentery is that of an acute inflammation of the mucous membrane of the large intestine. The mucosa is swollen and intensely hyperemic, with spots of hemorrhage scattered through it. There is usually a

superficial necrotic layer, which can often be brushed off with the finger, but there is no ulceration (Fig. 2). When the process is severe, all coats of the large intestine may be involved, and the mucosa may become extensively necrotic or gangrenous. The process often involves the ileum, showing a hemorrhagic mucosa with superficial necrosis. In subacute cases the solitary follicles are

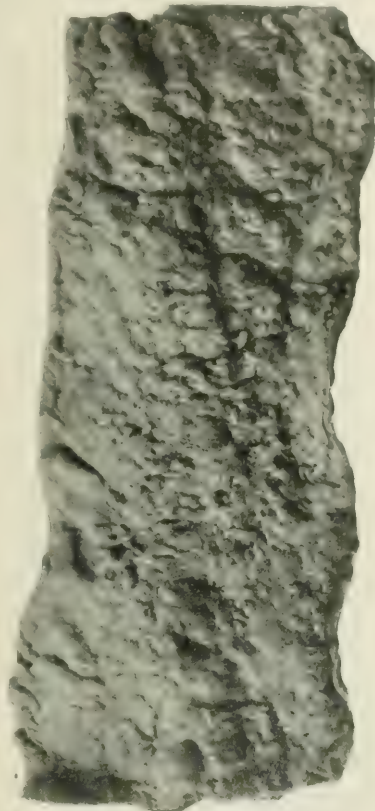


FIG. 2.—Descending colon; acute bacillary dysentery.

much swollen; there is less necrosis; and, while there are no ulcers, there are superficial erosions (Fig. 3).

**Symptoms.** After a short incubation period, the disease sets in rather suddenly with moderate fever, pain in the abdomen, and frequent passages of bloody, mucous stools. The disease runs its course like any acute infectious disease, and, in cases of moderate severity, the symptoms become less severe, and in from ten to twenty days the patient is convalescent. In severe cases the stools may contain sloughs of necrotic tissue; the patient becomes intensely intoxicated, passes into delirium and dies. The disease may be subacute, and last for months.

**Complications** are rare. Joint swellings are not uncommon in some epidemics. Peritonitis, per-

<sup>13</sup>Baermann and Heinemann: *Münchener medizinische Wochenschrift*, 1913.

<sup>14</sup>Shiga: *Deutsche medizinische Wochenschrift*, 1901.

foration of the intestine, and liver abscess are rare. Neuritis is not a very uncommon complication.

**Diagnosis.** The dysentery bacillus can commonly be isolated from the stools from the beginning of the disease. The bacillus is present in the superficial layers of the affected intestine; it does not commonly get beyond the mesenteric lymph nodes, though it has been found in the blood stream. After about four or five days the patient's blood serum agglutinates laboratory strains of the dysentery bacillus; and the serum agglutinates both groups of the organism, regardless of which group the infecting organism belongs to. To determine

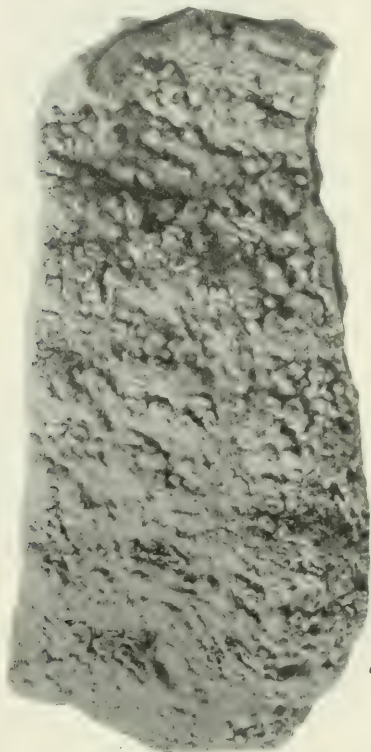


FIG. 3.—Descending colon; amebic dysentery.

to which group the infecting organism belongs it is necessary to isolate the bacillus from the patient's stool, and to test it out on sugar media and by agglutination with specific sera from immunized animals.

**Treatment.** No medicine influences, directly, the course of the disease, and, as it is ordinarily a self limited disease, the principal indications are to support the patient. Ipecac does not have any specific action, such as it has in amebic dysentery. Serum therapy has been employed with very satisfactory results. Shiga prepared a serum, with which he was able to cut down the mortality from the disease in Japan from 35.4 per cent. to 10.8 per cent.

Rosenthal<sup>15</sup> prepared a serum that was both antitoxic and bactericidal, and this serum was used, with good results, in the hospitals in Manchuria during the Russo-Japanese war. Vaillard and Dopter,<sup>16</sup> at the Institut Pasteur, prepared a serum which is both antitoxic and bactericidal. Using their serum in a series of over five hundred cases—of which 170 were severe and thirty-two were considered clinically as almost hopeless—they had a mortality of only 1.3 per cent. The serum is difficult to prepare, as small animals are not suited to immunization against the Shiga-Kruse group, on account of its great toxicity; and great care is necessary in immunizing the horse, as tolerance for the organism seems never to be acquired. Vaillard and Dopter do not consider it necessary to have a polyvalent serum, as a serum prepared by immunization with the Shiga-Kruse group of bacillus seems to act equally well against both groups of the organism. It is important to begin serum treatment early, and the dose of the serum varies from twenty to 100 c. c. daily. When the disease becomes chronic, local treatment of the intestinal mucosa, by irrigation, is important.

#### CONCLUSION.

We may sum up the important points in the two types of dysentery in a few words:

Amebic dysentery is endemic and does not ordinarily give rise to epidemics; bacillary dysentery gives rise to extensive epidemics.

Amebic dysentery is due to a protozoon; bacillary dysentery is due to a bacillus.

In amebic dysentery the process begins in the submucosa, from the specific tissue destroying property of the amebæ which have traveled in through the mucosa; bacillary dysentery is a diphtheritic or croupous process, involving the intestinal mucosa, and the submucosa is only secondarily involved.

Liver abscess is a frequent complication in amebic dysentery; it is very rare in bacillary dysentery.

Amebic dysentery tends to become chronic, with amebic relapses; bacillary dysentery is a self limited disease, with a tendency to complete recovery.

Ipecac, in the form of emetine, is specific in amebic dysentery; a specific antitoxic and bactericidal serum gives the best results in the treatment of bacillary dysentery.

524 RIVERSIDE DRIVE.

## ACUTE INFECTIOUS JAUNDICE IN CHILDREN.\*

BY CHARLES HERRMAN, M. D.,  
New York,

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In this paper I desire to emphasize the fact that there is a form of jaundice which occurs in children which has all the characteristics of an acute infectious disease. Many of our textbooks still speak of this disease as a gastroduodenitis due primarily

<sup>15</sup>Rosenthal: *Deutsche medizinische Wochenschrift*, 1903.

<sup>16</sup>Vaillard and Dopter: *Médeciments microbiens*, Paris, 1909.

\*Read at the annual meeting of the American Pediatric Society, Washington, May 5, 1913.

to indiscretions in diet. The infectious material, as yet unknown, seems to have an affinity for the bile passages in the same sense that the typhoid bacillus has for the follicular structures in the intestines.

The following report is based on ninety-eight cases seen during the last six years, chiefly at the Vanderbilt Clinic and at the Lebanon Hospital Dis-

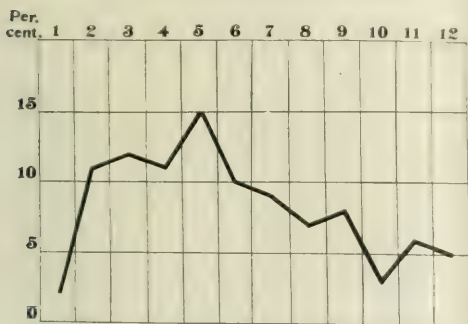


CHART 1.—Age incidence of acute infectious jaundice.

pensary. Twenty-five were seen during October, November, and December of 1912 and January, 1913. These were studied more carefully, and it is on them that the following data are chiefly based.

**Age incidence.** (Chart 1.) In the series of ninety-eight cases there was no patient under one year of age. The disease is exceedingly rare in young infants. Between one and two years the disease is uncommon—only two patients in ninety-eight. It is most common between the age of three and six. After that the number gradually diminishes.

**Seasonal incidence.** (Chart 2.) It will be immediately noted that the disease is especially prevalent during October, November, and December, over one half of the cases occurring during these three months. This fact alone would be a strong argument in favor of its infectious nature. Indiscretions in diet are certainly not more common in October and November. In Chart 2 I have added the curve of seasonal incidence drawn from the figures given by Flesch in a series of 188 cases recorded as occurring during a period of ten years at the Stephanie Hospital in Budapest. It will be seen that the curve corresponds very closely to my own. Several authors have noted that the disease is more prevalent when the autumn and winter are mild. This would hold true for our epidemic of last year in New York city.

In none of the last series of twenty-five cases was I able to ascertain that there had been any gross indiscretion in diet just previous to the attack, and in only three of the patients was there a history of previous attacks of indigestion which might indicate a predisposition. If the disease was dependent upon digestive disturbances we should expect it to be more common during the summer months, a time when, as the chart shows, the fewest cases occur. The disease is rare in infancy, when gastrointestinal disturbances are most frequent. Even when the duodenum is markedly affected, jaundice does not result. In several of my patients there was no di-

gestive disturbance at any time during the attack, and in ten of the last twenty-five, after the disturbance at the onset, the appetite was good and there was apparently no change whatever in the digestive functions. The vomiting which is frequently present at the beginning is probably toxic.

**Bacteriology.** The specific microorganism, if there is one, which causes this disease, has not yet been isolated. Jaeger, in a case of Weil's disease, found a *Bacillus proteus fluorescens*. Banti cultivated from the blood obtained by puncture of the spleen a capsulated bacillus which he called *Bacillus icterogenes*. Jaeger considered this identical with the one he had described. Possibly the examination of blood cultures and duodenal contents obtained by aspiration, by means of the duodenal catheter, may throw more light on the etiology.

Many authors have considered it most likely that the infection takes place through the digestive tract, on account of the initial gastric disturbance and the connection between the duodenum and common bile duct. However, this is not conclusive. From the fact that climatic conditions seem to play such an important part in the seasonal incidence of this disease, it is not unlikely that the infection takes place through the nasopharynx.

**Onset.** The most frequent symptoms at the onset were headache, lassitude, and anorexia, with vomiting and some rise of temperature. In only three of the last twenty-five cases was it distinctly stated that the patient had no fever. In thirteen there was vomiting, in eight no vomiting, and in the remaining four vomiting occurred once after the taking of a dose of castor oil.

**Symptoms. Fever.** At the time of observation the temperature was normal in six patients, from 99° to 100° F. in eight, from 100° to 101° F. in eight, and over 101° F. in three. As three of the six patients with a normal temperature were seen four or more days after the onset, it is not unlikely

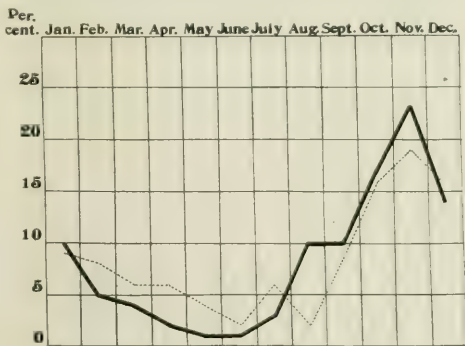


CHART 2.—Seasonal incidence of acute infectious jaundice.

that they may have had some rise of temperature previously.

**Pulse.** In none of the patients was the pulse slow. This peculiarity of the pulse in the jaundice of children has been pointed out by a number of observers. In those patients who had a distinct rise of temperature the pulse was correspondingly in-



creased. This may be due to the infectious character of this form of jaundice, as against other forms of obstructive jaundice more common in the adult.

*Pain* in the abdomen or epigastrium was noted in ten of the twenty-five patients; pain in the legs in three.

*Urine.* The urine became darker on the first day of the disease in two patients, on the second day in two, on the third in nine, on the fourth in five, on the fifth in three, and on the sixth day in two patients. In the remaining two the day was not noted. The color of the urine returned to the normal in one week in eight patients, in two weeks in eight, and in three weeks in eight patients. In one the time was not noted. In three cases the examination of the urine showed traces of albumin, but no casts. The color of the urine was found to give the most convenient method of determining the improvement in the jaundice. The exact color of the stools is not easily determined, and their offensive odor makes it disagreeable for the parents to bring them. The conjunctiva remains yellow long after the improvement has begun. The method employed was as follows: Five small vials numbered 1, 2, 3, 4, 5, were used. Number 1 contained a yellow liquid of the color of the average normal urine, and in numbers 2, 3, 4, 5 there was a yellow liquid of increasing depth of color. The urine of the patient was compared with these. In this way the improvement could be readily followed and the return to the normal ascertained.

*Stools.* The clay color of the stools was noted on the second day in six patients; on the third, in three; on the fourth, in three; on the fifth, in three, and on the sixth day in six patients. In four the day was not noted. As is well known, the light color of the stools is largely due to the presence of undigested fat. If fat is excluded from the diet the stools lose the characteristic clay color. The stools became normal usually at the end of two weeks. In twelve patients the *bowels* were regular; in four there was diarrhea, and in eight, constipation. In almost all the patients the *appetite* was poor at the onset, but after the initial disturbance had passed, the appetite was good in one third of the patients. The *conjunctiva* was noted to be yellow on the first day in two patients; on the second, in four; on the third, in six; on the fourth, in six; on the fifth, in two, and on the sixth day in two patients. The day was not noted in the remaining three. The color returned to the normal, on an average, at the end of the third week.

*Itching* was present in eight. These were the patients in whom the jaundice was the most pronounced.

*Liver.* The liver was palpably enlarged in twenty-one, and normal in only four. It was felt one finger below the costal margin in the mammary line in four; two fingers in twelve, and three fingers in five. In no case was it distinctly painful to palpation. With the improvement in the jaundice it gradually diminished in size, but was still palpable after the jaundice had entirely disappeared.

In six patients examined three or more months after the attack the liver and spleen were no longer

palpable. In no case was it possible to palpate the gallbladder.

*Spleen.* The spleen was palpable in ten patients; not palpable in fifteen. It returned to its normal size much more rapidly than the liver.

All but one patient recovered. Only one had a serious complication, namely, an otitis and mastoiditis which required operation.

The one *fatal case* which occurred in the midst of the epidemic was in a girl of twenty months, who was admitted to the Lebanon Hospital on November 30, 1912, at 10 a. m., and died four hours later. The family history was negative. There were several other healthy children. The patient had never had any acute infectious disease, the only sickness having been an attack of intestinal indigestion three months previous, which lasted about two weeks, from which the child made a good recovery. Twelve days before admission to the hospital the child had fever, vomited several times, and had slightly greenish stools. One week before admission, that is on the fifth day of the disease, the mother noticed that the urine was dark in color.

I examined the child one hour before she died. The temperature was 103.2° F., the pulse 160, and the respiration 60. She was already comatose. The conjunctiva was yellow. The liver was two fingers below the costal margin in the mammary line, and the spleen one finger below in the axillary line. An examination of the blood showed white blood cells 32,000; ninety-five per cent. polynuclear leucocytes. The urine obtained with catheter was acid, with a specific gravity of 1.020; dark yellow in color, with a yellow foam; albumin examination, positive; sugar, negative; white blood cells, red blood cells, and many hyaline, granular, and epithelial casts were present. This patient presented all the symptoms of a severe infectious jaundice, a type which is usually spoken of as Weil's disease. Except for its severity it was in no way different from the milder cases. An autopsy was not obtained.

*Treatment.* When the appetite is fair, as it is in many cases, it is only necessary to restrict the amount of fat in the diet. Soup, lean meat, vegetables, skimmed milk, and bread may be given. It has been customary to give so called cholagogues, but experiment has shown that most of these drugs have little or no cholagogue action. Whatever good effect is obtained is due primarily to an increase in intestinal peristalsis. In any cases the indication is not to increase the secretion of bile, but to facilitate its passage through the common bile duct into the duodenum. An increased secretion without a proper outlet would be rather a disadvantage. Bile is secreted continuously, but when the stomach is empty there is no flow of bile into the duodenum; it is stored up in the gallbladder. When the acid chyme from the stomach passes into the duodenum it reflexly stimulates the gallbladder to contract, the sphincter at the outlet of the common bile duct relaxes, and bile gushes into the duodenum. Some years ago a member of my family had a permanent biliary fistula following an operation on the gallbladder. It was noted that very little bile flowed from the fistula during the day, and very

much during the night. During the day the regular ingestion of food caused the gallbladder to empty its contents into the duodenum. At night no food was taken; the bile was stored in the gallbladder, and flowed out through the fistula. The amount of bile passing out through the fistula was easily reduced by giving a small meal late at night. In a paper published in the *NEW YORK MEDICAL JOURNAL* for September 22, 1906, I suggested that this method of giving small frequent meals might be applied in the treatment of certain biliary diseases, including infectious jaundice. Some years ago Gerhardt suggested that in some cases the distended gallbladder could be felt, and its contents expelled by pressure. The gallbladder is so rarely palpable that this is practically impossible. However, the same result may be obtained by the giving of small, frequent meals. The character of the food is of secondary importance. I usually give five or six small meals a day, the two or three additional ones consisting of a sandwich and a glass of skimmed milk. By the use of this method I believe I have been able to shorten the duration of the disease.

250 WEST EIGHTY-EIGHTH STREET.

### RETROCALCANEAN BURSITIS.\*

BY CHARLES STANLEY WHITE, M. D.,  
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There are several affections peculiar to the heel, the most interesting of which is inflammation of the bursa between the os calcis and the tendo Achillis. It has come in for very little consideration at the hands of pathologists or surgeons for the very simple reason that the disease is uncommon. Anatomists have noted the presence of the bursa for a very long time, and have taken into account two other bursæ in the immediate vicinity, besides a great many throughout the body. The fact that there are almost innumerable bursæ in the entire body has probably discouraged investigation along the clinical side, as the statement that seventeen exist in and about the elbow joint would tend to remove any tendency toward a systematic study of bursal affections. The literature in textbooks, and even of special articles, upon the retrocalcaneal bursa has been scant, and an accurate description has not been found available by the author, who supplemented by dissections such descriptions as were obtainable in a survey of literature in the Surgeon General's Library. No attempt is made to treat the subject exhaustively, and it is hoped that others with more time, patience, and scientific attainments will continue it.

Albert, of Vienna, in 1893, described the inflammation of this bursa, and it was promptly, but improperly, named Albert's Disease. Retrocalcaneal bursitis and achillodynia are terms used synonymously. Albert dwelt upon trauma as the cause, and opined that it was cellulitis about the tendon, or

even a periostitis; laying little or no stress upon the part played by the bursa. It remained for Max Muller, of Berlin, with true German persistency, to fix the pathological responsibility upon the bursa, which he did by injections and incisions into the bursa.

The normal bursa is difficult to demonstrate as an anatomical structure, and even histologically it often seems rudimentary, as the endothelial lining is not always apparent. It measures about one inch in its vertical diameter, three fourths of an inch transversely, and about one eighth inch in thickness. Its superior pole is on a slightly lower level than the upper border of the os calcis. It is encased in fat, from which it may be difficult to differentiate, and lies between the os calcis and the tendo Achillis, containing within its walls a small quantity of clear fluid. The sac is very delicate and is said to be derived from the periosteum and sheath of the tendon, but this is largely theory. The bursa becomes a very concrete object in its inflamed state, and bears little resemblance to the frail sac of the normal (all walls and fluid having become magnified many times) and it is then designated a bursal cyst or hygroma. Rossale found few normal bursæ in 225 dissections.

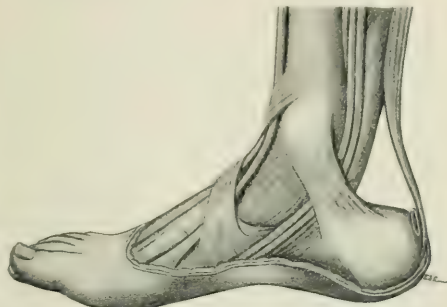


FIG. 1.—The relation of retrocalcaneal bursa.

The causes of retrocalcaneal bursitis, as it should be termed, have been elucidated, and chief among the etiological factors is trauma, acute or chronic, appearing as ill fitting shoes, irritation by excessive walking, bicycle riding, resting the limbs upon the heels, and certain occupations which tend to produce pressure at this point. Infection through a break in the epithelium is possibly an exciting cause. More remote agencies are tuberculosis, gonorrhea, rheumatism, and the infectious diseases; but these are of a decidedly minor importance. Flat foot has naturally come in for its share of responsibility in producing the disease, but it is more often an accompaniment than an originator. Physiologically, it may be said that irregularities of the os calcis, more particularly those cases having a small spine posteriorly, have played a part, but the x ray has demonstrated so many deviations in bone contours that this is almost a negligible factor. Briefly stated, the pathology is that of hyperplasia of the capsule and excessive secretion. The bursa never reaches the great size of a housemaids' knee, and one the size of an almond may be considered large.

\*Read before the Medical Society of the District of Columbia, May 21, 1913.

According to Tubby, a hygroma may undergo any of the following changes:

- a. Hemorrhagic degeneration.
- b. Fibroid degenerations.
- c. Tuberculous infection.

While the symptoms are typical if understood, an attending flatfoot is likely to be indicted for the condition. The physician is consulted because the patient has pain about the heels, more especially at night. This is usually relieved by rest over night, only to return each evening, if he is up and about.

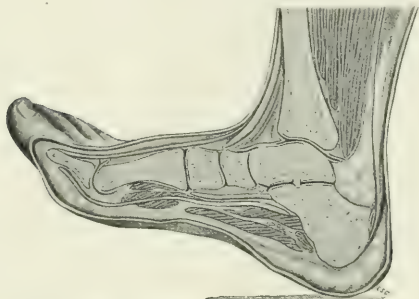


FIG. 2.—Showing compression of the bursa in dorsal flexion.

as walking provokes pain, and he may be nearly incapacitated for this reason alone. After the disease has lasted for a few weeks or months, the pain no longer remains confined to the heels, but radiates up the leg and down the sole of the foot. The gait is typical and is just what may be expected if our conception of the pathology is correct. If the patient is directed to walk barefoot, he will take short steps and keep the weight largely upon the ball of the foot, the heels scarcely touching the floor. In other words, he keeps the foot in plantar flexion, as much as possible, because dorsal flexion, such as is employed in a long natural stride, compresses the swollen bursa and elicits pain. The patient naturally walks in the most comfortable way, namely, on the anterior portion of the foot, and if he is directed to walk upon the heels it is



FIG. 3.—Showing diminished pressure in standing upon the toes (plantar flexion).

painful, if not impossible. The history, then, will be pain in the heel, extending to the calf and sole, worse during the day, aggravated by walking, with relief at night, insidious in its onset, and extending over a long period. An inquiry into the patient's habits may furnish a clue in the way of bad shoes or too much walking. Acute trauma is uncommon.

Between the os calcis and tendo Achillis swelling is visible and palpable. It is moderate and symmetrical, shades off into the surrounding tissue, and it is difficult to determine either by the eye or finger its exact limitations, so closely is it in contact with the tendon and bone. It has not the fixation of a bony growth nor the pseudo fluctuation of a fatty tumor, but appears to be of the same density and mobility as a ganglion. In the suppurative type fluctuation is present. Pressure upon the bursa causes pain, but this can be brought out in another way, namely, by grasping the heel with one hand and flexing the foot dorsally with the other. This movement brings the tendon and os calcis closer together, compresses the bursa, and elicits pain, just as though the bursa had been compressed between the fingers. The swelling varies from time to time, within moderate limits, the exacerbations probably depending upon the abuse or misuse of the part.

The persistency of the affection has been known as long as the disease has been described; in fact, this is a conspicuous symptom, noted by Albert and others. It also tends to recur. Rest has proved beneficial and in many instances curative, but the prolonged, though successful treatment by this means is offset by the pecuniary loss to the patient and the proclivity to relapse. Local applications in infinite variety have been used, but iodine and ichthyol have withstood the ravages of a kaleidoscopic materia medica. Incision and drainage and injection of iodoform emulsion are two methods that have slowly succeeded in reducing the bursa to its outer vestments only. The author believes the rational surgical treatment is complete removal of the bursa, an operation simple in its execution and prompt in its results.

Operation:—Probably the best method of cleansing the area is by the older process with green soap, alcohol, ether, and mercury bichloride the night preceding the operation and also on the day of the operation. While the bursa is equally accessible from either side, the inner side is preferable for the reason that the scar is less exposed to view and less likely to be traumatized. The skin is divided three inches between the tendo Achillis and the os calcis, with the centre of the incision over the greatest prominence of the bursa. With the foot held in extreme plantar flexion, the tendon is relaxed, and retraction of the skin, fat, and fascia is facilitated; exposing the hygroma, which, in the inflamed state, is easily seen. With scissors and slight traction with dissecting forceps the bursa can be removed without injury to any important structure. Should the sac be indistinct, the fat between the bone and tendon should be removed, as this will include the bursa. It is true that at times it may be almost concealed by lipid tissue, but usually it comes into view as soon as the proper retraction is made. It is not uncommon to find the superior posterior angle of the os calcis quite sharp, almost



spinous in type, and it may be rounded off with an osteotome, though this is not at all necessary. Little or no hemastasis is required, and the wound is closed without drainage, and the foot then placed in slight plantar flexion, a starch or plaster bandage being used to retain it so for about eight days, at the end of which time the dressing should be changed, passive motion started, and the foot allowed to resume a natural position. The patient should be allowed to walk at the end of twelve or fourteen days, but this will be painful for a while. At the end of three or four weeks recovery is usually complete.

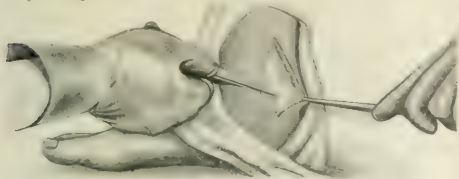


FIG. 4.—Removal of bursa.

The following case was referred to me by Doctor Whitson, of Washington, and was the first I have treated by the method outlined in this paper:

G. B., aged twenty-five years, male, salesman. His family history is negative, especially with reference to tuberculosis in its commoner forms.

Previous history: He had pneumonia at the age of ten years and again at fifteen years, making a good recovery in each instance. He has never had venereal disease.

Present illness: In May, 1910, he complained of stiffness about the heels and ankles, but which improved a little after walking. His occupation kept him on his feet, but the improvement was of short duration, and he soon found that exertion increased the pain and produced a slight swelling just anterior to the attachment of the tendo Achillis. In July, walking became painful to such a degree that it was almost unbearable. He then consulted several physicians, and for the following year was treated for rheumatism, neuritis, and flat foot, without improvement. When examined in August, 1911, he showed a distinct swelling over each retrocalcaneal bursa, with tenderness upon pressure. His most comfortable gait was a short step, and upon the toes. A long stride was intolerable. On August 21st, both bursae were removed under a general anesthetic. He was kept in bed two weeks, with the feet in slight plantar flexion by a light cast. Three weeks later he was able to walk in comfort, and has not been incapacitated since.

911 SIXTEENTH STREET.

## A COMBINED CYSTOSCOPE AND EVACUATOR.

By E. MACD. STANTON, M. D.,  
Schenectady, N. Y.

It is the object of this paper to describe a simple attachment designed by the writer for the purpose of coupling a Bigelow evacuator to a direct vision (Braasch) cystoscope so that the evacuation of stone fragments may be visually controlled. Experience has also shown the attachment to be very useful for the evacuation of blood clots and other substances not easily removed by simple irrigation.

Since the development of practical lithotrites by Weiss and Costello, in the early part of the nineteenth century, the crushing and the cutting opera-

tions for the removal of stone in the bladder have both had their advocates, and since the introduction of litholapaxy by Bigelow, in 1878, the majority of genitourinary surgeons have preferred litholapaxy in cases with a crushable stone. This operation has always been accompanied by a lower mortality than lithotomy, and, taken as a whole, the end results of the crushing operation have been as good or better than those obtained by lithotomy; but the fear of leaving fragments of stone in the bladder, to form the nidus for the formation of new stones, has led many surgeons to practise the more dangerous operation of lithotomy.

The development of cystoscopy has made it possible to control the results of the litholapaxy, but this necessitates the introduction of a third instrument, the cystoscope, into the bladder, and if there are stone fragments found, the evacuator must be again introduced and the whole process repeated. The advisability of combining two, or possibly all three, of the instruments into a single instrument has long been recognized, as evidenced by the more, the cystoscope lithotrites of Nitze, Casper, and Walker, and the more recently described evacuating cystoscopic lithotrite of Young.

From a purely practical standpoint these instruments are either too complicated, or lacking in the necessary strength, or they are too expensive to permit of general use by those called upon to remove



FIG. 1.—Coupling used to connect evacuating bulb with cystoscope.

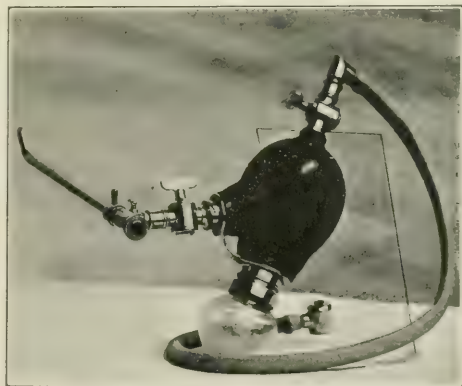


FIG. 2.—Cystoscope with evacuator attachment.

vesical calculi. Conditions approaching a practical ideal are reached, however, if, after crushing and evacuating the stone by the method of Bigelow, we can control our work with the cystoscope, and, if fragments are found, remove them through the tube of the cystoscope under visual control.

The instrument here illustrated was devised with this end in view. After crushing the stone with a

lithotrite the fragments are evacuated by means of the ordinary Bigelow evacuator; after which a direct vision cystoscope is introduced, and if any fragments are found remaining in the bladder the patient is placed in a semisitting posture to facilitate by gravity the passage of the fragments through the cystoscope. Next the vesical end of the cystoscope is placed close to the fragment or fragments, or these may be scooped up into the open end of the cystoscope; after which the instrument is rotated so that the mucosa will not become impacted in the tube. The pressure on the bulb of the evacuator is then suddenly released, causing the fragment or fragments to be carried out with the current.

Although the apparatus was not planned with the idea of its entirely taking the place of the ordinary evacuating tube, it seems quite possible that in many cases the use of the usual evacuating tube might be dispensed with altogether.

The coupling is so constructed that it in no way interferes with the view through the cystoscope. When the fluid becomes turbid it is only necessary to momentarily open the irrigating cock of the cystoscope and allow a few cubic centimetres of clear fluid to fill the barrel of the cystoscope, the same as when using these instruments in bleeding bladders.

In case of hemorrhage, pain, or other complications, the use of the cystoscope may be postponed for a week or ten days after the completion of the usual litholpaxy.

## THE SURGICAL CURE OF LEPROSY. BASED ON A NEW THEORY OF INFECTION.

By E. S. GOODHUE, A. M., M. D., LL. D.,  
Hawaii.

In making his report of a cure of leprosy to the Hawaiian Government, Dr. W. J. Goodhue, the medical superintendent of the leper settlement at Molokai, sums up the results of his work in the following words:

While a cure for leprosy is always interesting as well as gratifying, I report this case and call attention to cases I and II, Class A, especially to emphasize a few points which have been borne in upon me as the results of ten years' uninterrupted clinical observation and the performance of over 6,000 surgical operations for the amelioration of every form of leprosy lesions amenable to surgical intervention:

1. Leprosy is more frequently than otherwise primarily a localized disease. 2. As such it may be eradicated through the judicious application of suitable topical remedies or careful surgical interference. 3. The whole period between infection and development and of the primary lesion (incubation) may be as short as five days.<sup>1</sup> 4. Initial focus may remain localized for anywhere from a few months to years or even a lifetime, through (a) natural physiological, economic phenomena; (b) artificial circumcision or wailing in of primary infection, as in the subcutaneous injection of five per cent. carbolic acid. 5. Leprosy "rhinitis" (snuffles), is very infrequently neither a primary infection nor manifestation, but usually secondary to general and systemic invasion, and occurring only after a longer or shorter (more commonly the former) period of localization. Left undisturbed (unrecognized or untreated), systemic infection and general dissemination

of the bacilli may occur from autoinfection through (a) natural proliferation of bacilli and toxins engendered; (b) traumatic injuries, such as lacerations, contusions, luxations, and fractures; (c) intercurrent fevers; (d) intemperance and debauches with usual concurrent exposure; (e) natural susceptibility or some acquired through loss of body tone; (f) in females, pregnancy.

We must now revise our old ideas regarding the invasion and development of leprosy. Thin, in his textbook on leprosy, says: "When the parasite has established itself in the skin, the first effect—before there are any changes observable to the eye—is to set free a poison which produces more or less marked results in different individuals, causing the so called prodromata or premonitory symptoms of leprosy," and Impey (1896): "The poison enters



FIG. 1.—Illustrating surgical treatment of hands.

the blood, and in addition to setting up the premonitory fever, acts upon the terminal branches of cutaneous nerves, causing vasomotor paralysis of the capillaries, and the consequent formation of erythematous patches in the skin."

In *American Medicine*, October, 1907, the writer said:

Cases are found in which exposure in the most adequate way has not infected the person concerned who, a few years later, falls a victim to a slight contact. It has been our error, I think, to suppose these cases to be incubatory. There is no chance or freakish happening in the natural world; and all is the result of cause and effect. We shall find, no doubt, that when the germ of leprosy is properly introduced into the ready soil, it will grow according to regular specific laws. It is not according to the working of other laws of exposure to disease to suppose for a moment that the *Bacillus lepræ* will remain quiescent in the tissues for ten, twenty, or, perhaps, sixty years, as some authors state. On the other hand, its incubation is probably short if the conditions are favor-

<sup>1</sup>Studies upon Leprosy. *Public Health Bulletin*. 1910-1911, by Brinckerhoff, Wayson, Reinecke, Moore, and Hollman.

able. While I will indulge in no hopes not based on actual data, and make no statements which cannot be substantiated by investigation, I can safely say that the line of work to be carried out is plainly marked already and will be completed within a few years.

The modus of infection and systemic involvement is now for the first time made plain, and immunity and nonimmunity explained, as well as the long or short "incubatory" period. Also the occasional subject in whom the disease was "self limited," with local lesion, some subsequent alteration of tissue, and final readjustment to normal condition or cure. Such cases have been called "latent" here. I have a patient now with contractures and other unmistakable evidences of leprosy damage, who is entirely well, the leprosy invasion having stopped without therapeutic intervention of any sort. The man has had absolute freedom as a citizen for the last nine years.

Since 1902 Doctor Goodhue has been making use of every reasonable therapeutic measure for the amelioration and possible cure of the lepers under his care, reporting regularly upon his work. Doctor Hollman, also, while assistant at the settlement, made some valuable reports on the progress of his work there, with, however, no definite results as to cure. In 1909 Dr. J. T. Wayson, in charge of the receiving station at Honolulu, and Doctor Reinecke at the U. S. Leprosy Investigation Station, reported upon the palliative treatment of leprosy rinitis. During the same year Dr. Walter R. Brinckerhoff and Dr. J. T. Wayson made a report of their use of nastin in the treatment of leprosy, concluding as follows: "In our hands the administration of nas-



FIG. 3.—Illustrating surgical treatment of hand and foot.



FIG. 2.—Illustrating surgical treatment of hands.

tin to six cases of leprosy gave slightly encouraging results in two cases. In one of these the lesions decreased in extent and took on a focal character. In the other case a tubercle disappeared during the treatment. Four patients seemed unaffected by the treatment, even when persisted in for over a year. Constitutional reactions were only seen when the dose was large. No local reaction or puriform softening of the tubercles was observed."

Doctor Hirshberg, of Johns Hopkins University, in a lay journal<sup>2</sup> published last June, reports on the work of Dr. J. Williams Lord before the college skin clinics, stating that a cure had been effected in leprosy cases by the use of the "snow" pencil—"the ordinary carbonic acid gas, compressed into a solid pencil, an accepted method for removing warts and recognized for many years in the treatment of less serious skin troubles."

"Pressed a bit at a time," continues the author, "from the tube and placed upon the skin, it has somewhat the same effect as radium, but in this instance it is the extreme cold that destroys the diseased tissues and germs and thus cures the trouble; for, as it melts, the temperature about the infected zone falls to a very low degree of temperature. Besides this local treatment the cure includes a cleansing of the patient's system by internal administration of chaulmoogra oil." Doctor Hirshberg says that the experiments have been carried on since 1895 in a leper woman who came to the clinics at that time. One would not expect much definiteness or scientific accuracy in an article for popular reading, but the matter is interesting. The medical superintendent of the Molokai Leper Settlement, after

<sup>2</sup>*Popular Mechanics*, June, 1912.



having tried the internal treatment by chaulmoogra oil, and the use of sulphur baths, for many years, has made exhaustive reports upon the same, finding them both of use as ameliorative measures. In 1910 Doctor Wayson made use of the "snow" pencil, and by what he calls the "freezing" method has met with success in the treatment of leprous lesions. And although his results have met with some criticism and his one or two "cured cases" not been recognized generally, the work has been valuable, particularly to those who were of the opinion that leprosy is a localized lesion and may, for some time, remain so.

"Leprosy," said Doctor Goodhue in February, 1908, "is a surgical disease. That is to say, the various surgical procedures adapted to the relief and cure of the pathological lesions constantly and necessarily associated with leprosy are of infinitely more service to the leper in the relief of pain and discomfort, prevention of wasting fevers, restoration of active use of the hands, and especially of the feet, and prolongation of life, than all the other therapeutic measures of our present day leprosy therapeutics." A much earlier account says: "As the result of long continued experiments and observations, the medical superintendent of the leper settlement has concluded that there are several useful remedial and palliative methods of treatment, both internal and external. Chaulmoogra oil and eucalyptus have been found ameliorative and are constantly employed. Other methods now being used he believes will, in incipient cases of leprosy, prove a cure."

At the second international conference against leprosy, which met at Bergen in 1909, all treatments of leprosy up to this date were summarized and discussed. Von Deycke, of Hamburg, reported on his experiments with nastin. "In a large per cent. of cases treated with nastin an improvement was observed in the general conditions and local symptoms, and apparently the further development of symptoms was arrested," he said. Doctor Kiwull, of Russia, in a report of his experiments, stated that "improvement of general symptoms and the lepra process was noted in three cases. In six no notable improvement of general condition was observed, though two of the patients said they felt better. A very decided change for the worse was seen as regards general symptoms, and also to some extent in objective findings in the case of five patients." Doctor Lie, of Bergen, declared that the nastin treatment of Doctor von Deycke was "not specific treatment." Beurmann, of Paris, read an important essay, in the course of which he said:

That the skin is the usual site of infection and that the nares are more rarely so; that when the bacilli gain entrance they remain dormant for a certain time and then, under certain unknown conditions, gain sufficient virulence to multiply and cause an inflammatory reaction in the surrounding tissues. This constitutes the initial lesions of the disease. In other words, the first leprous nodule that appears represents the point where the infection was received months or years before. Later these bacilli reach the blood stream and are carried to distant parts; after another quiescent period of undetermined or indefinite length, they cause an inflammatory reaction in the localities where they have found lodgment, and a crop of secondary lepra tubercles appears. Leprous bacillæmia is a common occurrence in the course of the disease.

Of this Dr. D. H. Currie, a delegate to the conference, said in his paper before the Hawaiian Medical Society, November, 1909:

If Doctor Beurmann is correct regarding the appearance of the first nodule at the site of the infection, then there must be a stage, of variable length of time, in which leprosy is a local disease, and incision of this first papule or nodule should arrest the further progress of the disease. While we do not endorse this theory, still it might be worth while for practitioners in leprous countries to excise all single papules or nodules when in doubt as to their nature, and submit them to a laboratory for examination—such a procedure would be of diagnostic aid, and if Beurmann is correct, would be of the greatest service to the patient.

It is to be regretted that Dr. W. J. Goodhue, who also was appointed as a delegate to the conference, did not go and state his opinion, based upon the surgical removal of leprous lesions at Molokai since 1902.

The supposed primary lesion<sup>3</sup> in the nose has been found to be secondary to the local infection elsewhere, as with syphilitic symptoms from a primary chancre. In my opinion the result obtained in the case of P-† is one of the most important and far reaching for many a day. It means that we must abandon our old theories regarding the development and curability of leprosy. In every case, probably, of suspected infection, an early removal of the involved tissue will cure the disease; many cases of long standing will be amenable to surgical treatment, and specific knowledge, now at hand, will enable us to avoid infection to a great extent.

## THE USE OF A VERY MINUTE INITIAL DOSE IN TUBERCULIN THERAPY.\*

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That in tuberculin lies the future of phthisis therapy seems to be the universal opinion among tuberculosis workers. Those who have used this remedy at all extensively are as a rule convinced that it is an agent of considerable value, although all have seen disastrous consequences following its use. Even when a statistical comparative analysis of patients taking tuberculin, and those not taking it, shows only slight or even no definitely demonstrable advantage in its employment, there usually remains a general impression that tuberculin is of value. This is probably due to the clinical observation of remarkable benefit in certain cases undoubtedly directly attributable to the administration of tuberculin. Well remembered, unfortunate experiences, on the other hand, may cause some to regard its use as unjustified. It should be the constant endeavor, it seems to me, of those who have opportunities for studying this remedy, capable at

\*Treatment of Leprosy, by W. J. Goodhue, M.D., Report, Board of Health, Honolulu, June, 1912.  
†Cure of Leprosy, reported in Louisiana, by Dr. Isadore Wyer, 1910.

†Six patients reported by Doctor Rice, of Hawaii, to be cured are found to be lepers by the Board of Health, 1906.

†Read before the Philadelphia Clinical Society, May 5, 1913.

once of so much good, and so much harm, to study how the harmful effects may be avoided.

The one great source of danger, in my opinion, lies in the size of the initial dose as ordinarily given, which I believe to be one thousand times to one hundred thousand times too large. It is true that the customary initial dose of 0.0001 to 0.001 milligramme has been given to tens of thousands of patients without producing a recognized reaction, but it is equally true that the much larger initial doses given when Koch first announced his discovery were likewise in many instances not followed by a reaction. It is, however, also true that the larger dose of earlier days, and the smaller dose of to-day, have both at times provoked serious reactions, even hastening death. There has been less danger with the smaller initial dosage, and many phthisiotherapeutists are administering to-day an even smaller initial dose than they gave a few years ago. Physicians try to avoid a reaction by selecting their cases, picking out those regarded as suitable for tuberculin treatment. This selection of cases is a recognition of what the good and the bad results of twenty-five years ago, and of to-day, really signify: that tuberculous subjects vary in their susceptibility to tuberculin. Thus, the larger dose can be borne by some and not by others, while the smaller dose can be borne by a greater number of persons, but is still too large for many. But far greater is the number of patients who can take the very minute initial dose that I am advocating, and much, much fewer are the reactions accompanying it. The physician who selects a patient that he regards as suitable for tuberculin treatment is deceiving himself. He is selecting a patient suitable not for tuberculin, but for the dose of tuberculin he administers; and his pronouncing of a patient as unsuitable for tuberculin treatment merely means that experience has shown that that type of patient cannot take with safety the initial dose he ordinarily employs. This same patient might take with safety and benefit a dose one thousand or one ten thousand times smaller. In this connection I desire to suggest the possibility that the benefit and the absence of danger that have been reported from the use of tuberculin prepared from the less virulent tubercle bacillus of branched form, or, which has passed through a cold blood animal, may be due to a diminution in the dose of the active principle in tuberculin, produced by the attenuation of the virulence of the tubercle bacilli used.

The determination of the initial dose is an arbitrary matter. White and Van Norman have devised an ingenious method of measuring a patient's susceptibility to tuberculin, but the initial dose based on this index is an empiric one. The methods suggested by Dürel, and by Strickler and myself, for regulating tuberculin treatment by means of the blood picture are effective only after the first dose of tuberculin has been given.

The initial dose of tuberculin, as administered by different workers at the present day, varies within wide limits. Maragliana gives one milligramme of his extract of macerated tubercle bacilli. Petruschky gives 0.1 milligramme of O. T., and T. R. Bandelier and Roepke give 0.1 milligramme of O. T. to patients in good condition, and 0.01 milli-

gramme if it causes a reaction. According to a similar plan, they gave 0.002 to 0.0002 milligramme T. R., and 0.001 to 0.0001 milligramme B. E. Most all who use tuberculinum purum begin with 0.01 to 0.02 milligramme. The initial dose of Dixon's tubercle bacilli extract is one milligramme, and of his suspension of dead tubercle bacilli 0.001 milligramme, although some of his assistants give 0.0001 milligramme. Hammer begins treatment with doses of 0.01 to 0.001 milligramme of O. T. Calmette gives 0.001 milligramme. C. L. Denys gives 0.0001 milligramme of B. F. Trudeau gives 0.001 milligramme of O. T., and from 0.0001 to 0.00005 milligramme B. E. Latham and Inman give 0.0002 to 0.00005 milligramme of T. R. Brown begins the administration of B. E., T. R. and B. F. with 0.0001 milligramme for the usual case, and 0.00001 milligramme for the unusual case reacting generally to the former dose. Ringer's initial dose of B. F. is from 0.0001 to 0.00001 milligramme. Solomon Solis-Cohen gives 0.00001 milligramme of O. T., the other preparations being given in larger dosage. Bullock gives B. F. and B. E., beginning usually with 0.000001 milligramme; never with more than 0.00001 milligramme, and sometimes with 0.000001 milligramme. Dürel begins with from 0.000005 to 0.00000005 milligramme. In beginning tuberculin treatment I now give 0.000001 to 0.0000001 milligramme of B. E. or O. T. to incipient, afebrile, inactive cases, 0.000001 to 0.0000001 milligramme to patients with moderate fever or moderate evidence of activity, and 0.00000001 to 0.000000001 milligramme to patients with high fever or marked activity. The smaller doses I also give to patients who react unfavorably to 0.000001 milligramme.

How tuberculin acts we do not know. Various ingenious and possible hypotheses have been advanced, convincing, no doubt, to their authors, and to some others who delight in conjecture, and probably comforting to those who like to believe they are familiar with the scientific basis for their action. Speaking simply, and omitting the unknown, we might say that the objects aimed at in tuberculin therapy are to do good, and to do no injury; and that the proper dose is the amount of tuberculin that will produce a maximum of benefit with a minimum of harm. These are the requirements fulfilled only by the very minute initial dose of 0.000001 milligramme or less. While different methods of administration are followed in the endeavor to do good, all agree on the way to prevent harm: namely, to avoid severe reactions by giving a small initial dose, increasing the dose gradually, and paying attention to the signs and symptoms of a slight reaction. There can be no question that with the very minute initial dose there is much less likelihood of producing a severe reaction. The question that probably does arise in many minds is whether any effect at all can be expected from so small an amount. My own experience, and that of Bullock and Dürel, prove beyond doubt that 0.000001 milligramme of tuberculin and less can affect both favorably and unfavorably the temperature curve and the subjective and objective symptoms. Whatever method of administering tubercu-

lin be employed, the object sought, I believe, can be better obtained when the initial dose is 0.000001 milligramme or less. Many give tuberculin with the idea of inducing tolerance for the tuberculous toxine, the object being by gradually increasing the dose to finally give the patient a large amount of tuberculin without having caused any reaction during the process. Surely this can best be attained by beginning with a dose that is least likely to produce a reaction. Some increase the dose until they obtain one that reduces the temperature and ameliorates the symptoms, keeping the patient on this dose until it loses its effect, whereupon it is again increased. Unless a very minute initial dose is given, one may begin with an amount too large to produce the effect desired. A third group of tuberculin therapists believes that most benefit is derived from a slight reaction, and give just enough to produce this. White and Van Norman determine the amount necessary for this purpose by means of their tuberculin index. Others give a small dose, which is gradually increased until a slight reaction is obtained. These are more likely to obtain this slight reaction, and avoid a severe reaction by beginning with 0.000001 milligramme, because in many cases the ordinary initial dose of 0.0001 milligramme produces a severe reaction.

I shall now briefly recite a few typical cases that bear out the above statements as to the beneficial effects of the very minute doses, and the severe reactions they often produce. But first, in contrast, I wish to describe the case of a patient who was able to take the ordinary doses without exhibiting the slightest reaction; for it is experience with this type that makes physicians regard as satisfactory the dose ordinarily employed.

Last July I was called to attend, during an acute exacerbation, a girl of eighteen years, a saleswoman, who for five years had been treated for tuberculosis at the Phipps Institute, Jefferson Hospital, and by private physicians. Recently she had been living in the suburbs. There was infiltration of the right upper lobe and of the apex of the left upper lobe. The patient was treated at home for a few weeks and then sent to a boarding house in Collegeville, Pa. She was put on rest and graduated exercise. The medication consisted of creosote, iodoform in increasing doses, arsenous iodide, strychnine sulphate, reduced iron, digitalin and calcium glycerophosphate. On July 28th the girl was given tuberculin bacilli in emulsion by mouth every seven days beginning with 0.0001 milligramme and increasing the dose gradually. Marked improvement followed the administration of tuberculin. After five weeks in the country the girl returned to her home in the congested portion of Philadelphia and took a position in a store where she worked on her feet eleven hours a day. The tuberculin treatment was continued until March 5th of this year, the last dose being 0.07 milligramme. At no time did the patient show any sign or symptom of a reaction. She is now in good health.

The next case illustrates the type of patient with little involvement and increased susceptibility to tuberculin, which could not be determined beforehand from the symptoms:

A young Russian girl, now about twenty years of age, was attacked with a cough three years ago—six months after coming to this country. She had been a patient of mine at the Philadelphia Jewish Sanatorium for Consumptives, Eagleville, Pa., from March until June, 1912, during which time she gained fourteen pounds. After leaving the sanatorium the patient was without medical attention, and although feeling badly went to work in a mill ten hours a day and became still worse. Her temperature was always 100° F.

She came to me last fall to make application for her to some sanatorium, and I volunteered my services gratuitously until she should be admitted. Examination on October 14, 1912, disclosed infiltration of the upper portion of the right upper lobe and a thickened pleura over the left apex. The next morning at half past six the patient took by mouth 0.0001 milligramme tuberculin bacilli in emulsion. Two hours and a half later her cough became worse; at 1 p. m. headache developed. The patient also suffered from anorexia and malaise, but her temperature was no higher than it had been previously. Some of these symptoms were ameliorated the following day, but the patient spat two small clots of blood, the first hemoptysis in a month. On November 7th 0.000001 milligramme tuberculin was given by mouth. The cough became worse two hours later and the following day the sputum became blood tinged, the first time since October 16th. There was no further hemorrhage until two weeks later, when on the afternoon of the day the next dose of 0.00001 milligramme tuberculin was given the sputum became streaked with blood. Twelve days later another dose of 0.000001 milligramme tuberculin was given and at 2 p. m. that same day the patient spat up a small piece of blood. For the next month and a half the same dose was repeated at biweekly intervals and for the following six weeks at weekly intervals. The patient had a moderate reaction each time, but without hemoptysis. Then doses of 0.000002 milligramme and of 0.0000015 milligramme were given, but as the reaction seemed too severe the dose was reduced to 0.000001 milligramme and given every five days. The patient gradually improved and grew stronger, and last March entered the training school of the Home for Consumptives, Chestnut Hill, where she is working hard as a nurse and keeping well.

The next case also shows an intolerance to larger doses than 0.000001 milligramme:

A young woman of twenty-one years with tuberculous laryngitis and some pulmonary involvement, who also had vasomotor ataxia and an idiosyncrasy against iodine, took 0.000001 milligramme of tuberculin by mouth on April 14th last without experiencing any reaction. Three days later she was given 0.000002 milligramme. She exhibited no symptoms attributable to the tuberculin, that day, but on the following day suffered from dyspnea, pleuritic pains, weakness, malaise, and nervousness. A dose of 0.000003 milligramme three days later caused similar symptoms on the day after the administration of tuberculin with the addition of angioneurotic edema of the hands. Subsequent doses of 0.000001 milligramme produced slight reactions.

The following case describes a patient who was unable to take 0.000001 milligramme with safety:

A man of thirty-five years of age who had tuberculosis of one year's duration came to see me on March 15, 1913. The upper halves of both lungs were consolidated and covered with thickened pleura. The man had a rapid pulse and an evening temperature rise to 101° F. After a week's rest in bed, the patient was given tuberculin residue by mouth every five days. There was no reaction from the first dose of 0.000001 milligramme, and the next three doses of 0.00000025 milligramme each or the following dose of 0.000005 milligramme. A subsequent dose of 0.000001 milligramme was followed by a severe reaction with fever.

Twenty cases among children at the Philadelphia Jewish Sanatorium for Consumptives at Eagleville, Pa., I shall report together. The ages varied from six to fourteen; the involvement from Class I to Class III of Turban; the stage from incipient to far advanced of the National Association for the Study and Prevention of Tuberculosis; and the character of the lesion from quiescent to active. The patients had been under observation from several weeks to five months before tuberculin was given. The initial dose varied from 0.000001 milligramme to 0.00000001 milligramme. With the exception of anorexia in a few cases, and chest pains in one, there were no symptoms of a reaction. In



all, however, the temperature was affected. Many temperatures showed a rise above the accustomed curve on the day tuberculin was given; some on the following day as well. In every case the proper dose for the individual patient depressed a temperature curve elevated above the normal. At times this proper dose was not obtained until the initial dose of 0.0000001 milligramme had been gradually increased to 0.0000005 milligramme; at other times not until this initial dose had been repeated half a dozen times; in other instances not until it had been reduced to 0.00000001 milligramme. Often the initial dose of 0.00000001 milligramme was sufficient to reduce the temperature. The duration of this action in flattening the temperature curve varied. In some cases it lasted until the next dose was given, after an interval of five days; in others the temperature rose at the end of three days and the tuberculin had to be given at three days' intervals to keep the temperature down. In some instances the same dose that first depressed the temperature curve would, when repeated, keep it flat for several weeks; in others, the effective dose of 0.00000001 milligramme, or 0.0000001 milligramme, would maintain its action only for five days, or a week, the temperature then rising again, unless the dose was increased. All the children improved markedly. Their appetites became enormous. I also remarked in some an intellectual stimulation—an improvement in mental activity. One child in particular, who for months had been morose and sullen, became talkative, and smiled after being put on 0.00000001 milligramme tuberculin residue every five days.

The advantages of the very minute initial dose in tuberculin therapy may thus be summed up: With the exception of the method of White and Van Norman, with which I have had no personal experience, and which has not always proved satisfactory in the hands of others, and which can be used only with old tuberculin, and only when a subcutaneous dose causing a reaction is desired, there is no way of ascertaining beforehand the proper therapeutic dose of tuberculin for the individual patient, or the amount that will produce a reaction in that patient. Only by beginning tuberculin treatment with a dose smaller, or at least no larger, than the one that will benefit the patient, or produce a reaction, can one obtain the good effects and avoid the harmful action of this dangerous agent. Just as in making a quantitative chemical analysis one first adds less Fehling's solution, or less decinormal solution of sodium hydrate than will produce the chemical reaction sought, and just as in using the clinical thermometer we first shake the mercury below any possible temperature reading, so in giving tuberculin we should aim to begin with less than the amount required. In other words, we must give a safe dose. An initial dose larger than 0.0000001 milligramme will probably produce a reaction of greater or less severity in the majority of tuberculous subjects. It can be given, therefore, only to a limited number of selected patients. The number of tuberculous patients who will exhibit a severe reaction to 0.0000001 milligramme of tuberculin is probably small. Hence, this is a safe dose for the average sufferer

from tuberculosis, with the exception of advanced, toxic patients. As tuberculosis is usually a chronic disease, and its treatment prolonged, there can be no serious objection to taking a little time to determine the proper dose of tuberculin for the individual patient, especially if by so doing we avoid harming him. There is no immediate hurry. The proper method of giving tuberculin, therefore, would be to begin with 0.0000001 milligramme, or 0.00000001 milligramme, and if this dose should be found to be too small, to gradually increase it until the proper dose is reached. With this method tuberculin therapy will be robbed of its greatest danger, and many more patients will be able to take tuberculin than are now considered suitable for the excessive doses in general use at the present day.

4102 GIRARD AVENUE.

## A CASE OF ACUTE DILATATION OF THE STOMACH COMPLICATING PNEUMONIA.\*

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We are indebted to Fussell (*American Journal of the Medical Sciences*, 1911, cxlii, p. 794) for calling attention to a hitherto little recognized serious complication of pneumonia, acute dilatation of the stomach. That the condition has been but little appreciated is evident, according to Fussell, from the failure to find mention of it in any textbook on medicine, and from the fact that up to 1911 only six cases had been reported in literature. He adds five from his own practice, a trenchant proof that it is by no means an uncommon complication.

Acute dilatation following operations is by no means a rare condition and is being met with frequently in surgical practice, but in pneumonia it seems to have been so infrequently encountered that reports of additional cases seems advisable. The following is the history of a case under my care:

Mrs. J. T., aged about sixty-three years, housewife. During the past two years patient had been subject to several attacks, which her physician, Dr. E. R. Mulford, of Burlington, New Jersey, pronounced undoubtedly appendicitis, namely, pain, tenderness, nausea, vomiting, with increase of temperature and pulse rate. The last attack was in December, 1912, although the patient stated she was never free from pain in the region of McBurney's point. She had always been very thin (best weight ninety-five pounds, now eighty-five), and had always had "indigestion." The physical examination was entirely negative, with the exception of tenderness over the appendicular region and spasm of the right rectus muscle on palpation. The pelvic examination was negative.

On February 27, 1913, an operation was performed by Dr. E. B. Hodge, of Philadelphia, and the appendix was found to be small and sclerotic, acutely flexed at about its middle; distal end larger than the proximal end. The abdominal viscera were examined through the incision, and found to be normal, as was also the case with the pelvic viscera. Patient reacted from the operation very well, and on the following day, February 28th, apart from a low output of urine the general condition was most satisfactory.

\*Read before the Section in Medicine, College of Physicians, Philadelphia, May, 1913.

March 3, 1913. Since the last observations patient had been doing very well, and is so far improved that she is allowed full diet. March 6th. Patient had a chill early this morning, and at 5 p. m. temperature was 104.0 F., pulse 106, and respiration 24. The abdominal wound was perfectly clean, with the exception of a small hematoma, on account of which one stitch was removed. Leucocytes 14,500. March 7th. I was called in consultation by Doctor Hodge on this date, and found the following condition: "Patient is breathing with difficulty, which is aggravated by some nasal obstruction. No herpes. Some limited expansion on right side of chest; skin very hot and dry. Examination of the left lung is negative. Anteriorly over the right lung there is some impairment of resonance above and below the clavicle. At the level of the sixth rib, about the anterior axillary line, there is marked dullness, with harsh breathing in the pectoral fold, just under the breast. Over this area there are many sticky râles. Posteriorly over right lung, from mid-scapula to base, the percussion note is flat, and over this area of involvement there is bronchial breathing, bronchophony, whispered voice, and crepitant râles. Diagnosis, pneumonia, right side; lower and middle lobes."

March 8th. There were some friction crackles over the left chest in the pectoral region. Dullness over the right side has not increased in extent. Posteriorly, the consolidation with typical signs reaches to spine of the scapula. Left lung apparently normal. Leucocytes 17,000. March 9th. Over the right chest, about the mammary region, there is a decided friction rub. Posteriorly, dullness is marked to spine of scapula, at which place, breath sounds are harsh, but no râles are heard. Below spine of scapula there are bronchial breathing, egophony, whispered voice, and crepitant râles. At extreme base of right lung posteriorly the breath sounds are absent and vocal resonance very much decreased. To-day a well marked herpetic eruption appeared on the lips. The patient complained of a good deal of pain and recourse was had to morphine, while an ice bag was applied to the chest. Leucocytes 21,700. March 10th. Anteriorly over the right side below clavicle to second rib, there is impairment of note with bronchial breathing. Posteriorly the signs are the same. Examination of left lung negative. Patient's general condition good, though she complains of considerable pain in the chest. Leucocytes 14,000.

March 13th. The temperature reached normal at 7 p. m. (ninth day of pneumonia). March 15th. Patient has been doing very well until this morning, when the pulse began to show the first signs of wavering. The day was unseasonable in its heat and humidity, and the patient complained bitterly of the temperature. Skin is very moist and cool; perspiration free. Pulse is weak and irregular. The stitches were taken out to-day; wound has healed perfectly. There is some distention across the lower abdomen. Leucocytes (March 14th) 19,900.

March 16th. Early this morning patient complained of pain in the stomach and vomited a small amount of black material. Last night, patient vomited at irregular periods. The abdomen is very much more distended than yesterday; pulse also weaker and more irregular. Acute dilatation of the stomach was diagnosed, and lavage was immediately instituted. A large amount of dark, foul fluid was removed, which gave the reaction for occult blood. Lavage was continued until the fluid returned clear, many litres of water being required before this object was attained. The distention was immediately relieved. This morning at 8:30 the blood pressure had fallen to 95.4 but, at 1 p. m., after the lavage, had risen to 98. The patient's condition was very poor, with weak pulse and leaky skin, but after the lavage a decided improvement was noted. Strychnine, grain 1/20, and digitalin, grain 1/10, were given every three hours, and eserine sulphate, grain 1/50, every six hours. Food was stopped by mouth, and nutritive enemata substituted; 800 c. c. normal salt solution were injected hypodermically and the lavage was repeated at 5 p. m., with a second hypodermoclysis of 1,400 c. c. The urine, which had been scanty, increased in quantity and reached 57½ ounces.

March 17th. Food, in the form of albumen water, was begun to-day, as the patient now expelled the enemata, after having retained three. There has been no regurgitation, and under the use of strychnine, digitalis, eserine, and caffeine the pulse has improved in quality and the

blood pressure has become higher. March 18th. Patient's general condition is good. Has had a very comfortable day, and when one compares her condition to-day with that of three days previous, the recovery seems most noteworthy.

March 19th. The temperature, which has been normal, began to ascend to-day, with increased blood pressure, which was all the more surprising as digitalin had been discontinued and only 1/20 grain strychnine was being given three times a day. The amount of urine has become less. March 20th. Vision has become blurred, and patient cannot recognize her family; mental state dull. Leucocytes 25,350. Urine contains albumin and casts. March 21st. Patient comatose; convulsion of face, arms, and legs; edema of right side of face. Despite hot packs salt solution, venesection, and purging, the renal condition became more aggravated, and the patient died.

That this case belongs to the class of acute dilatation of the stomach complicating pneumonia, and not to the class of cases in which, with a chronically dilated stomach, there is a sudden development of symptoms, is very evident. Doctor Hodge carefully inspected the abdominal cavity at the time of operation, and found the organs to be normal as far as could be determined; and a large, dilated stomach would have been most apparent had this been present. Although the patient had complained of gastric symptoms for some time, there was nothing in the appearance of the stomach at operation to suggest the nature of the trouble, and the symptoms referable to the stomach were supposed to be reflex from the appendix. The acute dilatation was not of the class designated as post-operative dilatation of the stomach, a condition unfortunately too common, and too frequently met with in surgical practice.

Mathieu (*Archives des Maladies de l'appareil digestif*, 1911, v, p. 409) has devoted a lengthy article to this surgical complication, which I reviewed in *Progressive Medicine*, December, 1912, p. 77. According to Mathieu, "in the majority of cases the distention began from one to three days after operation, although it may supervene during the operation, necessitating the discontinuance of the latter." Our patient complained of gastric symptoms for the first time on March 16, sixteen days after the operation; thereby, to my mind, ruling out the possibility of a postoperative dilatation.

Fussell, from the cases collected by him, has found that dilatation occurred before the crisis eight times, and after the crisis three times; and in the latter category belongs our case, where acute dilatation occurred on the eleventh day of the pneumococcus infection. Of the eleven patients, five recovered and six died, and this case must be put in the class of recoveries, as the cause of death was nephritis, and not the acute dilatation. The condition is a serious one, as Fussell estimated the mortality to be 55.5 per cent., but if our case is to be considered as one with favorable outcome, the proportion must be brought to fifty per cent. In surgical cases, Conner gives a death rate of 72.5 per cent. in 102 cases, and Laffer of 62.5 per cent. in 217 cases, and Fussell says, and rightly, that "this terrific death rate is probably largely the result of the true nature of the case being unrecognized."

A most interesting feature of this patient was the blood pressure estimation. During the course of the pneumococcus infection we were guided, as regards stimulation, very largely by the ratio of

blood pressure to pulse rate (Goodman, *Therapeutic Gazette*, July 15, 1911). This ratio in favor of blood pressure was fairly well preserved until the collapse incident to the acute dilatation was seen, when it fell to 95 mm. Hg. Stimulation at this time was most strenuous, and this, coupled with the immediate use of lavage and right sided decubitus, brought relief and caused a rise in pressure. On the 19th of March stimulation was markedly reduced, and the subsequent rise in pressure must be ascribed to the acute nephritis, leading to a pressure of 145 mm. Hg. and death.

**Treatment.** The success of treatment depends mainly on the prompt recognition of the condition, and the diagnosis is not at all difficult, if one bears in mind that acute dilatation of the stomach is a complication of pneumonia. The early signs are pain in the stomach, vomiting of blackish material, intense thirst, and distention of the abdomen. Later signs are, enormous distention of the stomach, increased gastric tympany, and succussion splash. At the same time the patient's body is covered with a cold sweat, the expression is anxious, pulse small, running, irregular, and intermittent, and collapse extreme. The early passage of the stomach tube is the treatment *par excellence*. Fussell rightly says that "when a patient is collapsed, with running pulse, it is often feared that the passage of the stomach tube may be fatal; but "the danger one runs from this procedure is insignificant compared with the danger the patient faces if lavage is not practised, and this is so readily accomplished and gives such prompt relief that its employment should not be debated. Lavage should be continued until the return flow is clear, and the tube should be passed again at the first suspicion of returning dilatation." After the lavage the patient should be placed on the right side, and even on the face, provided this does not hamper the breathing too much. No food or water should be given by mouth, and rectal feeding may be practised instead. Fussell recommends strychnine and eserine, which we employed in large doses, but without marked effect on the gastric condition.

As to the theories of acute dilatation of the stomach after operation, the aerophagia theory of Lardennois has received the support of Mathieu, and it is possible that this explains its occurrence in pneumonia. Mathieu says that the weight of the intestines can not cause enough traction to bring about constriction of the duodenum, for experimentally it takes a weight greater than that afforded by the mass of intestine, and he believes the gastric dilatation is primary and not secondary to other conditions.

**Cases from the literature.** An abstract of cases collected from the literature by Fussell is appended, together with abstracts of his cases.

**CASE I.** (Reported by H. Campbell Thompson, *Lancet*, October, 1901.) Female, aged twenty-four years. Attack of pneumonia, July 24, 1901. Perfectly well previously. Consolidation of lower right lung. July 27th, some friction at left base. Sudden vomiting on the 27th; continued until death on the 29th. Vomitus greenish, large quantities. No effort. Autopsy: Thirty-five ounces of dark greenish fluid. Stomach immediately returned to normal size when contents taken out.

**CASE II.** (Reported by Box and Wallace, *Lancet*, 1901, ii, p. 1259.) Male, aged twenty-four years. Chill, May

27, 1901. Pneumonia lower lobe of left lung. May 29th. No distention on the 29th. On the 30th, temperature 100.1. Rise to 104.1 at death on eleventh day of disease, after profuse diarrhea. Autopsy: Pneumonia. Great dilatation of the stomach, but involved duodenum. Believe distention first due to paralysis, and then to incarceration at the root of the mesentery.

**CASE III.** Case reported by Herrick (*Journal of the American Medical Association*, March 31, 1906). E. S., aged thirty-six years. Admitted to the hospital with pneumonia. The right upper and lower lobes, and the left lower lobe were involved. The case proved to be an extremely severe one of migrating pneumonia. Temperature ranged from 101° to 104° F.; the pulse from 115 to 130. After the patient had been in the hospital two days she was lectured upon; a careful physical examination was made and nothing unusual noted. On the ninth day of the disease, she was looked upon as a very ill patient but recovery was expected. At 3 p. m. of that day, she vomited a large amount of dark brown fluid. At 6:30 p. m. she vomited, and at 7:15 she vomited again. In the evening she was delirious, vomited a large amount, abdomen greatly distended, but pneumonia was improved. The abdomen showed distention, and there were splashing sounds discovered. The stomach was washed out, the patient had periodical attacks of diarrhea afterward, but recovered.

**CASE IV.** (Reported by Hood, *Lancet*, 1901, ii, p. 1259.) Girl, aged sixteen years. Admitted to the hospital with pneumonia of severe form. She vomited on the third day. Vomitus consisted of dark green fluid, which later was dark, inky color. This continued until death, twelve hours after the beginning of the vomiting. The autopsy showed the stomach, together with duodenum and jejunum, very greatly dilated.

**CASE V.** (Reported by Lehman, Thesis, Leipsig, 1904, *Arterio Mesenterialen Darmverschluss*.) Male, aged twenty-nine years. Begun with pneumonia, October 8, 1902. Died October 16, 1902. Pneumonia of both lungs developed. On the evening of the 13th, while the pneumonia process was apparently improving, vomited yellowish brown watery fluid. The urine was dark. The abdomen was markedly distended, particularly the left hypochondrium. Attempts were made to pass the stomach tube but failed. On the 15th the patient went into collapse and on the 15th died. Autopsy showed a monstrous dilatation of the stomach, together with dilatation of the duodenum and obstruction at the mesenteric point of the duodenum.

**CASE VI.** (Weber, *Transactions of the Clinical Society*, London, xxxix, 1906.) Female, aged twenty-six years; ill with pneumonia, June 13, 1905. On observation June 15th there was found consolidation of the right lung, and also pericarditis. Suddenly, on June 17th, much abdominal distention; no pain, no vomiting. Stomach was washed; much black, greenish material obtained. Tympany did not at once disappear, but on June 20th, there was no distention, and the patient recovered.

**CASE VII.** (Fussell, *l. c.*) Mrs. B., aged seventy-six years. On October 18, 1904, the patient was suddenly seized with chill and fever, excruciating pain on breathing, and tenderness over the region of the bladder. October 19th, the temperature was about 102° F. Marked dullness over the lower lobe of the right lung. October 20th, there was dullness on the right side over the lower lobe of the lung, from the middle of the scapula to the liver. There was marked blowing over the area. Still pain and tenderness on the right side of the abdomen. The patient made a slow, but uninterrupted recovery from her pneumonia, though she was extremely weak. Suddenly, on November 5th, sixteen days after the initial chill, she vomited about one quart of undigested ill smelling material; vomited several times that day. On November 6th, had great abdominal distention, and vomited material of decidedly fecal odor; was weak and collapsed. Distinct peristaltic waves could be seen over the region of a distended stomach. The gastric tympany extended far below the umbilicus. The stomach tube was passed, and forty-eight ounces of foul fecal smelling material removed. The stomach was then washed, and eight ounces of milk returned by the stomach tube. The washing was repeated every six hours until the afternoon of November 7th, when all vomiting ceased, and after passing many pitfalls the patient entirely recovered.



CASE VIII. (Fussell, *l. c.*) A young man, aged twenty years, was seized with a severe attack of pneumonia. The right lung was first involved, first the lower and then the middle lobe; his left lung then rapidly became involved, and finally he had apparently only his right upper lobe in use, though by that time there was some resolution at the right base. All this time, in the midst of the July heat of Philadelphia, the temperature of the patient was between 103° and 104° F. The pulse was extremely rapid, frequently reaching 104 a minute. Resolution began at the right base and slowly progressed, the patient's temperature dropping to normal by lysis. Suddenly, three days after the temperature had become normal, without warning he vomited a large amount of creamy, sour (not fecal) material. In a few hours there was great distention over the stomach itself. The left hypochondrium and the umbilical region were protruding, while the right hypochondrium was flat. The complete outline of the stomach could be seen; tympany reached almost to the pelvis. The patient was collapsed, his pulse running. Notwithstanding his apparent moribund condition, a stomach tube was passed, a great amount of the same liquid removed, and the stomach washed. There was an immediate disappearance of the tumor, and the patient was much relieved. In six hours a second washing was performed, and all stomach symptoms disappeared.

CASE IX. (Fussell, *l. c.*) H. B., aged thirty-five years. On January 28, 1911, was seized with pneumonia. On January 30th the left lower lobe was involved, and the disease remained restricted to that area of the lung. On January 31st the temperature suddenly fell to normal. It again rose to 102° F., and on February 2d there were symptoms of intestinal obstruction. The abdomen was greatly distended, and it was impossible to obtain a bowel movement by any means. February 3d, abdomen was still much distended; distention was epigastric and extended two inches below the umbilicus, forming a tympanitic tumor. Pulse rapid, but good. Complete consolidation of the lower left lobe, which was undergoing resolution. Patient was delirious and semicomatose. There was some vomiting. A stomach tube was introduced, and a small amount of sour material obtained, together with much gas. The epigastric tumor immediately disappeared, and the abdomen became flaccid. The next day, three successive times, the stomach was again washed. Bowel movements remained sluggish, but there was no return of distention of the stomach after the fourth washing. Eserine and strychnine were administered hypodermically.

CASE X. (Fussell, *l. c.*) C. J., aged fifty-four years. Taken ill, February 25, 1911, with what was apparently influenza. Pulmonary consolidation rapidly developed, confined to the right base. March 4th, there was some abdominal distention, with vomiting of dark material; also retention of urine and obstinate constipation. The case had the appearance of obstruction of the bowels. Suddenly, March 5th, the eighth day of the disease, in addition to distention, there was extreme abdominal pain, with collapse, as shown by rapid, running pulse, cold sweat, and a temperature of 98° F. There was marked consolidation of the right lower lobe of the lung, and an epigastric tumor extending apparently to the pubis. Great quantities (about two quarts) of foul, dark green material were washed from the stomach, with immediate relief of pain and disappearance of the abdominal distention; the bowels moving shortly after. The temperature rose to 103° F., and the man died of exhaustion fifteen hours after the stomach was evacuated.

CASE XI. (Fussell, *l. c.*) Mrs. H., aged seventy-six years. Had chill on April 16, 1911. Rapid complete consolidation of the right lung, with some consolidation at left base. Temperature ranged from 102° to 104° F. She was seriously ill, but did fairly well until the morning of April 20th, when she had a sudden collapse. Her pulse became running, her respiration extremely rapid, her abdomen greatly distended. On the early morning of April 21st she was in collapse, semiconscious, pulse 102, with great abdominal distention, more marked in the epigastrium. Gastric area apparently greatly distended, particularly to the left. The outline of the stomach could be plainly seen. There was marked peristalsis over the entire abdomen, and it was believed that the peristaltic sounds in the intestines could be distinguished from those of the stomach. No succussion splash could be brought out. Apparently she had great abdominal pain. There was no

bowel movement for forty-eight hours. Notwithstanding the serious condition of the patient, lavage was instituted, and about a pint of foul fecal material was removed; after which salt solution introduced returned clear. There was apparently not very marked dilatation of the stomach, because while the stomach tumor itself disappeared after lavage, the general distention still remained, and this was evidently due to distention of the intestines themselves. The patient was relieved by the washing, but died about twelve hours afterward in collapse.

248 SOUTH TWENTY-FIRST STREET.

## CHRONIC INTESTINAL STASIS.\*

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Through the efforts of a number of surgeons, the condition which is now known as chronic intestinal stasis has within the past few years received a great deal of attention at the hands of the medical profession. It will be the earnest endeavor of every thinking physician to estimate the value of these observations, and in carefully selected instances to offer to the patient whatever benefit may thus be derived.

It has been said that the present surgical activity in this field is an attempt on the part of the surgeon to take neurasthenia out of the head and put it in the abdomen. If that is to be the sole result, the surgeon himself is sure to have the greatest cause for lamentation. Many careful observers are united in thinking that there is a fairly well defined group of patients who suffer from chronic intestinal stasis, although there is as yet a lack of uniformity of opinion as to the causative factors.

There are primarily two groups of cases: One where the patients show symptoms in the abdomen, and refer all their trouble directly to the abdominal viscera; in the other the patients seem to be suffering from chronic intestinal poisoning, but the abdominal symptoms are usually of secondary importance. It will serve our purpose here to note that the first group and the second as well are variously held to result from visceroptosis, from a movable cecum, from membranous pericolicitis, or from Lane's kink, and I will attempt to correlate these so that we may determine with greater clearness their pathological significance, acting either as separate entities or as combined forces to make for disturbed function.

### ANATOMICAL AND PHYSIOLOGICAL BASIS.

A summary of some of the more important physiological facts will enable us to grasp the essential problems and to arrive at a basis for further conclusions, as all advances in this branch of intestinal surgery must be founded on a full understanding of the underlying physiology.

The stomach is supported in its position by its connection with the esophagus, above, by the gastrophrenic ligament, and on its lesser curvature by the right gastrohepatic omentum. The duodenum, the position of which is mainly retroperitoneal, is firmly held by its peritoneal covering, and its distal portion is fixed by the muscle of Treitz. The small

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intestines are very loosely held by the mesentery. The ascending colon is maintained in position by the fusion of its peritoneum with the posterior abdominal wall and by the transverse mesocolon, which, in turn, supports the transverse colon; the splenic flexure of the colon is more firmly held in its high position by the fusion of its peritoneum with the posterior abdominal wall and by the gastrosplenic and costocolic ligaments. The descending colon is mainly retroperitoneal, due to the fusion of its peritoneum with the posterior abdominal wall down to the point of crossing the psoas muscle, where it has a free loop, the mesentery of which permits a wide range of motion. The retention of the abdominal viscera in their normal relations depends in great measure upon the maintenance of the intraabdominal pressure by the abdominal muscles, so that the integrity of these muscles must be unimpaired if the viscera are to be held in place. These supports are sufficient in the normal individual to fix the organs in position and maintain them. Complete development of these natural lines of support is effected when the complete cycle of visceral rotation and peritoneal fusion are accomplished.

The rate of passage of food through the intestinal tube is nicely adjusted to the chemical changes that take place, and this fine adjustment, if disturbed, is likely to lead to altered conditions, either in the food itself or in its rate of absorption. If the onward passage is hindered we have decomposition, with the formation of harmful products, and if too rapid, insufficient digestion and absorption (Cannon) (1). The natural lines of suspension of the gastrointestinal tract are so ordered that the onward movement of the contents is retarded only so long as to permit sufficient digestion and absorption, and there seems to be little doubt that with the loss of support from these natural lines of suspension the mechanism of digestion is interfered with. Whether such interference with digestion from this cause is sufficient to produce symptoms is the subject of our inquiry.

The best example of the interference with these supports is that which takes place when the splenic flexure of the colon is dragged down. From a survey of the function of the large intestine it seems clear that the splenic flexure is purposely hung high in order that the cecum and ascending colon—which are in effect a catch all for absorbable particles—may have a better opportunity of culling over the already digested food. Definite antiperistalsis has been demonstrated in morbid states in the large intestines, and perhaps in the normal as well, and it is believed that in the condition of cecum mobile, owing to a failure of fixation of the cecum, its movements are seriously and harmfully retarded, with resulting stasis of its contents. The ileocecal valve acts as a sphincter, as well as a simple valve, and distortion of the normal configuration of the parts, either by adventitious bands or dilatation of the cecum, may impair its functional integrity. The cecal sphincter serves to retain the intestinal contents in the ileum until sufficient digestion has taken place before permitting the chyme to enter the cecum. (Hertz) (2). Tracings made with the aid of the x rays reveal the fact that the large intestine below

the splenic flexure is emptied in a single act, and that thereafter during the next twenty-four hours waste material accumulates in the distal colon. As it collects in the descending colon it first halts at the junction between the pelvic colon and the rectum, where an acute angle offers some obstruction to progress. On becoming distended, the pelvic colon rises and widens its acute angle with the rectum, thus removing the obstruction to the advancement of fecal matter. (Cannon) (1). Interference with this simple mechanical device, either by faulty position of the colon due to prolapse or by hindering bands (Lane's last kink), may be responsible for stasis in the large intestine. Following any disturbances of the onward movement of the gastrointestinal contents, the noxious products of faulty digestion are absorbed, and in their wake may come the symptom complex which we are seeking to identify.

In the review of the physiological factors entering into our problem we must not forget that the act of defecation depends in great measure on the abdominal musculature, and that with the loss of tone of these muscles evacuation of the bowels becomes difficult. Here, then, are the generally accepted group of physiological facts upon which any treatment is to be based.

#### MECHANICAL FACTORS PRODUCING STASIS.

It now becomes necessary to identify the mechanical hindrances to the normal trend of the gastrointestinal contents, and, having identified them, to ascertain, if possible, their etiology, in order that the proper corrective measures may be applied.

The question to be answered is, Are we dealing with a pathological condition arising from some intraintestinal affection, or is the whole picture that of a departure from the normal due to defective or abnormal development? Among the number of conditions which are held to be responsible for chronic intestinal stasis of varying degrees we have Jackson's membranes or veils, Lane's kink, the movable cecum, various angulations of the gastrointestinal tract, general visceroptosis, and movable kidney.

Jackson's membrane, which extends from the lateral abdominal wall and fuses with the visceral peritoneum of the ascending colon and cecum, has many variations. It may or may not include the cecum, and it may enclose the transverse colon and fold it parallel to the ascending colon, thus producing the "double barrelled colon." Sometimes the ascending colon and cecum are enclosed within it as if in a tight bag. It is most likely that the occasional band seen at the hepatic flexure of the colon or that extending to the gallbladder results from the same causes which produce Jackson's membrane.

Lane's kink, binding down the last four or five inches of the ileum, is seen distorting the normal contour of the gut and certainly operating to restrict its movements. Iliac stasis may not only be produced by Lane's kink, but may also be secondary to colonic stasis or to an appendix so placed that the passage of the iliac contents into the cecum is obstructed. The train of events fol-

lowing iliac stasis is as follows: The band which supports the last four or five inches of the ileum is dragged upon, and the proximal ileum and perhaps the cecum prolapse, producing a sharp kink at this point. The jejunum is also pulled down in a straight line, and produces a sharp angle with the lowest portion of the duodenum at the duodeno-jejunal junction, thus producing a distended duodenum. According to Jordan (3) we have, as a result, ulceration of the duodenum, cholecystitis, and chronic pancreatitis, which, he says, are regularly found in operation on the subjects of intestinal stasis.

In the condition described as cæcum mobile, and on which Wilms has laid such great stress, the cecum is freely movable and unable to empty itself with sufficient rapidity. It becomes dilated, hangs over the pelvis, causes local symptoms, to be described later, and perhaps is responsible for some of the graver constitutional manifestations of chronic intestinal stasis. Wandel found, in 640 autopsies, sixty-six instances in which the cecum was sufficiently movable to permit kinking, torsion, and displacement. Wilms contends that the abnormal mobility of the cecum interferes with its dynamics and leads to a definite symptom complex.

When attention was first called to the rôle played by adventitious membranes and bands it was thought their presence was to be explained entirely on the basis of an inflammatory reaction of the peritoneum to intraintestinal changes, and that they were identical with the adhesions one sees after trauma or infection of the peritoneum. A more careful investigation of these membranes, and of the cæcum mobile as well, combined with a study of the embryological development of the peritoneum has shown, conclusively, I think, that in the main we are dealing with a morphological development or a failure on the part of the fetal structures to complete their full ontogeny. The allied slipping of the right kidney is almost always due to a failure of the colon to rotate over the anterior surface of the kidney, and with failure of fusion of the peritoneum of the colon with the abdominal wall, there is insufficient support for the kidney. The proof of the embryonic origin of the bands and membranes or veils is based on the following: Flint (4), Eastman, and others, have found these veils and bands in very young infants and in embryos. Eastmann (5) has forcibly brought out the resemblance of Jackson's membrane and Lane's kink to the fetal peritoneal fold described by Jonnesco and Juvara, and designated by them the parietocolic fold, and to the bloodless fold of Treves. Careful dissections revealed this bloodless fold in nine out of twenty-eight fetuses. Whatever the origin of these folds (parietocolic) in the fetus, there will be no doubt in the mind of anyone who will examine the region of the cecum in a few fetuses that they exist before birth, and it has been found that they are readily demonstrable in one form or another in approximately twenty per cent. of fetuses after the sixth month. The bloodless fold of Treves was present in a larger proportion. Careful microscopical examinations of these membranes have not shown them to be of inflammatory origin. Lane has explained their presence as

evolutionary, not inflammatory, and that they exist in the first instance for the advantage of the individual.

It will be recalled that the ileocecal junction migrates in its early course from below upward and to the right, crosses the abdomen, turns downward under the right lobe of the liver (hepatic flexure), and then continues downward until it completes its rotation, and the cecum finally finds lodgment in the right iliac fossa. The chief developmental defects which may take place are, failure on the part of the colon to descend from its high position under the liver, failure of its peritoneal coat to fuse over the right kidney (failure of rotation), and finally failure of the peritoneal coat of the colon to fuse with the parietal peritoneum at its lowest position, thus producing cæcum mobile. In the course of its migration through the peritoneum (Mayo calls it burrowing), the ascending colon unquestionably picks up these additional bands and veils. It has been suggested that these membranes are due to "a more extensive fusion of the great omentum to the colon, which is dragged down with the descent of the cecum, or that they simply represent a more marked attachment of the large intestine to the abdominal wall."

These morphological studies would lead one to the conclusion that movable kidney, the cæcum mobile, and the prolapsed transverse colon are in the main due to a failure of fusion of the visceral with the parietal peritoneum in the normal manner, and that Lane's kink is either due to increased mobility of the cecum or that, like Jackson's membrane, it is a fetal anomaly. That acute or chronic inflammation may be superimposed upon any of these conditions is readily conceivable, and this is likely to result where any of these prenatal defects interfere with the normal activity of the parts.

It is not intended here to obscure the fact that adhesions do occur in the course of infections of the peritoneum, but simply to point out that these infections have not been sufficiently shown in the cases of Jackson's membrane or Lane's kink.

It will now be seen that with deficient rotation of the colon, and failure of fusion of its peritoneum with the abdominal wall, we may, and, indeed, often do, have in the same individual prolapse of the stomach from dragging down by the transverse colon, movable kidney, cæcum mobile, and any of the various bands. It is the opinion of the writer that all of these conditions are simply degrees of the same general type of congenital abnormality.

#### SYMPTOMS.

It must from the first be fully admitted that we may have any or perhaps all of the before mentioned anatomical variations present, without symptoms of any kind. I have frequently seen Jackson's membrane or a movable cecum, for example, in patients operated upon for other conditions and in whom, I am certain, they were producing no symptoms. In dealing with the symptomatology of Jackson's membranes, Lane's kink, and cæcum mobile we are in the midst of much confusion, for it is only fair to say that the symptoms noted by one observer as due, let us say, to a Lane's kink have with equal positiveness been asserted by another to be the result of Jackson's membrane. And as usual the truth lies somewhere between.



The local symptoms, as found in the right iliac fossa and right side generally, are a sense of dull ache without tenderness and with frequent attacks of severe pain, sometimes referred to the umbilicus. These symptoms are always accompanied by constipation. In many of these cases the symptoms are gastric with eructation of gas and distention. The gastric disturbances are unrelated to the time of food taking. The bowels move only with catharsis. The cases may be confounded with chronic or interval appendicitis, and, indeed, nearly always are. There may be attacks of colic which would suggest an early case of obstruction. These attacks are almost always *afabrilis*, and there is usually no muscular rigidity over the affected area. Wilms finds in the cases of cæcum mobile that there is a distinct fullness in the right iliac fossa, as if one were palpating an air cushion in the region of the cecum. There is often tenderness over the entire right side of the abdomen—not localized, as in appendicitis. These symptoms, along with general weakness and the general desire to lie down (which affords more or less complete relief), seem to characterize the group, whether caused by a Lane's kink, Jackson's membrane, or a cæcum mobile. Rovsing attaches special importance to the relief of symptoms by rest in bed as diagnostic of visceroptosis. In gastrocoloptosis there is persistent constipation, weariness, headache, loathing of food, and, later, cardialgia to the left of the median line. The quality of the food, says Rovsing, has no significance so far as the pain is concerned, whereas the quantity, the weight, and the mass of the food are of great importance; for which reason these patients can get along only by taking many quite small meals during the twenty-four hours (6).

The constitutional symptoms of chronic intestinal stasis, according to Lane, are, loss of fat, catarrhical changes with cold and livid hands and feet, diaphragmatic respiration, pigmentation of the skin, muscular pains and weakness, headache, failure of the resisting power of the patients, rendering them directly liable to tuberculosis, gout, rheumatoid arthritis, and, in the female, degeneration of the mammary glands. He also intimates very strongly that thyroid disease results directly from chronic intestinal stasis. Lane has a very advanced pupil in Barrington-Ward (7), who believes that not only is tuberculosis an end result of intestinal stasis, but that infection of the urinary tract is invariably the result of such stasis.

In the correct diagnosis of chronic intestinal stasis the surgeon must depend greatly on the roöntgenologist, whose activity in this field has added so much to our knowledge of the subject; but it may also be said the roöntgenologist should follow the cases to the operating table in order that he may see to what extent the operative findings bear out the earlier diagnosis. In the x ray diagnosis of intestinal stasis something more than radiograms is required, and even in the hands of the most expert the interpretations will differ. Often to clear up a case a large series of plates taken at intervals is necessary, and even then operation should be advised only on the combined symptoms and the x ray findings. Hasty and incompetent work will only

bring discredit to both the roöntgenologist and the surgeon. In the diagnosis of questionable cases it must not be forgotten that ulcer of the stomach and duodenum may give symptoms which might lead to confusion, and the real condition be overlooked in our search for the cause of the stasis lower down in the digestive tract. Jordan (3) holds that the occurrence of duodenal distention, as seen by the x ray, is so constant that he has come to regard it as positive for intestinal stasis, and that in the absence of duodenal distention he would hesitate to make the diagnosis of stasis.

#### SURGICAL TREATMENT.

In those cases where after a careful diagnosis has been made, and the most efficacious medical measures tried and found wanting, the surgeon has attempted to solve the problem with a fair measure of success. Believing that in gastrocoloptosis we have the chief source of the symptoms, Rovsing (6) fixes the stomach to the anterior abdominal wall, at the same time shortening the gastrocolic ligament. Coffey (8), with much the same end in view, fixes the great omentum and the transverse colon to the anterior abdominal wall; thus producing a hammock in which the stomach is supported. Lane and his followers, identifying the constitutional symptoms as due mainly to intestinal stasis, are sure that the remedy is the short circuiting of the iliac contents as directly into the rectum as possible, and with this in view divide the ileum at its entrance into the cecum and implant the proximal end of the ileum into the lowest accessible portion of the descending colon. This in a measure excludes the large intestines; but, owing to the reverse peristalsis in the colon under morbid conditions, the entire colon may show a tendency to fill up after this operation. Lane at first advised colectomy for these cases, but latterly, with the improved technic for ileocolostomy, colectomy has been practically abandoned.

In the cases where the movable cecum is responsible for either the stasis or the purely local symptoms Wilms strongly advocates the fixation of the cecum, and plication of the cecum for chronic distention has been successfully done. Great relief has followed the division of Lane's kink where the ileum was bound down, producing distress of the subacute type. Jackson (9) and others have reported relief of the chronic stasis, and the local symptoms following division of the membranes and freeing the colon and cecum from confining bands; but there is a marked tendency toward reformation of the adhesions when these veils are divided, with recurrence of the symptoms.

#### RETROSPECT.

I have purposely brought these measures together to call attention to the fact that we are facing a new phase of surgery of the abdomen—reconstructive surgery; and at present the problem is undergoing its evolution. It should be said in closing that no patient should be subjected to operation until a satisfactory diagnosis has been arrived at, and that no operation be done on incomplete evidence. While the successes in the surgery of intestinal stasis have been numerous, it is likely that the failures have not been reported with the same

eagerness. After a complete diagnosis of the cause of the stasis, and with unsatisfactory results from careful medical treatment, the patient suffering from chronic intestinal stasis may be advised that surgery offers a reasonable probability of cure.

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223 WEST 113TH STREET.

## POLYCYTHEMIA; WITH REPORT OF A CASE IN AN INSANE PATIENT.\*

BY ROBERT M. ALEXANDER, M. D.

Wernersville, Pa.

CASE. E. C., aged sixty-five years, was admitted to the Wernersville State Asylum in 1894. For many years patient has had a florid complexion, but was able to work during that time. Uses tobacco in moderation; appetite good; complains at times of dizziness.

*Physical examination:* Patient is a rather poorly developed adult male. There is no palpable enlargement of superficial lymph glands. The pulse is slightly increased in rapidity, and compressible; the superficial arteries roll beneath the fingers when palpated. The face is apparently flushed at all times; upon close inspection a violaceous or bluish tinge is seen, which is most apparent upon the lips. The pupils are equal and react to light and accommodation; there is a pterygium on each eye, involving the cornea; the conjunctivae are somewhat injected. The tonsils are small and congested; the pharynx injected and coated with mucus. The tongue protrudes in the median line, is slightly coated, and tremulous. Thyroid gland appears normal.

*Chest:*—Inspection: Expansion limited, but equal on the two sides. The skin appears normal in color, but, after percussing, the veins stand out and it becomes bluish in color. There is retraction in the supraclavicular fossae, and the infraclavicular fossae are deepened. An impulse is visible over the xiphoid cartilage synchronous with the heart beat. Palpation: Premitus appears normal; apex beat is felt in the fifth interspace,  $3\frac{1}{2}$  inches to the left of the sternum. Percussion: The percussion note is slightly overresonant; cardiac area normal in outline. Auscultation: Breath sounds slightly exaggerated; heart sounds of fairly good quality; a slight accentuation of the second sound; no murmurs heard.

*Abdomen:* The liver extends to the costal margin; gall-bladder and kidneys not palpable. The spleen shows no enlargement. No areas of tenderness, and no evidence of fluid in the peritoneal sac.

*Extremities* show dilatation of superficial veins, but no other unusual phenomena.

*Laboratory findings:* Urine shows a cloud of albumin and the presence of leucocytes and many hyaline casts.

Blood pressure is 189 mm. Hg.; hemoglobin 110 per cent.

Examination of the blood shows the erythrocyte count to be 6,275,000. The highest count made was almost 7,000,000. Leucocyte count was 8,900; color index was 0.88. The differential count showed 79 per cent. polymorphonuclear leucocytes, 20 per cent. lymphocytes, and 1 per cent. eosinophiles.

Polycythemia occurs as a secondary condition in great altitudes. Laquer in the *Archiv für klinische Medizin*, April 19, 1913, reported a study of his own blood. He went from a low alti-

tude to an altitude of 9,000 feet, where he remained for four weeks. Both the red blood count and the hemoglobin began to rise slowly during the second week, and on the fifteenth day reached their maximum; the red cells having increased fifteen per cent. and the hemoglobin sixteen per cent. After his return to the lowland the red cells decreased suddenly, and the hemoglobin, gradually, to their original proportions. Six dogs were bled until about half the volume of blood was removed, and they were then taken to the 9,000 foot altitude. The restoration of the normal blood volume required sixteen days, while six dogs kept at a lower level required for this twenty-seven days, or seventy per cent. more. He is inclined to ascribe the blood regenerating power to the low oxygen pressure. Cohnheim and Weber in the *Archiv* of the same date state that in order to determine whether or not there is an actual increase in blood corpuscles at a high level, they examined repeatedly the blood of twenty-three men who had worked for twenty-three years on the Jungfrau railroad, at an altitude of from 9,000 to 11,000 feet. Both red cell count and hemoglobin were decidedly increased over the normal for healthy men at lower levels. Osler states that the excessive globulism of great altitude is compensatory to lack of oxygen in the air, and that there is an increased activity of the bone marrow; which activity is present in erythremia proper, and the disease is regarded as a primary lesion of the erythroblastic tissues of the bone marrow, just as leucemia is an affection of the leucoblastic elements. There is also an increased viscosity of the blood which favors the stasis and capillary engorgement.

Other causes of erythrocythemia are emphysema and congenital heart disease. In a few cases polycythemia has been found related to tuberculosis of the spleen.

The three clinical features in erythremia proper are a change in the appearance of the patient, enlargement of the spleen, and excessive globulism. The superficial bloodvessels, capillaries, and veins look full, so that the skin is always congested; in warm weather being of a brick red color, in cold weather cyanosed. The engorgement of the face may be extreme, extending to the conjunctivae. In the cold the cyanosis of the face and hands may be as marked as any that is ever observed. There is also often a remarkable vasomotor instability, the hands becoming deeply engorged when held down and rapidly anemic when held up.

N. E. Brill, in the *Medical Record* for April 8, 1911, reports a case which, in addition to an erythrocytosis of between 8,000,000 and 10,000,000 cells, and a leucocytosis varying between 20,000 and 45,000 leucocytes, presented few features of a cyanosis. A much relatively diminished hemoglobin content, the color index being below 1, showed marked signs of bone marrow involvement, with a colossal spleen and a very large liver.

The spleen, Osler states, is usually enlarged, but not to the great extent met with in leucemia. It may vary in size from time to time. It is hard, firm, and painless. The total bulk of blood is enormously increased, and the ratio of corpuscles to plasma is high. The polycythemia ranges from

\*Patient exhibited and paper read before Berks County Medical Society, June 10, 1913.

six or seven to thirteen millions of red corpuscles to the c. mm. As a rule, these are normal in appearance and shape; nucleated red blood corpuscles may be present, and the hemoglobin is high. Osler, in 1903, reported in the *American Journal of the Medical Sciences* (cxxxvi, p. 127) a case in which it was 165 per cent. J. N. Hall, in the *Journal of the American Medical Association*, 1903, p. 1026, reported a case in which the hemoglobin was 200 per cent. The blood in this disease is thick and tarry, flows sluggishly from a puncture, and coagulates with great rapidity.

The cause of polycythemia, Osler's disease, is unknown. Osler proposes, as a factor, overviscosity of the blood, in consequence of which the intracapillary flow is impeded. Gibson attributes this to peripheral stasis dependent upon myocardial weakness. The leucocytes are usually not increased, though in occasional instances they may be double the normal number. Differentially, they are also normal.

Headache, flushing, and giddiness, are the most common symptoms. Constipation is common, and albuminuria is usually present. The blood pressure is high; occasionally there may be hemorrhages into the skin and from the mucous membranes. Recurring ascites may occur, and is probably due to splenic tumor. Morris has reported a couple of cases with the general appearance of the disease and with slight enlargement of the spleen, but without polycythemia. Geisback has described a variety, polycythemia hypertonica, with increased tension, arteriosclerosis, and nephritis.

**Treatment.**—Bleeding, Osler states, gives the greatest relief when there is dizziness and fullness of the head. Inhalations of oxygen may be tried for the cyanosis when extreme. Saline purges and a low diet are helpful. Hamilton and Morse assert that their patient improved under the x ray. Their patient died later from rupture of the esophageal veins.

## UNILATERAL SEPTIC INFECTION OF THE KIDNEY.\*

By A. P. CONDON, M. D.,

Omaha, Nebr.

By unilateral septic infection of the kidney is meant its invasion by virulent microorganisms and their products, usually producing within it numerous miliary abscesses, which may or may not coalesce, and often accompanied by such violent general symptoms that, without the removal or drainage of the affected organ, death usually ensues.

This form of infection was classed by the older writers with the other kinds of acute suppurative renal infections, under the term surgical kidney. No attempt was made to treat it as a distinct entity until within the last few years, when a number of these cases have been reported. The best articles have been written by Brewer and Cobb, the former making a series of animal experiments, which proved the possibility of a unilateral hematogenous infection. I have had two cases of uni-

lateral septic infection of the kidney, the histories of which I will give briefly:

**CASE I.** Mrs. C., aged twenty years, entered the Nicholas Senn Hospital March 15, 1912. Twenty-four hours before admission she was seized with pain in the right kidney region. She had a severe chill, vomited several times, and the temperature reached 103° F. She had previously been in good health, and there was no history of an injury. In March, 1910, I operated upon her for a subacute appendicitis. She made a good recovery. The temperature at that time was negative. The physical examination of the patient at the hospital showed her to be five months pregnant. The abdomen was tense all over. There was severe pain over the right kidney and right side of abdomen. There was marked tenderness over the kidney and rigidity of the lumbar muscles and also the muscles of the right side of the abdomen. Temperature, 104.1°; pulse, 130; leucocytes, 22,000; hemoglobin, 40 per cent. polymorphonuclear. The patient was semidelirious and was apparently in a very toxic condition. Examination of the urine showed a moderate pyuria, microscopic blood, albumin, 0.6 per cent., and a few granular casts. As to the urinary findings previous to her entering the hospital, I do not know. Ureteral catheterism showed pus, microscopic blood, and albumin in the urine from the right kidney. In the specimen from the left kidney there was a trace of albumin, but no pus. There was 1.8 per cent. urea and a positive phloridzin test in twenty-eight minutes from the left kidney. The phloridzin test was not made from the right kidney.

Her symptoms increased in severity, and eight hours after admission the leucocytes were 22,000, the polymorphonuclears, ninety-one per cent. I urged operation the same evening, but did not get consent until the following morning, when I did a right lumbar nephrectomy. Time of the operation was thirty minutes. There was no abatement of the symptoms. The patient died at the end of thirty-two hours from an intense intoxication. There was no suppression of urine. She passed 600 c. c. after the operation. The kidney was three times its normal size. It presented the typical appearance found in these fulminating cases. There were many miliary abscesses jutting out from the cortex, just under the capsule. A smear and a culture taken from these showed the colon bacillus in pure culture.

**CASE II.** Mrs. R., admitted to the hospital March 24, 1909. Aged twenty-eight years, a slightly built woman. Had always had good health. One child, six years old. No miscarriages; menstruation normal. Family history negative; no history of injury. Eight months previous to admission she noticed that the right side of the abdomen was somewhat larger than the left. For four months this side had increased in size. She had had pain in the abdomen and back, and also difficulty in retaining her urine. The abdomen was enlarged to the size of a five months' pregnancy. Physical examination revealed an ovarian cyst on the right side. On March 25th, an operation was done; the cyst was removed and also an adherent appendix. The urinary examination at this time was negative. No catheterism was called for after this operation, and there were no bladder symptoms whatever. The patient convalesced well, and in three weeks' time was thought to be able to leave the hospital.

On April 12th, the day before her intended departure from the hospital, she was seized with pain in the right kidney region, extending over the right half of the abdomen. She had chills, and the temperature was 101° F.; pulse, 110; leucocytes numbered 16,000, seventy-two per cent. polymorphonuclear. The urine showed a moderate amount of pus and a trace of albumin. A double ureteral catheterism was done. The urine from the left kidney was normal; there was 2.1 per cent. urea and the phloridzin test was positive in twenty-three minutes. The right kidney showed a pyuria; there was some microscopic blood, 0.08 per cent. albumin, and 1.1 per cent. urea. The phloridzin test was positive in thirty-six minutes. For some days her symptoms were better; the temperature ranging from normal to 102° F. The leucocytes were never above 18,000. Thinking that she might have had a pyelitis, I injected at three different times through a ureteral catheter 4 c. c. of a 0.5 per cent. solution of silver nitrate. This did not seem to benefit her in the least; her general condition remaining the same. There was, however, more

\*Read before the Nebraska State Medical Society, May 15, 1923.



localized tenderness over the kidney. I decided on May 4th to make an exploratory operation, and then removed the kidney, which was increased to twice its normal size. There was a moderate degree of inflammation in the pelvis, but no retention. On section, the kidney tissue showed a number of small abscesses disseminated throughout its substance. The patient made a complete recovery, and has never since had any renal trouble.

The first case belongs to that fulminating type of infection which demands early and radical operative treatment. I am convinced that this patient would have died had she not been operated upon, though possibly not so soon. I believe that if she had been operated upon during the first twenty-four hours after the beginning of her trouble, she would have lived. It was one of those cases, like some of appendicitis and of acute osteomyelitis, of the most virulent intoxication, in which time is so important an element.

The second case illustrates that type in which the infection is milder. Just what the final outcome would have been without an operation we cannot say. I believe, however, her symptoms would have gone on, gradually growing worse, the abscesses in the kidney coalescing and destroying it, unless death came sooner from sepsis.

This form of kidney infection is hematogenous in origin, occurring usually in persons apparently in normal health. Women are more likely to be attacked than men, as pregnancy predisposes them. The increased congestion of the kidney, on account of the pressure on the renal vessels by the gravid uterus, is no doubt a cause. The right kidney is more often affected than the left, the reason for which I believe is that it is more often displaced, and therefore more liable to passive congestion. This also explains the unilateral involvement. It may arise during the course of some other infection in the body, such as erysipelas, endocarditis, influenza, scarlet fever, typhoid fever, pneumonia, and osteomyelitis. In fact, in any infective process the organisms may be secondarily deposited in the kidney. This form of renal infection is distinct from that class of renal abscesses due to an ascending infection.

Some of the acknowledged authorities in renal diseases, among them Guyon and Albarran, are of the opinion that many of the kidney infections, secondary to bladder troubles, are also hematogenous in origin. The kidney is the most vascular organ in the body. Landergrén has observed that, under the action of strong diuretics, the amount of blood which passes through the kidney in a minute's time equals its weight. On account of its extreme vascularity, a passive congestion is easily produced, and this is the most frequent predisposing cause of infection. Normally the kidney excretes various microorganisms without injury to its substance. It is not unusual to find the colon bacillus, and in typhoid fever and tuberculosis the organisms causing these diseases are often thrown off in the urine without any involvement of the kidney structure. The organisms causing this form of infection belong to the pus organisms, and the most frequent is the colon bacillus. I am convinced that we never have an infection in the kidney without some previous change in the renal circulation or a physiological or pathological disturbance in the kidney itself. These changes may be

so slight that the patient's attention may never have been directed to the kidney, but are sufficient to cause a lowered resistance in the organ, and thus give rise to a suitable soil for infection.

The symptoms of unilateral septic infection of the kidney appear suddenly. There is pain over the affected organ, extending around the upper part of the abdomen, and this is severe and continuous. It is that kind of pain described as intrarenal, in contradistinction to extrarenal pain or colic, which is intermittent or paroxysmal and produced by changes in the ureter or pelvis. The pain of septic infection appears sometimes so suddenly and is so intense that the condition has been mistaken for a visceral perforation or fulminating appendicitis. In this form of infection there is always marked tenderness over the kidney, and this is so apparent that the slightest pressure is complained of, and it is greatly intensified by fist percussion. The point of greatest tenderness is at the costovertebral angle. There is hyperesthesia of the skin over the kidney and rigidity of the lumbar muscles. There is usually vomiting, fever, rapid pulse, prostration, and a high leucocytosis. The fever is continuous and of a typhoid character. There are usually chills and sweating. The patient affected with this malady impresses one as being very ill.

The urinary findings vary; in fact, pathological findings may be absent. There is, however, usually some pus, albumin, and microscopic blood. In two of Cobb's seven cases the urinary findings were negative. One would naturally expect, with such marked general symptoms, to find a great deal of disturbance in the renal secretion, but this is not the case. The finding of pus, blood, and albumin aids one in the diagnosis, but their absence should not deter us from making this diagnosis if the general symptoms point to a kidney infection. A cystoscopic examination, together with ureteral catheterism, should be made. If there are albumin and pus, one will be able to tell from which kidney it comes, and also to determine the presence of the other kidney and its functional capacity.

To differentiate this form of renal infection from acute abdominal conditions with similar symptoms is not always an easy matter. The suddenness of onset without a previous history of urinary trouble, the location and kind of pain, the great prostration, chills, high temperature, extreme tenderness over the affected organ, together with the urinary findings, will determine the differential diagnosis.

In regard to the indications for operation I would say, that one should be governed entirely by the intensity and progressiveness of the symptoms. If the infection is of the fulminating type, attended by severe pain with marked tenderness, high temperature, and a polymorphonuclear leucocyte count among the eighties, such a patient should be operated upon at once, just as one should operate on an acute osteomyelitis or any other infection showing the fulminating type of septic intoxication. On the other hand, if the symptoms are milder, pain less severe, temperature ranging from 100° to 102° F., a relatively low polymorphonuclear count, the general toxic symptoms not great and not progressing in severity, such a patient may be watched, and if the symptoms remain stationary or decrease,

operation may be deferred. Some of these cases will no doubt undergo resolution, and recovery will take place without operation. As to whether the kidney, when operated upon, should be drained or removed depends on the condition found. A kidney which is the seat of military abscesses will be recognized by inspection. It is enlarged, mottled, tense, filled with blood, and if there has been sufficient time for their development there will be observed numerous small yellowish and blackish areas, which on stripping the capsule are seen to jut out from the cortex. Such a kidney should be removed. If there are no abscesses, but simply a large, tense, hyperemic kidney, splitting the capsule or draining may relieve the symptoms.

CITY NATIONAL BANK BUILDING.

### Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXXVI.—How do you treat cholera infantum? (Closed July 15th.)

CXXXVII.—How do you treat threatened abortion? (Answers due not later than August 15th.)

CXXXVIII.—How do you treat insomnia? (Answers due not later than September 15th.)

CXXXIX.—How do you treat chancroids? (Answers due not later than October 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXXV was awarded to Dr. Joseph V. Klander, of Philadelphia, whose article appeared on page 234.

### PRIZE QUESTION CXXXV. THE TREATMENT OF BURNS.

(Continued from page 237.)

Dr. Rose A. Bowers, of Michigan City, Ind., observes that:

When the body is subjected to intense heat or to the action of caustic chemicals, as strong alkalis or corrosive acids, certain physical and chemical changes take place in the tissues; according to their degree of severity, three degrees of burns are classified.

A burn of the first degree is one where there is merely a hyperemia or redness of the skin, produced by the transient exposure to heat slightly less than  $212^{\circ}$  F., or to the temporary actions of caustic alkalis or acids. When two thirds of the surface of the body is involved in a first degree burn, death usually results.

Burns of the second degree are those in which

the deep layers of the skin are involved; owing to the exudation of serous fluid watery blisters are formed. If one third of the body is involved in a second degree burn the results are usually fatal.

Burns of the third degree are those which not only affect all the layers of the skin, but which include the muscles, bloodvessels, nerves, and bony structures, as a secondary result of the damage done to tissues—sarcolactic acid and poisonous albuminous substances are produced which act as a toxine. Necrosis and gangrene are frequent, because the parts involved are deprived of their blood supply and nourishment.

Burns of the first degree may be treated by applying a two per cent. solution of picric acid to the affected parts, or the burned surface may be dusted with equal parts of zinc oxide, boric oxide, and powdered starch, followed by the application of a loose, soft bandage; lead and opium water have been frequently applied with gratifying results. In the absence of other remedies sterilized water may be used. When the pain cannot be controlled otherwise, the hypodermic use of morphine is indicated.

In burns of the second degree we should relieve the shock and pain, if necessary, by one quarter grain of morphine. The next effort will be one to prevent infection. The blebs should be emptied when they are full of serum; this may be done by puncturing the bleb at its edge just through the healthy skin, allowing the epidermis to remain as a covering. After carefully cleansing the healthy tissues about the burn, the burned area should be irrigated with normal salt solution and gently mopped with soft gauze to remove foreign matter.

Anesthesia may sometimes be necessary to thoroughly cleanse a burned surface. There should next be applied a dressing which is both antiseptic and analgesic. Various solutions and emollients have been suggested and employed, but none as yet has been found to be the ideal. Picric acid may be applied in one to two per cent. solutions; a serviceable solution may be made by dissolving seventy-five grains of picric acid in a pint and a half of water, to which is added two ounces of alcohol. This should be applied to the cleansed burned surface by placing strips of sterile gauze wet with this solution; these are covered with absorbent cotton and bandage. The dressing should be changed in about four days. Equal parts of hydrous wool fat and zinc oxide ointment may be applied to the burned surfaces and covered over with sterile gauze and soft bandages. Ointments of boric acid or ichthyl have been found advantageous.

In the burns of the third degree the shock and pain should be allayed by a quarter grain dose of morphine and in some cases a permanent warm bath may be employed. If a limb is so involved that the possibilities of nourishment are destroyed, amputation of the limb should be resorted to, as soon as the symptoms of shock have sub-sided. Saline and boric acid solutions should be used to cleanse the burns of the third degree. Stronger antiseptic solutions are dangerous because of the possibility of absorption. Simple sterile dressings should be applied. Dressings should be as frequent as the degree of infection in each individual case demands. Ulcers should be touched with a

two per cent. solution of nitrate of silver, and the sloughs should be removed when it is possible to do so. Skin grafting may be employed in those cases where it is indicated.

The adjuncts to the local treatment must always be borne in mind; the pain, collapse, restlessness, and heart failure must all receive appropriate treatment.

*G. J. Ellis, of Covington, Ky., writes:*

Our choice of local applications for burns is determined by their severity and extent, but in all cases the principles are the same: protection and antisepsis with as infrequent changing of dressings as possible. For a burn of a few square inches in extent, not beyond the degree of vesication, we may use an ointment of five per cent. boric acid in petrolatum, to which one per cent. of cocaine may be added for the first day or two. For a larger burn of the same degree, the best application is picric acid, which is most conveniently prescribed in six per cent. alcoholic solution; three ounces of this solution to be added to one quart of water. Strips of gauze saturated with this solution are applied, covered with cotton, and lightly bandaged. This dressing may be left undisturbed for three or four days, and a second similar dressing will often be sufficient to complete healing. As vesicles form, they should be punctured and drained, allowing the skin to settle on the underlying surface as a protection. The utmost care should be exercised in changing the dressings, as well as in removing overlying clothing when the patient is first seen, all adherent fabric being removed by prolonged soaking with warm normal saline or two per cent. boric acid solution. In treating large burns, the dressings should be removed and replaced in small sections to avoid chilling. Deeper burns should be treated with a five per cent. boric acid ointment, or, in the case of an extremity, in a continuous bath of warm one to two per cent. boric acid solution. Hemorrhage may be serious during sloughing, and is best treated by compression. After sloughing the treatment is that of any other granulating wound; stimulating applications, solid stick of nitrate of silver for exuberant granulations, and skin grafting. One drachm of balsam of Peru to two ounces of castor oil, ten per cent. thymol iodide ointment, and from five to ten per cent. scarlet red ointment are excellent applications. Destruction of the entire thickness of the skin will always be followed by cicatricial contraction, which may be lessened by skin grafting and the use of splints and extension. Amputation may be required in severe burns of the extremities. Burns of the conjunctiva and cornea are treated by cocaine instillations and cold compresses to the eyelids, keeping the pupil dilated with atropine and frequently separating the conjunctival surfaces and instilling castor oil to prevent adhesions. Flame and steam are sometimes inhaled, causing burns of the fauces and upper respiratory passages—a very dangerous condition often leading to edema of the glottis. These patients should be kept in a warm, moist atmosphere, alkaline antiseptic sprays and gargles employed, and tracheotomy or intubation performed on the approach of dyspnea.

General treatment is required for the pain and initial shock as well as for the complications. Pain should be relieved by the hypodermic use of morphine; in severe burns it is often necessary to administer morphine before examining the patient. Shock is combated by stimulants (strychnine and alcohol) and warmth. Besides the common wound infections, which need not be considered here, burns are especially liable to produce internal congestions. Cerebral congestion, indicated by restlessness, headache, and often delirium, is treated by the application of an ice cap and the administration of bromides. Pulmonary congestion causes pneumonia and pleurisy, which are treated by the usual methods. Intestinal congestions are probably the most frequent internal complications of burns, often leading to duodenal ulcer. Diet should be entirely fluid, bowels moved by enemas and salines when required, and any diarrhea immediately checked with opium. If duodenal ulcer is suspected, feeding should be exclusively per rectum, and bismuth in large doses should be given. Iron, quinine, and strychnine are useful during convalescence. After recovery plastic surgery may be necessary to correct deformity resulting from cicatricial contraction.

*Dr. Nelson Du Val Brecht, of Washington, D. C., states:*

The therapy of burns may be considered under four headings: First, prophylactic; second, curative; third, complications; and fourth, sequela.

**Prophylactic Treatment.**—After the skin has been exposed to a degree of color sufficient to cause a first or second degree burn (Dupuytren), the immediate application of full strength solution of hydrogen dioxide will abort the pathological changes. I demonstrated this fact during the treatment of numerous individuals who had come into contact with hot steam pipes.

**Curative Treatment.**—The curative treatment of burns depends upon the degree, the site, the area involved, and the nature of the causative agent. Pain must be relieved by the employment of morphine hypodermatically or other suitable anodynes. Stimulants as strychnine or ammonia are indicated frequently to combat shock. Elimination and nutrition must be maintained. In the treatment of burns produced by caustic acids or alkalis appropriate chemical antidotes are indicated.

The armamentarium of remedies for local therapeutic use contains: Sodium bicarbonate (saturated solution or as a dusting powder); picric acid (one per cent. aqueous solution or in the form of a five per cent. ointment); phenol sodique in a one to eight solution; zinc oxide ointment, or iodoform; solution of hydrogen dioxide: saturated solution of boric acid; Senn's powder (three parts of boric acid and one part of salicylic acid); iodoform; solution of potassium nitrate; Carron oil; collodion; boric acid and starch; salicylic wool; corrosive sublimate solution, one to two thousand; carbolized oil, one to forty; phenol ointment; ichthyol ointment; tincture of calendula, five c. c. to 500 c. c. of sterile water; ointment of boric acid; petrolatum; and cataplasm of kaolin.

When a patient is to be treated for a severe burn



he should be put to bed at absolute rest, the clothing should be cut away, warm blankets wrapped around the unaffected areas, and hot water bags or the electric pad applied to the unburned parts. Vesicles and blisters should be punctured with a sterile needle or scalpel. Sloughs and dead skin should be removed, employing a stiff brush, razor, or curette for the purpose. General anesthesia may be required. Brewers' yeast dressings facilitate the separation of necrotic tissue. After the sloughs have been separated and the surfaces are granulating, skin grafting is necessary. Continuous immersion in warm water is the most serviceable remedial measure in extreme cases. The water must be frequently changed and sodium chloride or some mild antiseptic may be added with advantage.

The choice of local remedies to be used depends upon the individual case and the judgment of the attending physician.

Complications.—The complications of burns, which require therapeutic notice are, among others, duodenal ulcer, laryngitis, bronchitis, pneumonia, edema of the glottis, septicemia, pyemia, septico-pyemia, inflammatory fever, congestion of the viscera, intestinal perforation, and peritonitis.

Sequelæ.—The sequelæ to be considered are anemia; asthenia; contracted, disfiguring, and painful cicatrices, keloid, and epithelioma. Troublesome scars may be prevented by early skin grafting and proper splinting.

*Dr. A. H. Powers, of Boston, says:*

Burns are of varying degrees and the treatment of them can best be given under three heads, moderate, serious, and severe.

The moderate burn.—There are many of so slight a degree that they do not need or at least do not receive a physician's attention. The moderate burns may be of limited or extended area. They result in some blistering of the skin and cause much discomfort, but are rarely fatal of themselves. Such a burn occurring in an old or diabetic person may be of so serious a nature as to overcome the organism. In these cases moderate stimulation with appropriate remedies may be indicated, but in the moderate burns, as a rule, only local care is needed. The first thing in order is to carefully sterilize the skin of the involved area. This may be done by a bichloride of mercury or carbolic acid solution, or, in cases where the skin is unbroken, alcohol may be used with great benefit. A carbolic acid solution has the advantage of being somewhat anesthetic and lessens or obliterates the pain for some time after its application. I prefer that all cleansing washes be as hot as can be borne, since the contraction of the vessels by the heat lessens the congestion for some time. When the skin is sterile, or practically so, some protective dressing must be applied, and sterile gauze with just enough of a simple sterile cerate to prevent the sticking of the dressing is usually all that is necessary.

The serious burn.—Serious burns are deeper and often of considerable extent. In these cases the same careful cleansing of the skin or damaged area is absolutely necessary. Much care and time may well be spent in sterilizing the field at the first dressing. There may be need of care at the sub-

sequent dressings, but the first is the most important. This is especially true, since in about three days granulations form and a granulated surface is not likely to absorb much sepsis. Here, too, protection is necessary and I had almost said imperative, and it is imperative for the best results. In this class of burns pain is much more marked and hence a sedative dressing is very helpful. Ichthyol in from five to ten per cent. in a cerate applied on sterile gauze often is ideal, and in other cases a dry dressing of boric acid finely powdered may prove acceptable.

The severe burn.—The severe burn is the supreme test of the ability of the physician. Here we often have severe shock, which may develop at any time in the first three or four days. Often prompt and active stimulation is necessary, and strychnine often seems to serve very well. But all conditions must be met and met skillfully and promptly. I have an idea that this shock is caused in part, at least, by the toxins in the burned area being absorbed and therefore the absolute need of a sterile field, if we are to lessen to the full extent the shock which may prove fatal. Next comes protection and here oftentimes the pain is apparently not as severe as the character of the burn would indicate. Sterile protective dressings must be applied and changed as often as the case may demand, which may be three or four times a day. In this class of cases the local treatment largely consists in applying sterile dressings, and keeping the field sterile till healing has taken place. One method of treatment, in the deeper burns where the area is considerable and scarring would be considerable, is by skin grafting. After a week or possibly ten days, the line of demarcation between the living and dead tissue appears and then, with a scalpel cut out the sloughing tissue and apply grafts after the method of Thiersch. In ten days, if the work is skillfully done, the area will be healed and the long tedious dressings will be unnecessary. The healed surface will be much more nearly normal and serious contractions will be avoided.

*(To be concluded.)*

## Therapeutical Notes.

Treatment of Gastrointestinal Presclerosis.—I. V. Chichoukine, in *Semaine médicale* for February 5, 1913, is credited with pointing out the fact that frequently in patients between thirty-two and forty-five years of age, and occasionally in those who have passed this period, there occurs a combination of symptoms neither representative of any well recognized gastrointestinal disease nor of neurotic origin, but actually caused by a presclerotic condition in these organs. These symptoms consist of pain, two or three hours after meals, nausea, anorexia, bad taste in the mouth, occasionally vertigo and insomnia, and some abdominal tenderness. The heart sounds are frequently muffled, the second aortic, however, accentuated; the pulse is hard, the vessels indurated, and the skin flaccid or wrinkled. Pyrosis, vomiting, and alvine disturbances are conspicuously absent. Various drugs.

such as bromides, codeine, bismuth, phenyl salicylate, etc., have usually been tried in these cases without the least benefit.

In a series of 330 cases the author found theobromine sodium salicylate useful in about one third of the patients. Potassium iodide proved ineffectual. The following mixture was found more beneficial than any other preparations used:

R Adonis vernalis, ..... 5i-ss (8-10 grammes);  
Water, ..... 3vi (180 grammes);  
Make an infusion, strain, and add  
Cocaine, ..... gr. ʒi-iv (0.02-0.25 gramme);  
Tincture of valerian, ..... ℥xxv (1.6 grammes);  
Compound spirit of ether, ..... 3ii (6.4 grammes).  
M. S. One dessertspoonful in milk three times daily.

This mixture was generally administered for three or four weeks. In a small proportion of cases the adonis caused digestive disturbances; this was soon overcome, however, by adding to the mixture two drachms (eight grammes) of tincture of condurango. All the symptoms of the "presclerotic" condition were relieved.

**Treatment of Whooping Cough.**—M. I. Yakovlev, in *Semaine médicale*, April 16, 1913, is stated to have obtained striking results in three cases of pertussis in infants by the ordinary procedure of vaccination. The children thus treated were twelve, seventeen and eighteen months old, respectively, and were vaccinated on the fourth, seventeenth, and seventeenth day of the disease. In a week the frequency and intensity of the paroxysms was in each case greatly diminished, and in two to three weeks there was complete recovery. Trial of vaccination in cases of whooping cough in children that had already been vaccinated showed it to be without effect under these conditions. The procedure is thus of value only in previously unvaccinated infants. Because of this fact Yakovlev, in the institution with which he is connected, is inclined to avoid early vaccination of infants in order that in the event of an epidemic of pertussis, with its high mortality among the very young, an efficacious measure of treatment shall be available.

**Treatment of Graves's Disease.**—R. O. Moon, in the *Practitioner* for October, 1912, states that while in many cases it may be advisable at the outset to keep the patient in bed for several weeks, often an entire change of air, scene, and social circumstances will prove to be one of the best remedies. With regard to climate it is important to avoid great altitudes, and to remember that heat is badly borne by these patients. Long journeys should be forbidden.

The diet should be simple and mainly vegetable. It may be worth while to try the effect of drinking water different from that of the locality in which the disease was developed.

As to drugs, the author has had best results with moderate doses of arsenic and sodium bromide:

R Liguoris potassii arsenitis, ..... ℥iii (0.2 gramme);  
Sodii bromidi, ..... gr. x (0.6 gramme);  
Aque, q. s. ad, ..... 3i (30 grammes).  
M. Sig.: Three times daily.

Belladonna is sometimes helpful in quieting the general nervous erethism. Some strongly recommend sodium phosphate.

One cannot as yet make any positive pronouncement on the subject of x ray treatment. In obsti-

nate cases it may be advisable to try the effect of operative treatment.

**Treatment of Rheumatism.**—James Craig, in the *Glasgow Medical Journal*, October, 1912, refers to a class of rheumatic patients suffering in particular from what he terms "bowel dyspepsia." The patients come complaining of pains in the muscles, nerves, or joints, deny any rheumatic history, and although they may state that their bowels are regular, hard, movable masses can be felt in the ascending, transverse, or descending colon. In these cases the author gives small doses of castor oil, morning and evening, and later the following powder:

R Hydrargyri cum creta, { ..... gr. ii (0.12 gramme);  
Pulveris rhei, { ..... gr. iv (0.25 gramme).  
Sodii bicarbonatis, ..... gr. iv (0.25 gramme).  
M. ft. in chartulam No. i.

Sig.: One powder in milk every four hours.

Sometimes the mechanical removal of fecal masses impacted in the rectum is necessary. Later, the patient should be required to take one or two teaspoonfuls of magnesium sulphate in hot water every morning, to hold in check the tendency to constipation.

In young subjects the bowel trouble is frequently the forerunner of an attack of acute rheumatism. There may already be slight and transient pains, mostly confined to the lower extremities, and well marked symptoms of cardiac disease, and if these patients are put upon sodium salicylate at once, the symptoms are often aggravated and the temperature rises suddenly to 103° or 104° F. In such cases the mercury and rhubarb powders already referred to should be given, as well as large quantities of diluents, e. g., barley water, with drachm doses of potassium bitartrate in each ten ounces.

Where much mucoid material is passed with the stools doses of calomel, blue pill, or castor oil may be given in the morning, and large saline enemas administered slowly every evening. Sick headache in rheumatic subjects is also often considerably relieved by enemas. Oral sepsis should be overcome, in so far as is possible, by proper cleansing.

Milk diluted with barley water, ordinary water, soda or potash water, constitutes the best diet for rheumatic cases where digestive disorder plays the leading part.

Many minor forms of neurasthenia, the author finds, arise in these cases. Especially notable is sleeplessness from overanxiety, and this renders worse the whole series of symptoms. In these cases not only are antirheumatics and magnesium sulphate used, but the following mixture given at the outset to facilitate sleep and overcome excitement:

R Potassii bromidi, ..... 3ii (8 grammes);  
Ammonii bromidi, { ..... āā 3ss (2 grammes);  
Sodii bromidi, { .....  
Chlorali hydrati, ..... 3i (4 grammes);  
Syrupi, ..... 3i (30 grammes);  
Aque, q. s. ad, ..... 3vi (180 grammes).

M. Sig.: One tablespoonful every three or four hours in water.

In the more marked cases of "rheumatic neurasthenia" a placebo of some kind is absolutely necessary. The "bowel dyspepsia" needs special attention. In addition to magnesium or sodium sulphate as a morning draught, gentle massage of the abdomen morning and evening is a useful adjuvant.

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THE TREATMENT OF HEAT EXHAUSTION  
AND HEAT STROKE.

Judging from the routine treatment employed by many in the disorders caused by excessive heat, there is good ground for the belief that the clinical difference between heat exhaustion and heat stroke is too often overlooked. Were the treatments of these two conditions similar, no harm would result, but as this is far from being the case, the identification of each disorder as a distinct entity is of major importance. A few lines on this topic and the therapeutic and prophylactic measures indicated, will therefore be in order at the present time.

In heat exhaustion, as is well known, we are dealing with an asthenic collapse characterized by more or less sudden failure of the circulation. The blood accumulates in the great splanchnic area, depleting the brain and the peripheral tissues. Hence the pallor, vertigo, faintness, clamminess, coldness, etc., and the characteristic early hypothermia, the temperature falling often to 95° F. If we now compare this condition with the pathogenic phenomena of heat stroke or heat apoplexy as it is sometimes termed, the difference between them will become evident. Instead of the extreme vasodilation which occurs in heat exhaustion, there is extreme vasoconstriction in heat stroke; the condition being due, as emphasized long ago by Lambert and the late

Ira Van Gieson, to autointoxication. The symptomatology is quite in keeping with the intense vascular erethism through which the blood is driven forcibly to the cerebrospinal system and the periphery. The characteristic symptom here is hyperpyrexia, the temperature reaching, in some instances, as high as 113° F., with intensely flushed, hot and sometimes cyanotic skin, injected conjunctivæ and in some cases convulsions, the result, in turn, of intense cerebrospinal hyperemia.

That the treatment of the two conditions, though both are due to excessive heat, should be antagonistic is selfevident. While in heat exhaustion the object should be to raise the vascular tension and cause the blood to return to the cerebrospinal system and the periphery, in heat stroke the aim should be to depress the vascular erethism and relieve the cerebrospinal system, lungs, and all peripheral tissues, of the intense congestion to which they are being subjected. It is in *heat exhaustion*, therefore, that strychnine, digitalis, aromatic spirit of ammonia and other stimulants are indicated. The ice bath here is an absurd measure; the skin has cooled itself sufficiently by inducing reflexly, through the heat and vasomotor centres, a hypothermia of over three degrees! A warm bath is indicated if any is used at all. In a shady, cool place, with the clothing loosened or removed, such a patient will promptly respond to the above stimulants. Conversely, the ice bath—or better—affusions of ice water combined with frictions until the temperature is reduced to 102° F., a procedure which gave O'Dwyer the lowest mortality on record—is the dominant therapeutic factor of *heat stroke*. Ice water enemas, hypodermoclysis and the ice cap are potent adjuvants, while no threatening case should be deprived of the most active cerebrospinal depletant, lumbar puncture, which has now received the sanction of several authorities.

The prophylaxis of both conditions is so well known that mention will only be made here of the need of restricting the diet, avoiding particularly the use of foods rich in nucleins, meats, eggs, etc., during heat spells, and also all alcoholic drinks. Water and buttermilk are excellent summer beverages, the former to facilitate the elimination of waste through the kidneys, the latter to prevent intoxication from the alimentary tract.

MEDICAL SURVEY OF AMERICAN  
INDIANS.

On January 23 the surgeon general of the United States Public Health Service sent to the Senate a special report embodying the results of a widespread investigation by the Public Health Service into sanitary conditions and the prevalence



of disease among the North American Indians. Congress appropriated \$10,000 for this survey on August 24, 1912, and fourteen medical officers specially trained for the work have been engaged until now in collecting data.

In general, the results confirm the less complete annual report of the Indian Office for the fiscal year 1912. Tuberculosis and trachoma are found to be the most destructive and serious diseases. Sanitary conditions on the reservations are very poor and require improvement, especially in housing arrangements and the living habits of the Indians. It is pointed out that grave danger exists of trachoma and tuberculosis being transmitted to the white race because of the increasing intercourse taking place between whites and Indians. The Indian is now in a gradual process of assimilation, which is furthered by the many reservation counties being opened to white settlement. Increasing facilities for transportation also tend toward spreading these diseases.

Conditions in regard to trachoma are truly astonishing. Reservation and nonreservation boarding schools in twenty-five States were visited, and a total of 39,231 Indians were examined, about one-eighth of the Indian population of the United States. Of these, 8,940 were afflicted with trachoma, or 22.7 per cent. of the entire number. If this rate prevails throughout the 322,715 Indians under the Indian Office, as seems probable, it means that 72,000 Indians in the United States have trachoma. The incidence of this disease varies greatly in different sections of the country. In Oklahoma 68.6 per cent. of those examined were trachomatous. In New York but two out of 943 had the disease. Trachoma was found more prevalent in the Indian schools than in the reservations from which the pupils came. It seems likely, therefore, that the schools are foci of contagion, and that pupils in many cases could contract the disease there and then introduce it into their home localities. The incidence was heaviest in children of school age, over one half of the subjects of the disease being between six and twenty years of age. In a group of 23,560 Indians 5,505 had trachoma, and 527 had sustained serious damage to vision. One hundred and forty-one were blind in one or both eyes. In most schools trachomatous children mingled freely with the others.

For several reasons it was difficult to obtain exact figures regarding tuberculosis. The time allotted for the work was very short and the territory to be covered very extensive. The regulation of the Indian Office excluding tuberculosis children from these schools is well observed, and therefore a large group of those examined showed an artificially

lowered incidence of tuberculosis. Nevertheless, it was demonstrated that the presence of tuberculosis among the Indians is much in excess of that in the white race. The situation is so serious that immediate and vigorous measures are required for its relief. The highest proportion of infection with tuberculosis was found among the more primitive tribes; so among the Piutes of the Pyramid Lake reservation of Nevada the rate of incidence was 32.6 per cent., while the lowest incidence was in New York, with a case rate of 1.27 per cent. Of the children examined among the Jicarilla Apaches in New Mexico, 95.5 per cent. responded to the von Pirquet reaction.

Strangely enough, typhoid fever is exceptionally rare, no case being encountered in the survey, and the records showing the disease to be very infrequent. Smallpox is practically negligible, and scarlatina and diphtheria are rare, while measles and whooping cough have a wide incidence.

The surgeon general's report makes definite and constructive suggestions as to methods of meeting the situation. He urges the point that improvement of the Indian's economic status, making him independent and self supporting, and thus assuring him a sufficient and regular food supply, is a most important consideration. Education in personal and domestic hygiene should be prosecuted vigorously along every effective line. It is recommended that the Indian Medical Service be greatly extended in its duties and powers, and that the Indian country be subdivided into sanitary districts, according to size and density of population, each with a medical officer who shall be directly under the charge of the chief medical officer for the reservation. Reservation hospitals and movable clinics for trachoma and tuberculosis, separated, should be maintained, and also a sufficient number of field nurses, under the direction of the medical officers, to provide home treatment and instruction for such as cannot attend the clinic or hospital, and children suffering from tuberculosis or trachoma should be in separate schools.

#### THE NATURAL HISTORY OF PELLAGRA.

Louis W. Sambon, who first postulated the theory that pellagra was a protozoal disease transmitted by an insect, now brings forward some very suggestive collateral evidence in support of his views in the *British Medical Journal* for July 5, 1913. He incriminates the small biting fly, of the species known as the *Simuliidæ*, which inhabit only those regions in which there are swiftly moving streams. In these streams the insect passes its larval stage. As the result of a most painstaking and extensive study of the natural history of the disease, Sambon states that pellagra, like malaria,

sleeping sickness, and other endemic diseases, has its scattered, strictly limited districts, invariably and necessarily associated with the same peculiar ecological conditions. In these districts the disease is rampant and affects newcomers; outside of such regions the disease cannot be contracted, notwithstanding close, and intimate contact and association with emigrant pellagrins. Within such endemic stations the disease attacks all ages, both sexes, and entire families; outside such stations the disease involves only occasional and isolated individuals, never affecting children who have not been out of the free region. That persons recently settled in a pellagrous district almost inevitably soon become infected is held by Sambon to be one of the strongest points in favor of his hypothesis. Such occurrence he has observed repeatedly. He goes even farther, and cites several instances of infection having occurred during a single brief sojourn of healthy individuals in such a pellagrous locality; in some the period of stay was less than a month, yet infection took place. Such infection usually takes place during the first epidemic season in the locality, soon after exposure to the infective agent, though the symptoms may be very slow in developing and not appear until long after the person has left the area. He says, "Therefore, in this respect, pellagra is analogous to malaria, yellow fever, sleeping sickness, and other infectious diseases, with well defined topographical limitations, which limitations are explained by and are dependent upon the biological necessities of their special insect intermediaries with corresponding topographical limitations." A most striking fact in support of Sambon's theory is found in the distribution of the disease in certain of the Venetian Lagoon islands. The small islet town of Burano entirely covers its islet, and, in contrast to towns in general, it is found to contain a large number of pellagrins. Here the pellagrins are almost exclusively men, neither women nor children being infected, as is usually the case in pellagrous regions. This is accounted for by the fact that the men spend their days away from the island, fishing near the mainland, at the mouths of streams along which pellagra is very prevalent, and the air of which is filled with small biting midges. This source of the infection is further borne out by the fact that the men who work in the arsenals in Venice, although living on the same islet, are free from infection. Food supplies to this town are the same for all. One of the well known phenomena of pellagra is the annual recurrence of exacerbations of the disease in old cases. Such recurrences occur in the spring, at about the same time that the flies are beginning to emerge. From these recurrent old cases the flies obtain their infection. After an interval sufficient

for the completion of the cycle in the intermediary host, these flies become infective for healthy persons, and we have an epidemic outbreak of the disease. Precisely such occurrences are to be encountered in Italy, and in other markedly pellagrous regions. Sambon believes that there is no adequate evidence for the toxic or dietetic theories of the causation of the disease, and, while he has not been able to find the causative parasite, he believes that the evidence in favor of the parasitic nature of the disease is extremely strong, if not absolutely convincing.

#### THE PROGNOSIS OF TUBERCULOUS MENINGITIS.

There are probably few who realize what a large number of deaths are caused annually by this disease. For instance, in the city of New York, it occasions far more than typhoid fever. Taking a year at random, we find that in 1909 no less than 806 deaths were accredited to tuberculous meningitis, or a weekly average of about fifteen and two fifths, while the deaths from typhoid amounted to 564, or a weekly average of about ten and four fifths. In 1912 the weekly average of deaths from tuberculous meningitis recorded by the Bureau of Vital Statistics was about seventeen and a half, and that from typhoid about nine and a half. During the first half of the present year, when fewer cases of the latter disease (as well as a smaller mortality from it) were reported than ever before, the disproportion was very much greater; the weekly average of deaths from tuberculous meningitis being the same as in 1912, and that from typhoid only about three and a half. Of course, recovery in tuberculous meningitis is a rare exception, but possibly in the future the outlook may be at least a little less gloomy. Dr. Robert L. Pitfield, of Philadelphia, who reports one case of his own (*American Journal of the Medical Sciences*, July, 1913), has been able to collect, from various sources, twenty-eight other new cases of undoubted tuberculous meningitis in which recovery followed, and eight others in which the diagnosis was less positive. If in any given instance the process should fortunately be limited to a part of the surface of the brain, there would, it appears, be some prospect of a successful issue under intelligent treatment. Doctor Pitfield's studies show that recovery can take place in perhaps one in 200 cases, and in view of this fact he urges that steps should be undertaken actively to facilitate such a possibility. In the treatment he would include prompt lumbar puncture, the free use of hexamethylenamine, morphine as an analgesic and sedative (provided respiration is not embarrassed by it), and one or two injections of tuberculin.

## News Items.

**New Hospital for Fort Worth, Texas.**—A new hospital will be erected at Fort Worth, Texas, jointly by the city and county, at a cost of \$20,000, of which \$3,500 has been contributed by the city confederation of women's clubs.

**Typhoid Fever in Evansville, Ind.**—Acting Assistant Surgeon Neary, of the United States Public Health Service, reports that during the week ending July 26th, ninety-three cases of typhoid fever were reported in Evansville, making a total of 148 cases reported since June 14th.

**Cerebrospinal Meningitis in Los Angeles.**—Senior Surgeon Brooks, of the United States Public Health Service, reports that during the week ending July 26, 1913, three cases of cerebrospinal meningitis were reported, making a total of eighty-two cases of the disease in Los Angeles since January 1, 1913.

**Pellagra.**—During the week ending July 12, 1913, pellagra was reported by cities to the United States Public Health Service, at Washington, D. C., as follows: Boston, Mass., 1 death; Buffalo, N. Y., 1 death; Montgomery, Ala., 2 cases with 2 deaths; Nashville, Tenn., 3 cases with 3 deaths; New Orleans, La., 3 deaths.

**Philadelphia Bureau of Health Plans Extensions to Bacteriological Laboratory.**—Plans have been prepared by the Department of Health and Charities of Philadelphia for making extensions to the bacteriological laboratory of the Bureau of Health, so that physicians can have specimens examined, and the results known, in a less time than is now required for that purpose. The aim is to broaden the scope of the laboratory and to make it a greater help to the individual participating physician, as well as to the city in general. The additional receiving outfits, which will shortly be placed in the distributing stations, are to make it easier for physicians to have examinations made.

**The Washington State Medical Association.**—At the annual meeting of this association, held in Everett on July 14th, 15th, and 16th, the following officers were elected: Dr. C. J. Lynch, of North Yakima, president; Dr. C. W. Sharples, of Seattle, president-elect; Dr. J. R. Brown, of Tacoma, first vice-president; Dr. D. H. Palmer, of Seattle, second vice-president; secretary-treasurer, Dr. C. H. Thomson, of Seattle; trustees, Dr. W. N. Hunt, of Burlington; Dr. L. M. Sims, of Kalama; Dr. L. H. Redon, of Seattle; Dr. J. R. Yocom, of Tacoma; Dr. J. M. Sample, of Medical Lake; Dr. S. E. Lambert, of Spokane; Dr. C. N. Suttner, of Walla Walla; and Dr. L. Ganson, of Odessa. Next year's meeting will be held in North Yakima.

**Seventeenth International Congress of Medicine.**—Over seven thousand physicians from all over the world have met in London to attend this congress, which was opened on Wednesday, August 6th, in Albert Hall, by Prince Arthur of Connaught. The congress, which will be continued until next Tuesday, will bring together, it is said, the largest gathering of medical men that has ever taken place. About eight hundred American physicians are attending the meeting, the names of over one hundred being on the official programme. Among the New York physicians who will take part in the proceedings are Dr. Robert Abbe, Dr. Simon Flexner, Dr. S. J. Meltzer, Dr. Henry Koplik, Dr. Theodore C. Janeway, Dr. Russell Fowler, and Dr. Simon Baruch. Surgeon General Charles F. Stokes represents the United States Navy and Major Frederick F. Russell the army. A brief account of the proceedings of the congress will appear in a later issue.

**Physicians of the Fifth Censorial District, Pennsylvania, Hold Annual Meeting.**—Seventy-five physicians of the five counties comprising the Fifth Censorial District of Pennsylvania met in annual session in Gettysburg on July 24th, under the presidency of Dr. H. A. Spangler, of Carlisle. The principal feature of the programme was an address by Dr. F. X. Dercum, of Philadelphia, on the Early Diagnosis and Treatment of Mental Diseases. York was chosen as next year's meeting place, and the following officers were elected: President, Dr. George E. Holtzapple, of York; first vice-president, Dr. Elmer W. Cashman, of York Springs; second vice-president, Dr. David W. Van Camp, of Plainfield; third vice-president, Dr. J. J. Coffman, of Scotland; secretary and treasurer, Dr. Charles W. Eisenhower, of York.

**The Federation of State Medical Boards of the United States** will publish its first bulletin, the *Quarterly*, on October 1, 1913. The *Quarterly* will be devoted to medical education and topics of general interest to State board examiners. Dr. O. W. Hoffman, secretary of the New York State Board of Examiners, is editor.

**Cumberland Valley Medical Association Meeting.**—The Cumberland Valley Medical Society, consisting of Adams, Franklin, and Washington Counties, will hold its annual meeting on September 4th. This society was organized ten years ago, and is one of the largest in Western Maryland and Pennsylvania and has been holding its meetings in the different counties alternately. A scientific and business meeting will be held at the Country Club after which a banquet will be held. The following are the officers of the society: President, Dr. L. H. Keller; secretary, Dr. John J. Coffman, of Scotland; treasurer, Dr. P. R. Koons, of Mechanicsburg. The committee on arrangements are: Dr. V. W. Reichard, of Fairplay; Dr. A. C. Maisch, of Hagerstown; Dr. J. B. Anderson, of Waynesboro; Dr. H. C. Lawton, of Camp Hill, Pa. The committee on programme: Dr. W. D. Campbell, Dr. L. M. Coffman, and Dr. H. A. Spangler, of Carlisle.

**Gifts and Bequests to Hospitals.**—By the will of Anthony N. Brady the Albany Hospital, the Albany Hospital for Incurables, the Homeopathic Hospital, and St. Peter's Hospital, all of Albany, N. Y., will each receive \$25,000.

By the will of Miss Elizabeth L. Lewis, late of Philadelphia, the Presbyterian Hospital will receive \$100,000, half of which is to be used for building purposes and half for maintenance. In addition to this bequest the Presbyterian Hospital will receive \$5,000 to endow a bed in memory of Sarah S. L. Brodhead.

Mrs. Anna Moore, who died in New York on July 17th, left her entire residuary estate, amounting to more than \$800,000, to establish a home for convalescents.

Mrs. E. H. Harriman has donated \$10,000 to the fund created by her for research work carried on by the Southern Pacific Hospital in San Francisco.

**Personal.**—Dr. Frank P. Norbury, alienist to the Board of Administration of Illinois, has tendered his resignation, to become effective on October 1st. Doctor Norbury will enter upon consulting practice at Springfield, Ill.

The title of emeritus professor of chemistry has been conferred upon Sir William Ramsay by the University of London.

Dr. Arthur Allison Howard, of Boston, has been appointed physician in chief of the hospital for children and of the children's medical outpatient department of the Boston Dispensary, succeeding Dr. William Palmer Lucas, who resigned to become professor of pediatrics in the medical department of the University of California.

Dr. Leo T. Myles, of Cambridge, Mass., has been appointed a United States examining surgeon for the Department of the Interior in Middlesex County.

Dr. Patrick M. Kelly, of Litchfield, Ill., has been appointed superintendent of the Kankakee State Hospital for the Insane, succeeding Dr. Sidney D. Wilgus, who resigned on August 1st.

**Massachusetts Association of Boards of Health.**—The quarterly meeting of this association, which is composed of the various boards of health of the cities and towns of the State, took the form of an outing at Gallup's Island, on Thursday afternoon, July 31st. Dr. Samuel H. Durgin, president of the association, opened the meeting, which was presided over by Professor William T. Sedgewick, of the Massachusetts Institute of Technology. Dr. John M. Anderson, director of the hygienic laboratory of the United States Public Health Service, read a paper on the Organization, Powers, and Duties of the United States Public Health Service To-day. Dr. Arthur Reed Perry, of Washington, who has been investigating the health and mortality statistics in the cotton industry of Massachusetts, summarized his findings in a paper entitled *A Recent Contribution by the Federal Government to Preventive Medicine*. Professor E. B. Phelps, in a paper entitled *An Experiment in Public Health Administration in Massachusetts*, dealt with the growing tendency toward and necessity for specialization and co-operation in matters of public hygiene.



## Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT

June 2, 1914.

**The Effect of Light on Metabolism.**—L. Pincohn explains that while we have some knowledge of the influence of light on metabolism, no data are available as to what changes take place in the intermediate stage. It is known that the ferments are influenced by the rays, especially those of the violet and ultraviolet part of the spectrum, and that altogether there results an increased oxidizing power. The author has made some experiments on dogs to note the change made by light rays on purin bodies. The injection of sensitized coloring matter complicates the action of light by a photodynamic process (Tappeiner). The light was found to bring about a great change in purin metamorphosis. The allantoin excretion is markedly diminished under the influence of the rays. Exposure for about ten hours daily causes the decrease of allantoin products to continue for several days after withdrawal from the rays, only to again slowly increase. As to the detection of stones in the ureter, phleboliths, proas calculations, etc.—stones in the ureter are best distinguished when their movability is made apparent after cystoscopy by the radioscope, taking for granted that the stones are not impacted. On the whole, radiography, as only one of the methods of clinical examination, should be valued and critically judged as other methods are.

June 2, 1914.

**General Histological Changes in Tissues under the Influence of Rays.**—L. Wickham demonstrates the following: It seems that in comparing x rays with those of radium, an approximately real analogy may be shown to exist. In the effects on the skin, where the histological action of actinic, Finson, and sun rays are studied, there is a strong resemblance of action between radium and the x ray. It is true, however, that these analogies do not exclude certain differences. The following are the fundamental facts which more or less combine to advance proliferation or destruction of cells: 1. The degree of sensitiveness of the cell for the rays. 2. The amount of ray absorbed in a given time. A dose quickly absorbed must act differently from the same dose slowly absorbed. 3. Special characteristics of different rays. 4. The time passed between the end of the ray and the histological determination. When we compare the changes effected by the x ray and the radium ray on epithelioma, on the one hand, and on sarcoma on the other, these are found to be brought about constantly by the same process. The cell dies in what the author terms a state of monstrosity, and is carried off by the phagocytes. The pregenerative hypertrophy of the sarcomatous elements appear to be more apparent than the epitheliomatous elements. The experiments carried out show that: 1. Heliotherapy is an essential (in the way of therapeutic advance) in the conservative treatment of surgical tuberculosis. 2. The treatment with heliotherapy is best effected at the seashore. 3. Along with the sunshine, other valuable properties are afforded by sea air; so that when the healing process has been begun by means of insolation, it

continues independently. 4. The heliotherapy of surgical tuberculosis must be carefully carried on in a well selected place at the seashore and in a building specially constructed and adapted to the purpose; and also under surgical and orthopedic supervision.

June 2, 1914.

**The Independent Life of Tissues and Organs.**—A. Carrel shows how various tissues may be cultivated in a plasma of certain degrees of concentration. Fragments of the heart, skin, and periosteum of an embryo chicken, and also portions of the organs of a grown chicken, a dog, and a mouse were used in his experiments. These were cultivated in more or less concentrated quantities of fluid. It was proved that the amount of growth varied in direct proportion to the concentration of the fluid. Several drops of Ringer's solution when left mingled with the embryonal tissues for several minutes increased their growth double and triple. A still greater increase of growth occurred when the tissues had been in contact with the Ringer solution for several days. The concentrated extract increased the rapidity of growth from twenty to thirty times. The effect also differed with the nature of the tissue. The embryonal tissues were most sensitive, whereas the heart and kidney tissues were not as readily affected. It was decided that the cells have an influence on the media in which they develop. Growth discontinues in all cultures of cells, as well as in cultures of microorganisms, and they die because the medium exhausts itself and becomes overlaid with the products of cell secretion. Upon this hypothesis the extension of the life of the tissues might be made limitless. These results permit us to think of the possibility of using an organism, cell colonies of tissues which were fitted in life, as reagents, with dynamic capital.

**The Digestion of Lecithin in Disease of the Gastrointestinal Canal.**—R. Ehrmann and H. Kruspe report that a greatly increased amount of lecithin is present in the feces when the flow of bile is obstructed from the intestines. In jaundice, therefore, the fats are decreased; but food rich in lecithin, as yolks of eggs, brain substance, etc., are given. The physiological processes in the healthy show how great the loss of lecithin is in icterus. This points out how lecithin does not pass solely to the pancreas, to be split up into its component parts, glyceric phosphate, cholin, and fatty acids. Without being previously split up, it is for the most part absorbed directly in the intestinal tract as lecithin. Here is found the origin of the therapeutic prescribing of lecithin, and its entire failure to split up in the intestines in the absence of bile.

**Histopin.**—E. Saalfeld states that the fluid histopin is a harmless remedy for immunizing the tissue surrounding furuncles; further, that it exerts a favorably palliative influence on sycosis vulgaris. This last is also observed in the use of histopin ointment, which may also be considered a specific in impetigo contagiosa except in those rare cases where staphylococci and streptococci are believed to be etiological factors.

June 25, 1914.

**Bath Therapy for Circulatory Disturbances.**—O. Müller emphasizes the importance of a proper

combination of theory and practice in this branch. Theory, he says, gives the practitioner confidence in treating patients. It gives him the after impression and penetrative power of methods scientifically thought out. Practice gives the theorist a large part of his mission and the absolutely necessary probing of medicine, on the whole. This is why physicians who are theorists should always have the practical in mind and those who are practical physicians should not lose sight of theory. In connection with a reference to many kinds of baths and their effects, the author mentions certain contraindications. These apply to patients who suffer from dyspnea while at rest, to the more advanced cases of edema, and also to those with effusions or extravasations from bodily orifices, advanced angina pectoris, and the more severe cardiac asthma. Baths are contraindicated in all conditions which might lead to emboli or hemorrhage, for patients with larger aneurysms, and for those with high blood pressure (180 to 190 mm. Hg.). These, especially, should not have cool baths. Great physical weakness is also a contraindication.

June 2, 1913.

**The Influence of Calcium Salts on Constitution and Health.**—R. Emmerich and O. Loew state that calcium compounds enter into the composition of not only teeth and bone, but also of various organs of the body, as heart muscle, glands, and the cerebrospinal system. Along with several other hypotheses concerning the use of calcium salts, a characteristic action on plants is described which throws light on the most valuable function of calcium. 1. There is no marked division between plant and animal forms, since the higher flagellate constitute a link connecting the lower levels of both kingdoms. 2. Oxalate of calcium and fluoride of sodium are not only poisonous to plants, but to all animal life. According to F. Winkler, both salts bring about a prompt cell destruction of leucocytes, which is not the case with tartrate of calcium. 3. The red blood corpuscles of mammals possess no nuclei and are also free from calcium, while the red blood corpuscles of birds have nuclei and, according to Thörhammer, are also found to contain calcium. 4. The calcium content of animal organs grows in accordance with the mass and size of the cell nuclei. The gland and ganglion cells contain from three to four times as much calcium, in accordance with their size, as the muscle cells of mammals poor in nuclei. Muscles of fish contain larger nuclei than those of mammals and their calcium content is accordingly much greater.

#### WIENER KLINISCHE WOCHENSCHRIFT.

June 12, 1913.

**Tuberculin Treatment of Bronchial Asthma.**—Otto Frankfurter says that there is a causal connection between bronchial asthma and tuberculosis, and that a systematic treatment with tuberculin may reduce the number of attacks, if persisted in sufficiently long.

June 10, 1913.

**Relation of the Bacillus Perez to Ozena.**—Gustav Hofer calls attention again to the *Coccobacillus fatoidus ozena* described more than a decade ago by Perez in Buenos Aires. This bacillus is small, polymorphous, stains well with the usual aniline colors, is Gram negative, does not liquefy

gelatin or coagulate milk, induces ammoniacal fermentation of urine, and the cultures emit the typical fetid odor of ozena. Hofer confirms the assertion made by Perez, that this bacillus can be found in most cases of ozena in man, and that it induces in animals a trouble in the nose which is apparently identical. This Hofer considers to be a great advance, as a bacteriological examination will enable the diagnosis to be made at an early stage of the disease and may render prophylaxis possible, as well as an etiological therapy.

**Psychotherapy in Practice.**—Rudolf Hatschek is inclined to think Freud's methods of psychoanalysis to be lacking in a scientific basis and mentions some cases in which harm was done by their application. One of these cases was that of an elderly neurasthenic whose condition was made materially worse by dwelling upon the masturbation he had practised during youth. In another case investigation, according to Freud's method, led nearly to suicide. He says that the method is undergoing changes at present, and thinks that something useful and practicable may be derived from it when the motives are not limited to sexual impulses. Systematic psychotherapy, along the lines laid down by Dubois, he thinks is very important, second only in neurology to operative and antisiphilic measures. It can be applied more widely than either of these. It requires great perseverance and patience, together with a special sympathy and a certain optimism on the part of the physician in order to succeed. In dealing with the neuroses optimists make the best physicians.

**Coxalgic Attacks in Childhood.**—Friedrich R. von Friedlaender says that an attack of pain in the hip joint should lead us to suspect tuberculosis when it is accompanied by a clearly perceptible atrophy of the muscles of the hip and thigh, when the leg is either lengthened or shortened, when there is a swelling of the joint and of the glands in front of it and on the psoas, and when the disease has been preceded by a change in the physical and psychic condition of the child. When the sciatic and crural nerves are tender, both trochanters are abnormally high, there is no atrophy of the muscles, the joint itself is painless, and there is contracture of the flexor and abduction muscles, with concentric limitation of their excursions, suspicion should be directed toward an irritation of the joint produced by static conditions. When the hip exhibits a sudden and painful flexion contracture with abduction or slight adduction; when the joint is slightly swollen and tender and its movability somewhat impaired, while the glands are not affected and there is no muscular atrophy, the possibility of a benign, epimeral coxitis must be taken into account. The probability of this assumption is increased when the attack is preceded by an inflammation of the respiratory tract, and the symptoms disappear quickly, but the diagnosis will be made positive later by the demonstration that the leg has been lengthened.

**The Weight of the Fetus and the Nutrition of the Mother.**—Josef Bondi believes as a result of his investigations that the fetus draws what it needs from the mother without regard to the condition of her nutrition, and that its growth is independent of her condition, the same as the growth of a malign-

nant tumor. In lactation also he finds the milk to be independent of the nutritive condition of the mother. Fat, well nourished mothers often have little milk, while thin, badly nourished women may have plenty of good milk. The three influences that he thinks affect the size of the child at birth are: 1. Heredity; 2, the age of the mother (the older the woman the larger the child); 3, the glands with internal secretion in both the mother and the fetus. His conclusion is that the size of the child cannot be influenced by dieting the mother. The diet in pregnancy should be exactly the same as that for normal women.

#### ZEITSCHRIFT FÜR UROLOGISCHE CHIRURGIE.

March, 1913.

**Perinephritic Tumors.**—F. Oehlecker had a patient with a right sided abdominal tumor. The diagnosis lay between tumor of the gallbladder, liver, and kidney. Ureter catheterism showed normal urine from either kidney and normal function of each. Radiography after bilateral injection of the kidney pelvis with collargol showed the following: The left kidney pelvis was normal in position and shape and showed a slight kink at the apex of the pelvis. The right kidney pelvis was on a level with the crest of the ileum and the calices pointed downward, instead of inward. A diagnosis was made of a probable perinephritic tumor pressing down the right kidney. At operation such a tumor was found and removed. The normal kidney was found depressed with the pelvis pointing downward. The left kidney was exposed and found to be normal, but a tumor of the suprarenal body was found. The right tumor was removed, and death occurred the second day after operation. Both tumors were found to be hypernephrotoma. The author calls attention to the value of pyelography in the differential diagnosis of tumors in this region.

**Collargol Injection of the Kidneys and Kidney Pelves.**—G. Strassman has injected collargol into the kidney pelvis of dogs to find out how long the collargol remains in the pelvis and whether it has any harmful effect upon the kidney. His experiments showed that after twenty-four hours there was practically no collargol left in the pelvis; that if care was used in not injecting the collargol under too much pressure no harm and no particular alterations of the kidney pelvis resulted. He tells of a case of Oehlecker, who injected collargol under high pressure into the kidney pelvis of a patient. Pain and moderate rise of temperature resulted. Five days later the kidney was extirpated and showed small areas of necrosis due to the collargol. He also refers to a case of Cachrison's where the radiograph showed collargol in the tubuli recti. The patient had five days of pain in the kidney region and fourteen days of fever. Rossli had a case in which the patient died five days after collargol injection. The result of the autopsy showed that death was due to collargol poisoning.

#### PRESSE MÉDICALE.

July 5, 1913.

**Lung Infection from the Umbilicus.**—E. Bonnaire and G. Durante assert that infection of the lung originating at the umbilicus in newborn infants is a far more frequently occurring condition than

has been generally realized. Latent infections of the umbilicus are often overlooked as a cause of acute and even chronic disease of the viscera. After the liver, the lung is the organ most frequently involved from this source. Three forms of lung disorder are recognized by the authors, the first including primary toxic lesions, manifested as violet colored patches of the lung tissue, variable in size, and due merely to the action of toxins on the vessels, attempts at bacterial culture regularly failing. Septicemic lesions may occur as miliary infarcts, with or without a surrounding zone of congestion, as foci of hepatization, or even as lung abscess or pleurisy; the bronchial tubes are characteristically intact, and there are bacterial emboli in small vessels, though, different from bronchopneumonia of respiratory origin, no bacteria can be found in the air cells. Occasionally, a third form of lung affection is seen, consisting in infants that have recovered from the umbilical infection, but succumbed to other accidental causes of pleural thickenings or areas of sclerosis in the lung, representing old healed infarcts. Regarding the diagnosis of these lung conditions, in general, the authors assert that careful auscultation and percussion are usually sufficient. Absence of pulmonary symptoms, however, does not signify definitely that the lungs are normal. In early septicemias no sign of umbilical infection may be apparent, or even may become manifest only after the visceral symptoms. Jaundice in the newborn preceded by an obscure rise in temperature and followed by the lung symptoms, is characteristic of umbilical infection.

July 9, 1913.

**Abnormally High Erythrocytic Resistance.**—E. Weill and A. Dufourt point out that while lysins in the blood are often capable of impairing the resisting power of the red corpuscles, sometimes, on the contrary, they lead to increased resistance on their part—a manifestation of adaptation of the red cells to the prejudicial medium they inhabit. This adaptation is not immediate, as there is time for a more or less marked preliminary loss in red cells, with consequent anemia, to occur. The authors report cases of purpura, scarlatina, measles, pneumonia, etc., showing that the increased erythrocytic resistance may develop, not in the presence of a lysin active against the patient's own corpuscles, but of one destructive to the corpuscles of different individuals of the same species. The research as a whole points to erythrocytic resistance as being a subsidiary of other conditions present; that which determines its extent, and which must be investigated with care, is the condition of the serum itself as to lysins.

**Reflex Contractions of the Colon Occurring upon Excitation of the Stomach.**—H. Lebon and P. Aubourg report experimental work performed with the aid of radiography in human beings on this subject. The contractions of the large intestine consequent upon the injection of food may be due to one of several causes, and are not necessarily reflex contractions. They vary according to the substances ingested. The effect on the colon of mere contact of a foreign body with the gastric mucosa was observed under the x rays in a patient that had received bismuth with rice the day before.



Gentle rotary movements of a tube previously passed into the stomach very soon caused contractions of the ascending and transverse colon. Ingestion of oxbile failed to produce any effect, but ingestion of a cachet of powdered quassia induced colonic contractions in from six to eight minutes, while a dessertspoonful of water containing two milligrammes of quassine acted almost at once. Strychnine also acted in a short time. Ingestion of a solution of caffeine, or even of a cupful of strong coffee, brought about prompt contractions of the large intestine, driving the bismuth laden contents of the ascending colon toward the iliac colon, without association of any movements of reverse peristalsis. These movements were still continuing when the observation was stopped, twenty minutes later, and obviously account for the good effects noted by certain constipated individuals from the ingestion of coffee at breakfast.

#### SEMAINE MÉDICALE.

July 6, 1913.

**Military and Civil Treatment of Abdominal Wounds Caused by Firearms.**—F. Lejars discusses the question whether, in view of the favorable terminations frequently witnessed in recent war practice after nonoperative treatment of abdominal wounds, less insistence should not be placed than is now customary upon operative treatment of like wounds in civil life. The conclusion reached is that nonintervention is, at best, but an imperfect practice imposed by war conditions, and should not be countenanced in civil life.

#### ROUSSKY VRATCH.

May 4, 1913.

**The Action of Ultraviolet Rays on Enzymes.**—N. O. Ziber-Shumova found that ultraviolet rays inhibit to some extent the activity of the various enzymes.

**The Influence of the Removal of Some of the Ductless Glands on the Growth of Sarcoma in Dogs.**—V. G. Korentchevsky found by experiments on dogs with artificially induced sarcomas that the maximum growth of the tumor occurred in dogs subjected to either thyroidectomy or castration, the removal of either of those glands apparently favoring the development of tumors. Degeneration and absorption of the tumor occurred early and were particularly marked in dogs that were both castrated and thyroidectomized.

**Influence of the Spermatolysins and Ovariolytins on Impregnation in Animals.**—N. N. Alexeeff reports in a preliminary communication his experiments on guineapigs, rabbits, and dogs which tend to show that the introduction of antispermatotoxic or antiovariotoxic serum prevents conception. He obtained the serum by immunizing animals with testicular or ovarian substance.

**Malignant Degeneration of Ovarian Cystomas.**—K. P. Ulezko-Stroganova regards proliferative cystomas of the ovary as intermediary between benign and malignant tumors. The epithelial hyperplasia which characterizes these tumors renders them particularly liable to carcinomatous degeneration.

**Bacilli Carriers in Typhoid.**—S. L. Finkelstein reports the case of a trained nurse typhoid carrier

who never had the disease herself, but was responsible for the occurrence of typhoid in two other nurses.

**The Nitrifying Bacteria of Biological Filters.**—M. N. Rubel shows by a series of experiments that fats and soaps act deleteriously on the nitrifying process which takes place in so called biological filters. He suggests that provision should be made for the removal of these substances from the sewage before it reaches the filters.

**Hemorrhages in Scarlet Fever.**—W. N. Kleimernok concludes from an extensive study of the literature and his own observations that hemorrhages in the course of scarlet fever may be parenchymatous (capillary), venous, arteriovenous, and arterial. It is caused by degeneration of the vessel walls and occurs principally in the neck, ears, throat, and the gastrointestinal tract. The hemorrhage takes place after the second week of the disease; may recur, and is generally fatal. The treatment consists in tamponade, when possible, and ligation of the vessels. As a prophylactic measure, the earliest possible evacuation of suppurating lymph glands is suggested.

**The Pathogenesis of Acute Pneumonic Forms of Pulmonary Tuberculosis.**—A. N. Rubel maintains as a result of experiments on animals that the varying forms of pulmonary tuberculosis, from the extensive, rapidly fatal, pneumonic type to slight involvement of the lung tissue, are due to different doses of the tubercle bacilli, and not, as supposed, to their varying virulence or the varying susceptibility of the host.

**The Diagnostic Significance of the Copper Coin Sound (Signe du sou) in Inflammation of the Lungs and Pleuritis in Children.**—S. E. Ostrovsky verified the Pitres sign in twenty-five cases of pneumonia and pleurisy in children. In uncomplicated pleuritic effusion the metallic sound was always transmitted through the affected area. In cases complicated with affection of the lungs the metallic sound was not so clear; while in cases of pneumonia, as well as in healthy lungs, the sign was negative. The author regards this sign as of great value in the diagnosis of pleurisy in children.

**Clinical Observations on the Action of Neosalvarsan.**—A. N. Solovjeff employed neosalvarsan intravenously in 260 cases, and concludes that it is practically nontoxic and also well tolerated. It improves nutrition. The injection should be repeated at short intervals and, when possible, used in connection with mercury.

**Complication of Typhoid Fever with Ascaris Lumbricoides.**—L. A. Zilberberg collected a number of cases from the literature and reports two of his own in which *Ascaris lumbricoides* appeared in the course of typhoid fever and were apparently responsible for perforation.

#### CANADIAN MEDICAL ASSOCIATION JOURNAL.

July, 1913.

**The Responsibility for the Advanced Case of Tuberculosis.**—C. H. Vrooman says that after discounting all such causes as neglect to apply for advice, inattention to proper advice, or acute onset of the disease, he estimates that at least fifty per cent. of the cases of advanced tuberculosis become

so because some general practitioner who saw them in the early stages failed to make the diagnosis, or, if suspecting the proper diagnosis, failed to recognize the serious significance of the symptoms and gave improper advice. "It is not in most cases want of knowledge, but rather carelessness in examination of the patient; trouble is not taken to strip the patient's chest and give him a thorough examination, the sputum is not examined often enough, and when the diagnosis of tuberculosis is suspected the doctor is not honest with his patient. A diagnosis of 'weak lungs,' 'general debility,' 'chronic bronchitis,' is often given when, if the doctor were honest, he would tell his patient at once that he strongly suspected tuberculosis, and proper steps should be taken to clear up the diagnosis."

## CHINA MEDICAL JOURNAL.

May, 1912.

**Treatment of Bubonic Plague.**—P. J. Todd concludes a study of plague, the first portion of which was published in the January issue. In speaking of the treatment he says that the multiplicity of modes which have been employed throws a certain doubt on their value, especially as the mortality of the disease varies much according to the virulence of the virus, the period of the epidemic, and the race and age of the person attacked. Personally, he says, he does not remember one instance of recovery among all the cases of plague he saw during his first eight years in China; and not until he began serum treatment did he have a patient recover. Last year, out of thirty cases, twelve patients recovered under serum treatment and heart tonics. This year his supply of serum has been limited, and only ten patients were treated with it, but five of them are known to have recovered. His method is to inject from ninety to 100 c. c. in adults—one half intravenously and one half subcutaneously in the region of the bubo. (In children, about half this amount.) Of late he has, in addition, adopted the plan of injecting pure phenol into the enlarged gland or glands—from ten to twenty drops (presumably of a saturated solution) for each patient. Also, he gives hexamethylenamine to its limit, i. e., until the patient complains of considerable irritation of the bladder. Two cases recently treated with hexamethylenamine and phenol injections (without the use of serum) have recovered. Good nursing combined with early confinement to bed, maintenance of the recumbent position to prevent syncope, and careful feeding and general treatment to maintain the patient's strength and prevent complications, if possible, are calculated to give the best results, either with or without serotherapy. Complications are treated on general principles. Notwithstanding the somewhat disappointing results of the serum treatment, it must be confessed that there is no better in the hands of the physician; for, in falling back on general treatment, no attempt is made to deal with the manufacture of toxine elaborated in the system. The struggle must be between the attacking force of the microbe and the resisting power of the patient, assisted by the skill of the medical attendant. Heart failure is perhaps the most important symptom to be contended

against, and, personally, the author has found the administration of digitalis by the mouth and strophanthus by subcutaneous injection much more effective than strychnine given hypodermatically. To control the febrile symptoms and check delirium, ice bags to the head, sponging of the body, and the use of hypnotics which are not depressants are beneficial. The pain and tenderness of the buboes are much relieved by ice bags, which have also a good effect in circumscribing the infiltrations. Other applications, such as belladonna and poultices, at times prove useful; when pus forms the bubo must be opened.

## BOSTON MEDICAL AND SURGICAL JOURNAL.

July 27, 1912.

**The Wassermann Reaction in Its Application to Medicine.**—W. P. Lucas says that the general usefulness of this reaction is being more and more recognized in cases of syphilis without clinical manifestations. He thinks it would be a wise precaution for insurance companies to have all questionable cases tested in this manner for their own protection, but admits that there are difficulties in carrying out such measures. The importance of the reaction is manifest in forensic medicine, and it is being used in civil as well as penal cases. The argument that a man is syphilitic can be made plausible to a judge much more easily by the fact that he has a specific reaction than by psychiatric explanations. As regards eugenics, it seems very probable to him that this reaction will be used as an aid in deciding the question of marriageability, and that, to the present generally accepted rule, which demands treatment over a certain period of years before marriage, will be added the requirement of a negative Wassermann reaction. The therapeutic test for the presence of syphilis is of doubtful value, and is being replaced more and more by this more accurate laboratory test, which saves much valuable time and enables us to institute proper and thorough treatment when needed. Such a test is of great value in easing the minds of patients who are possessed by the idea that they have syphilis, as repeated negative tests are usually convincing and banish uncertainty.

**The End Results of Excision of the Knee for Tuberculosis with and without the Use of Bone Plates.**—Robert B. Osgood gives the following table of end results in twenty-eight consecutive cases: fourteen with and fourteen without bone clamps or plates:

	Fourteen cases without bone clamps or plates	Fourteen cases with bone clamps or plates
Subsequent amputation	3	7
	Secondary infections from sinuses	
	3	0
Subsequent reexcisions for nonunion or disease	4	0
	2 amputated late	
Persistence of pain several months after operation	1	1 amputated case
Apparent firm union in one month	1	1
Firm union in two months	2	1
Eventual firm union, but requiring three months or more	6	1
No record of eventual union	6	1
	1 amputated case	
Subsequent removal of material used to hold bone ends together	2	4
	wire removed from both cases in which it was used	
	2	1 not counting amputated case

## JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

July 26, 1913.

**Tumor of the Hypophysis in a Case of Acromegaly**, by Dr. Julius Grinker.—See this JOURNAL for July 5th, p. 47.

**The Histopathology of Pompholyx**.—From the study of a number of cases of pompholyx, which was first described, as a form of dyshidrosis, by Tilbury Fox, who believed that the condition was essentially characterized by the retention in the follicles of the skin of sweat, rapidly and freely excreted, Richard L. Sutton concludes that the pathological changes in this affection are confined almost wholly to the prickle cell layer, only a slight perivascular infiltration being present in the derma. The coil glands are not involved, and, at bottom, the condition is very probably a neurosis, the direct exciting cause being a toxine other than locally microbial in origin. Four of the nine patients whose cases are reported were treated with pilocarpine hydrochloride by the mouth, without appreciable results, and five with potassium iodide. Two of the latter received, in addition, two doses of pilocarpine each, hypodermatically.

**Use of Palatine Mucous Membrane Flaps in Ankylosis of the Jaw Due to Cicatricial Formations in the Cheek**.—John B. Murphy describes two cases in which this procedure was adopted with very satisfactory results. In the first case the flap was removed from the hard and soft palate, and consisted of mucosa and submucosa. It was pedicled and tongue shaped, and was swung outward so as to cover the denuded bony surface of the upper jaw formed when the jaws were chiseled apart. In the second case there were employed two tongue shaped flaps, one from the floor of the mouth and the other from the hard palate.

**Creeping Eruption**.—Gustave L. Rudell reports two cases of this rare affection, in the second of which he succeeded in recovering the larva producing the lesion. Previously only two had reported recovering the larvæ. In the first case the eruption completely disappeared under the use of ten per cent. chrysarobin ointment.

**Etiology and Significance of Pericolic Membrane**, by Dr. David Cheever.—See this JOURNAL for July 5th, p. 37.

**The Part Played by Functional Disorders in the Pathology of the Stomach**.—Jacob Kaufmann expresses the conviction that the further study of diseases of the digestive organs, particularly in the earlier stages of their development, will demonstrate that the inborn or acquired disposition to irritative disorders of the stomach is often a very important and causative element. It was the use of the stomach tube which, for the first time, furnished a reliable method of studying gastric function and its disturbances. The findings of gastric analysis became well established facts, and provided a firm basis for a new pathology, a pathology of function. It is one thing to report findings, however, and another to interpret them, and it was in the interpretation of the newly established disorders of function that grave errors were and still are made. Through a one sided consideration, the importance of the functional disorder was greatly overestimated, and the grave

mistake was committed of designating each derangement of function as an independent disorder, a disease *per se*. To make the error still more palpable, all these individual functional disorders were described as so many different types of gastric neuroses. The undue emphasis thus given to disorders of function proved very confusing and misleading, and sometimes caused the overshadowing of the anatomical lesions by the functional disturbances with which they were associated. It required much work to correct such faulty conceptions, but it is gratifying to know that this is now thoroughly accomplished, and, while it is still justly held that functional disorders may be of independent character, it is generally understood that as a rule they are symptoms of disease, and that they are associated either with pathological conditions of the stomach, or other organ, or are manifestations of systemic derangements. Although errors in interpretation of the functional disturbances have been well recognized by clinical observers, they have been forcibly demonstrated by abdominal operations. But the pendulum has swung too far, and at present we see a pronounced tendency to underestimate the importance of the functional disorder or to discredit it altogether. In current literature the significance of the anatomical lesion is so strongly emphasized that it completely overshadows this. The author calls attention not only to the diagnostic value of the functional disorder, but also to the more important question as to how far the functional disorder acts as a causative factor. At present there is very little inclination to accept disorders of gastric function in any way as causative factors; they are usually considered as mere symptoms of diseases. Yet a critical observer who is not swayed by the prevailing trend of the day cannot fail to recognize that functional disturbances may play a very decided rôle as causative factors.

**Internal Hemorrhages; Can We Control Them?** by Dr. Frank Billings.—See this JOURNAL for July 5, p. 49.

**Two Cases of Circulatory Disturbance of the Brain**, by Dr. C. Eugene Riggs and Dr. E. M. Hammes.—See this JOURNAL for July 5, p. 47.

**Clinical Significance of the Cerebrospinal Fluid in Nervous and Mental Diseases**.—Morris J. Karpas first emphasizes some of the more important facts regarding the anatomy, physiology, and chemistry of the fluid. He next describes the various laboratory methods employed in its examination, and the clinical aspects of the subject, such as the indications and contraindications for lumbar puncture and the methods of performing it. Finally, he takes up individually the content of the cerebrospinal fluid in numerous forms of nervous and mental disease and in the secondary stages of syphilis.

**Diuretic Drugs in Acute Experimental Nephritis**, by Dr. Henry A. Christian.—See this JOURNAL for July 5, p. 49.

**Therapeutic Possibilities of Transfusion**, by Dr. Bertram M. Bernheim.—See this JOURNAL for July 5, p. 39.

**Nonsurgical Treatment of Cirrhosis of the Liver**, by Dr. N. S. Davis, Jr.—See this JOURNAL for July 5, p. 50.



## MEDICAL RECORD.

July 26, 1913.

**Is Appendicitis Ever Catarrhal?**—F. A. Palmer says that the caption catarrhal appendicitis is one found in all classifications of disease of the appendix, and is used to designate clinically those patients who show only slight but long continued or persistently recurring symptoms. Clinically the meaning of this term is clear and may suffice, but when the cases come to be classified upon the basis of the pathological condition present we find the widest divergences of opinion and description. In view of the predominance of lymphoid elements in the appendix, and the types of inflammation usually found upon microscopical examination of appendices, it is the author's opinion that the primary inflammation of the appendix is lymphoid, rather than catarrhal. From his studies on the subject the following conclusions seem warranted: 1. The gross appearance of the appendix is never a sufficient criterion of the severity of the pathological condition present. 2. Absolutely no idea of the nature or severity of the inflammation can be formed from the clinical symptoms. 3. Appendicitis may run its course through perforation and subsequent healing without symptoms which will admit of its recognition, or, indeed, severe symptoms of any kind. 4. The clinical condition designated as catarrhal appendicitis does not have a catarrhal inflammation of the appendicular mucosa as a pathological basis, and is, therefore, a misnomer which is dangerously misleading to the general profession. 5. No catarrhal inflammation, truly speaking, has ever been described as a pathological finding in appendicitis. For all these reasons the term should be definitely abandoned. Lastly, appendicitis is much more frequent than is usually assumed or than is indicated by our present means of diagnosis. The mortality of this disease is still large, and the only measure which offers any prospect of immediate reduction of this mortality is early operation upon all recognizable cases.

**The Beneficial Effect of Duodenal Alimentation in Cirrhosis of the Liver.**—Max Einhorn says that if we consider the intimate connection of the liver with the digestive apparatus, we have reason to expect that the rest given to the stomach by means of duodenal alimentation may have some bearing upon its neighboring organ, the liver. If the liver is diseased, its function of working up the portal blood and making it fit for the vena cava is slackened. What now happens is either the entrance of faulty metabolic products into the circulation or, if the supervision of the liver is still efficient but slow, an accumulation of blood in the liver, i. e., this organ becomes unable to work up all the blood flowing in during the process of digestion. Thus it becomes temporarily swollen. In some instances both factors coexist. In cirrhosis this difficulty in functioning is always present. In duodenal alimentation the upper part of the digestive system is not working, and is kept at rest. The venous circulation there is not very active; the portal vein is thus freed of part of its blood supply, and the entire work of the liver is made easier. Duodenal alimentation was applied in six cases of beginning cirrhosis. During this in all the six

patients (five of whom had gastric ulcer) the liver became markedly smaller. In four the result was lasting; in one, the liver began to grow larger a few days after the termination of the feeding; and in one patient, with pure cirrhosis and dilated heart, the liver quickly resumed its original proportions. In this last case the influence of the procedure was very marked, but not lasting. The author concludes that the cirrhosis of the liver and allied conditions accompanied principally by swelling of the hepatic tissues form a field in which duodenal alimentation may be applied apparently to great advantage.

**The Diagnosis and Prognosis of Duodenal Ulcer.**—In the observation of some two hundred cases, by J. T. Filcher, the history of an uncomplicated duodenal ulcer has in the great majority of them elicited four preeminent factors: 1. The chronicity of the complaint; 2, the periodicity of the exacerbations of epigastric distress; 3, the occurrence of pain of a peculiar character (burning or gnawing) with precise time of onset (between two and one half and four hours after eating); 4, the control of this discomfort by the ingestion of food or alkalies. In his experience, cases properly chosen for medical or surgical treatment appear to have remained fairly comfortable, and he feels justified in saying that the prognosis in the great majority of cases is good.

**Treatment of Progressive Cases of Pulmonary Tuberculosis.**—Mary E. Lapham believes that the recognition of the progressive nature of a case, far from releasing the physician from responsibility, adds another burden, that of deciding what must be done, and when. He must first of all be able to recognize when a patient is unable to make his own fight, and then come to his relief; first, by attempting an artificial pneumothorax, and, if this fails, then by resecting the ribs. The reported results from these procedures have been most encouraging.

AMERICAN JOURNAL OF OBSTETRICS AND DISEASES  
OF WOMEN AND CHILDREN.

July, 1913.

**A Study of the Induction and Augmentation of Labor Pains.**—Welz, in discussing the various theories as to what terminates pregnancy agrees with von der Weide, who holds that the inception of parturition is caused by an anaphylactic action of proteid substances from the fetus to the mother. The author considers the fetus as a separate organism whose nourishment is received only by osmosis and dialysis through the placenta. As a result of fetal activities proteins gain entrance into the maternal circulation. As the fetus approaches complete development the result is that the proteid is altered in such a way as to free a poisonous group which is capable of producing an anaphylactic shock whose effects are centred in the uterus, which is most sensitive to the effects of this protein toxine. The results of the author's experiments, and those of others, indicate that the injection of fetal serum acts as a stimulus to the induction of labor. In the use of this material the danger of an anaphylactic shock must be kept in mind. Welz also mentions the results obtained by the injection of pituitary extract in causing uterine contractions.

**Conservatism in Gynecology.**—Taylor takes up the subject under the three headings of tubes, ovaries, and uterus. His teaching is that we want to relieve the patient's discomfort, but we do not wish to destroy any function it is possible to save. In dealing with inflammatory conditions of the tube the author's idea is to preserve as much as possible. Concerning the ovaries, however, he believes that when they are the seat of an inflammation it is better to remove them than to save them, even in a comparatively young person. If the patient is past forty the removal of the ovaries has little direct influence on the nervous system. In regard to the uterus, there is little value in leaving it if the tubes and ovaries have been removed. The greatest opportunity for conservative work is in the treatment of fibroids, whether or not a myomectomy may be performed.

**The Treatment of Sterility by Intrauterine Stems.**—Rawls discusses the advantages and dangers of this method, and concludes that in sterility it gives as good results as the cutting operations, causes less invalidism, and is no more liable to sequelæ. It is applicable to all cases of ante-flexion with abnormal cervix, except in extreme pathological ante-flexion and extreme shortening of the anterior vaginal wall.

**Spinal Anesthesia. A Case of Acute Appendicitis Operated on Four Days after Labor.**—Jacobson reports a successful case in which spinal anesthesia was selected on account of the pulmonary condition of the patient.

**The Famous Case of Mary Toft, the Pretended Rabbit Breeder of Godalming.**—Cumston gives a very interesting account of this person, who, according to Mr. St. André, anatomist to the King, had given birth to seventeen rabbits. As an example of the credulity of the times, 1726, this case is indeed remarkable.

**Medicinal Treatment of Summer Diarrhea.**—Carr considers the objects in the treatment of summer diarrhea as fourfold: To aid nature in her efforts to clear the stomach and intestine of the material that is the source of the irritation; to lessen the effect of gastroenteric irritability and general toxemia; to sustain strength and aid digestive processes; and to restore the normal functions of the intestine. The drugs that are recommended are castor oil and calomel, salol and bismuth, stimulants, as alcohol, camphor, caffeine, and strychnine, and agents to increase digestive power. Opium not to be used except when the frequent stools exhaust the child and interfere with a rational routine of management.

#### AMERICAN MEDICINE.

*Max, 1913.*

**The Passing of Tuberculosis.**—Sir R. W. Philip invites attention to actual facts—the extraordinary development of pathological knowledge and of therapeutic and preventive procedure within recent years—and the consideration of whither these are certainly leading. Those who have lived through the gloomy periods of pessimism are best able to appreciate the extent of the optimism implied in “the passing of tuberculosis.” Tuberculosis has this in common with syphilis that there is a

definite, if not always traceable, point of entrance of the invading organism. It differs from syphilis in the fact that the disturbance at the point of inoculation is generally slight and more transient. At whatever point inoculation has occurred, the further course consists, for the most part, in a general spread by way of the lymphatic system; and it is impossible to emphasize this too strongly. The author is strongly convinced that it is at the lymphatic stage that tuberculosis ought to be opposed, and that, when thus opposed, its further spread in the system is readily prevented. The chief danger in tuberculosis does not lie in the anatomical changes produced—whether in the lung or elsewhere; the significant factor in the process is the systemic intoxication, the outcome of the bacillary invasion. The tuberculous toxins would seem to act especially on neuromuscular structures, and the results of such action are generally in evidence long before cough or expectoration, or other indication of local lesion, is forthcoming. The chief error in the past has lain in too exclusive attention to the local manifestation, wherever presented, while too little has been paid to the bacillary invasion as such. In this sense, the common separation between so called medical and surgical tuberculosis is artificial and unscientific. The tuberculized patient should be viewed pathologically and therapeutically from the same kind of standpoint as the syphilitic one; each being the subject of a definite systemic infection which is insidious, tenacious, and protean in manifestation. If the pathological position presented be conceded, the first great move toward effective treatment will be the adoption of a complete revision of the standard and methods of diagnosis. The earliest manifestations of tuberculosis must be better defined and studied. Especially does the lymphatic stage require accentuation; and fine multiple enlargement of glands must be searched for. Symptoms of neuromuscular intoxication must be viewed with care, and of special significance is general muscular dystrophy. In respect of visceral (more particularly pulmonary) lesions, there is room for much greater refinement of diagnosis than is usually practised or taught. Bacteriological evidence must not be restricted to the demonstration of the tubercle bacillus; if we wait for the actual appearance of the bacilli in discharges, we wait much too long. The more recent tuberculin tests have contributed greatly to ease and exactness of diagnosis, and there are signs that we are within no great distance of more satisfactory serological tests. Accumulating experience at the tuberculosis dispensary led the author many years ago to institute what he termed the “march past” of the infected households, and the facts deduced by this systematic examination led to the conclusion that tuberculosis was far commoner among children than had been supposed. If the principle of the “march past” were universally carried out, not merely at the tuberculosis dispensary, but likewise in general practice, tuberculosis in its grosser forms would disappear. Tuberculosis has been shown to be most tractable, when taken in hand sufficiently early and sufficiently firmly. In speaking of direct therapeutics the author states that he has employed tuberculin continuously since 1890.

with results proving it to be a specific remedy of great value, provided it is used early enough and properly administered long enough.

**Treatment of Hemorrhage in Typhoid Fever.**—Hardee Johnston deprecates the application of the ice bag, raising the foot of the bed, and the use of opium. The treatment which he has found most satisfactory is irrigation with three or four gallons of cold water, allowed to flow slowly into and out of the rectum. Were the patient in severe shock from the hemorrhage, he would prefer to use warm water. As a rule, however, the first hemorrhage is not sufficient in amount to cause much shock; though, of course, the ulcer might be so located that the first hemorrhage would be the only one, and cause death.

#### INTERSTATE MEDICAL JOURNAL.

June 1913.

**Kinetic Theory of Surgical Shock and Anoci Association.**—G. W. Crile says that while we have long known that disturbance of any part of the vasomotor mechanism might cause shock, it remained for an extended series of laboratory experiments and clinical observations to teach us that the vasomotor and other disturbances were intermediary between the cause and the effect. The key to the final cause of shock was found in a study of the phylogenetic history, not of the vasomotor system alone, but of the whole motor mechanism. As a result of a train of reasoning and certain researches, he formulated what he calls his "kinetic theory of surgical shock." This assumes a number of points, among which are the following: That traumatic stimuli of sufficient number and intensity lead inevitably to exhaustion and death; and that when the expenditure of energy caused by emotional stimuli cannot take its normal course and produce motor activity, the condition reacts upon itself; the stimulation thus being automatically increased, and the resultant expenditure of potential energy proportionately active. The final condition in either of these two instances is designated shock. In solving the question, Why is not the administration of an inhalation anesthetic a sufficient preventive of shock? the author made a series of experiments upon animals which showed conclusively that if the connection between the brain and the traumatized part could be broken, the brain cells would be protected from damage; and he found that this could be accomplished by a thorough infiltration of the tissues to be traumatized with a local anesthetic. By the use of a nonoxidizing general anesthetic, nitrous oxide, and of a local anesthetic, novocaine, he achieved the thorough protection of the brain cells from danger during the course of the operation itself. As psychic strain may be as active as actual trauma in producing shock, the search was made for a drug or drugs which would do away with the preoperative dread of the approaching ordeal, and it was found that morphine and scopolamine, in physiological doses, prevent psychic shock. If one could now discover a procedure which would diminish or eliminate postoperative suffering, the protective cycle would be complete; and by continued experimentation he found that this end could be secured by an infiltration of the

parts surrounding the line of suture with quinine and urea hydrochloride. By these means there has been developed a new operative principle which he terms anoci association. To carry it out requires a careful and expensive technic. A detailed description of this technic in abdominal and goitre operations is given; indicating the universal application of the principle. The proof of a surgical principle, Crile states, is found in the clinical results of its employment. In its adoption at the Lakeside Hospital, Cleveland, it has been found that there is no longer need of a postoperative recovery room; that the work of the nurse has been greatly minimized; that the clinical aspect, both in and out of the operating room, has been altered.

**Principles of Treatment in Malnutrition and Atrophy of Infants.**—John Foote believes that if we accept the findings of recent investigators, we must regard atrophy as a condition in which foods containing even normal quantities of sugar and fat are not well absorbed, and are likely to produce intolerance. Rational treatment would therefore suggest a food poor in sugar and fat, but relatively high in its proportion of proteids, to compensate in a measure for the reduction of these energizing elements—one not unlike skimmed milk, excepting that the latter contains its normal proportion of sugar. In the author's opinion no food fulfils the conditions so well as albumen milk or albumen buttermilk. Used in twenty-four hour quantities of from one to three ounces to each pound of the infant's weight, these foods frequently tide babies over the danger of collapse and restore tolerance for other foods. Small amounts should be fed at first, and gradually increased, especially if vomiting be present; and, unless the infant is less than a month old, the interval between feedings should be at least three hours. When the twenty-four ounce quantity has been increased to two or three ounces to the pound of body weight, sugar may be added (preferably a malt sugar) until an ounce or an ounce and a half is being given; but until the infant has begun to gain steadily it is unsafe to give the larger quantity. As early as possible (but not too early) these soured milk foods should be replaced by mixtures of skimmed milk, and, later, whole milk. Cream mixtures are not usually well borne at this time. Months of patient work are often required to bring these infants up to a normal metabolic standard. Atony of the intestine accompanies the atrophic condition, so that constipation is apt to result from the increased amount of food. This may be corrected by an increase in malt extract or the use of suppositories. In severe cases collapse may complicate matters, especially in very hot weather; and rapid loss of weight, sunken fontanelles, weak pulse, and a very low pulse, with pinched, ashen features, are danger signals. Whiskey, strychnine by hypodermic injection, salt solution, and external heat are all useful in this complication.

**The Treatment of Sciatica.**—G. A. Young advises that the primary treatment of an acute attack should be diaphoretic. A full hot bath, followed by hot drinks and frequently repeated doses of tincture of aconite, with complete rest, often cut short the attack. Aspirin, or full doses of the salicylates may



also be used, and the bowels should be thoroughly flushed, preferably with salines, for several days. Prolonged hot applications, dry or moist, are of great service. The use of the arc lamp often produces striking results. After the first diaphoretic measures the author has found daily hypodermatic injections of from 1/10 to 1/6 grain of pilocarpine nitrate valuable in sciatica, as well as in interstitial neuritis. In the more chronic cases he gives the pilocarpine in the evening, and after the injection has the patient sweat between blankets, and then rubbed down and placed in a warm bed. Galvanism should be used after the diaphoretic measures have failed to remove the pain. The diet should be restricted and should be suitable to the "uric acid diathesis." Water should be given freely, and may also be used in the form of high normal salt colonic flushings. The treatment of chronic sciatica, apart from the correction of adjacent local disease and the systemic intoxication present, may be summed up under three heads: baths (both thermal and light), massage, and the injection treatment. Perhaps the treatment most in the professional eye at present is that by the Lange-Schlosser method, which consists in the injection of 100 c. c. of 0.1 per cent. of beta eucaine in physiological salt solution into the perineural sheath of the sciatic nerve. Various modifications of this have been suggested and employed.

#### JOURNAL OF MEDICAL RESEARCH.

July, 1913.

**The Complement Content of the Blood in Malignant Disease.**—Ordway and Kellert conducted hemolytic experiments with thirty serums, from twenty-seven cases of moderately and markedly advanced carcinoma. They conclude that the hemolytic complement of the blood serum in different varieties and stages of human cancer is in the majority of cases relatively constant, the amount being practically the same as that found in health and in persons suffering with certain other diseases.

**Factors in the Production and Growth of Tumor Metastases.**—Tyzzer takes up in his article some very important points concerning surgery in malignant disease: Will the growth of the secondary masses be accelerated by the removal of the primary tumors, and will life thereby be shortened or prolonged? Also, do the procedures followed in the course of physical examinations or surgical operations increase or diminish the incidence of metastases? The results obtained in Tyzzer's investigation find practical application in the management of tumor patients. They are of such character that every physician should realize the irreparable harm which may result from the manipulation of malignant tumors in their early development. Although the present observations are made on a tumor in which dissemination usually takes place by way of the blood stream, it seems reasonable to expect similar results with human tumors which become disseminated by way of the lymphatics. The course of procedure to which the patient is frequently subjected—the palpation of the mass in question in repeated physical examinations, the violent scrubbing often employed in preparing the field of operation—is almost identical with that which

Tyzzer employed for the experimental production of metastases. It would be of advantage to the patient if each questionable tumor of the breast, for example, could be regarded as a high explosive, the least manipulation of which should be absolutely avoided, both prior to and during the operation. It is not improbable that by this means metastasis and extension beyond the field of operation could be prevented and the proportion of cases cured by operation increased. From the point of view of metastasis, it would appear from these results much less serious to cut into a tumor than to exert pressure upon it, although the effect of the distribution of tumor tissue throughout an extensive operation is quite generally understood.

#### MONTHLY CYCLOPEDIA AND MEDICAL BULLETIN

January, 1913.

**Scarlet Red in the Treatment of Gastric and Duodenal Ulcer.**—Julius Friedenwald and J. F. Leitz, reporting upon thirty-seven cases of ulcer in which scarlet red was employed, assert that this agent is a useful adjuvant in the treatment of peptic ulcer. While it cannot replace the usual forms of treatment (Leube and Lenhartz), when administered in conjunction with them, it often renders the cure more complete. As a help in ambulatory cases it is of great service, its effect being apparently even more favorable than that obtained from bismuth. Its use need not in any way interfere with the giving of other remedies, such as the alkalies or belladonna, when indicated. It is best administered in doses of fifteen grains, three or four times daily, before meals. It may, however, be given in much larger doses. No toxic effect was observed during its employment in over one hundred patients.

**Pulmonary Syphilis Complicating Pulmonary Tuberculosis.**—F. N. Robinson mentions as evidences of the coexistence of these two conditions: (1) Marked dyspnea in a case of lung tuberculosis only of short duration; (2) primary affection of the larynx, the picture upon local examination being that of syphilis, not tuberculosis; and (3) abundant expectoration of mucous or slightly mucopurulent material. Upon physical examination, the most striking feature is the extensive pulmonary involvement, with otherwise an apparently excellent state of nutrition. A "rustling" murmur over the junction of the middle and lower lobes and "burr" or "snoring" heard over the bronchi are also characteristic. The sputum shows but a small number of tubercle bacilli and occasionally nonmotile spirilla; there is a great disproportion between the number of polynuclear and of mononuclear cells. The Wassermann reaction is, of course, also available for diagnosis. In the treatment, the use of mercury should be limited to mild inunctions, administered only at intervals. Iodine is indicated above all. The author gives tincture of iodine in doses of from two to five drops, three times daily, increased up to ten or twenty drops, in a wineglassful of milk. He has seen favorable results in two cases from the administration of salvarsan.\* As for the prognosis, when tuberculosis attacks a syphilitic in the primary and secondary periods the prognosis is grave, while in the tertiary period it is somewhat better. When

a tuberculous patient becomes infected with syphilis, the prognosis is bad in proportion to the period of previous existence of the tuberculosis.

#### OPHTHALMIC RECORD.

July, 1913.

**A Case of Spring Catarrh: A Pathological Report.**—Hanford McKee found the following histological changes in tissue removed from a case of vernal catarrh: 1. The epithelium was thickened to three or four times its natural depth; 2. It dipped into the tissue beneath, giving the well known epitheliomalike picture; 3. beneath the epithelium were foci of degeneration. There was also fragmentation of the connective tissue, with collections of basic staining debris, leucocytes, and lymphoid and plasma cells. Ingrowths of new capillaries were noted; 4. the deeper parts, too, were infiltrated with plasma cells and eosinophiles. There was a marked preponderance of the latter, which were often seen between the epithelial cells; 5. Plasma cells were also found in folliclelike groups, but these were very different from the typical lymphoid follicle. The histological picture was therefore one of a chronic inflammatory process, with a great deal of infiltration, necrosis, and destruction of fibrous tissue, followed by repair and down growth of the epithelium. As a result of the changes in the underlying tissue, the epithelium had become secondarily diseased, had proliferated, and had extended into the deeper parts.

### Proceedings of Societies.

#### MEETING OF THE AMERICAN THERAPEUTIC SOCIETY.

Held at Washington, D. C., May 5 and 6, 1913.

(Continued from page 254.)

**Recent Improvements in the Quinine Treatment of Lobar and Lobular Pneumonia.**—Dr. S. SOLIS-COHEN, of Philadelphia, recalled that the death rate of pneumonia for forty years, according to good authority, had ranged between 20 and 22 per cent., and in the last decade, between 30 and 40 per cent. Both the mortality and the number of cases were increasing. Hence it was deemed worth while to continue to direct professional attention to the comparatively favorable result, that is to say a mortality of from 9 to 12 per cent., that attended a special method of treatment. During the last few years the roof wards at Jefferson Hospital and the galleries at Blockley had offered improved facilities for obtaining that constant supply of fresh air which was an integral part of the method, and the more favorable showing for this period might be attributed in part to that factor. Apart from fresh air, dependence had been placed upon the following measures: First, the effective use of the very soluble double hydrochloride of quinine and urea in 50 per cent. solution by intramuscular injection. Second, the hypodermic injection of cocaine hydrochloride solution or an extract of the posterior lobe of the pituitary body, for the maintenance of blood pressure. Third, in cases of prolonged fever, delayed resolution, or tardy convalescence, the injection of bacterines (pneumococcus or "mixed" vaccines, personal or stock).

Doctor POTTINGER inquired as to the length of the time required for complete resolution in the average case of pneumonia. We were inclined to think that the process went on rapidly and was completed in a short time, but his experience in the examination of tuberculous subjects had led him to believe that the time required for resolution was much longer than was commonly supposed. He also asked what was meant by a "large dose" of digitalis.

He had found 45 drops of the tincture sufficient in most cases. The shortness of the attack was a noticeable feature in the charts shown by Dr. Solis Cohen. If the disease was due to bacterial invasion and the proper vaccine could be used there should be a shortening in the length of the disease and in the time required for resolution. As regards results, one man obtained one result, and another man another, with any method of treatment. Success was chiefly due to the observance of minutiae. It was the same with pulmonary tuberculosis. One man obtained an indifferent result, and another obtained a good result from practically the same treatment. The treatment was the treatment of the patient, not of the disease. Individualization and the observance of minutiae were the most important points making for success.

Dr. KOLIPINSKI said that in the formula presented by him the corrosive sublimate did not seem to act as a poison. He had given as much as 10 grains of the medicine in twenty-four hours without injurious effect. Little cough and scanty expectoration signified a severe case of pneumonia, whereas much coughing and profuse expectoration indicated quick recovery. Of course the kind of case and the presence of complications should also be taken into consideration.

Doctor MORRIS inquired whether, if the mortality from pneumonia was increasing from year to year, a relationship could not be traced between this and the lessened resistance of the body tissues caused by the invasion of the grippé bacillus. He also asked whether there was any particular significance in the painting of the skin with iodine before giving the injections of quinine and urea,—suggesting that this might have some effect upon the chemotactic effect of the injection. He believed that every physician had his own private method of treating pneumonia but that the agents and measures employed did not make much difference so long as they were given with confidence.

Dr. S. SOLIS-COHEN, in closing, said that the element of confidence was undoubtedly of the highest importance. As to tetanus, his experience with the injection had lasted over thirty years. It began in Doctor Bartholow's clinic in the treatment of chronic malaria. He had not seen a case of tetanus in over 5,000, possibly 10,000, injections. He had met with just four instances of sloughing, and three of them occurred before the present technic was instituted in 1886. Since then he had seen one case, and that had followed an injection given by a nurse. He had always given instructions that the injections were to be given by the internes, but the injunction was overlooked in this case. In his opinion the sloughing was due to a corrosive action upon the skin and subcutaneous tissues, and he now covered the skin with a protective coating of rubber and made the injection through it, thoroughly emptying the syringe to prevent any drops of the preparation from falling upon the skin. The puncture was sealed with collodion or iodoform collodion. According to his observation the remedy acted only upon skin that had been broken, not upon the unbroken skin. Grippé infection and the consequent lowering of resistance had undoubtedly played a part in the increased mortality and prevalence of pneumonia. So far as mortality goes, statistics were of value. It was possible, in a large measure, to exclude the secondary cases. There was no doubt but that the mortality from pneumonia had increased rapidly. He believed that this was partly due to the wave of therapeutic nihilism that had spread over the world. Many of the patients might have recovered if they had been under the care of some one with confidence in his own treatment. Doctor Pottenger's suggestion that pneumonia not infrequently left more or less lasting consolidation was correct. He believed that the bacterines would prove of value in meeting this condition. Under the treatment outlined in the paper defervescence usually occurs by lysis rather than by crisis. He still observed crisis in mild cases of pneumonia in which the course of the disease was not interfered with. The change from crisis to lysis and the great relief afforded by the quinine, without corresponding change in the pulmonary condition, indicated that the treatment was antitoxic in character. This view was strengthened by the absence of cinchonism. It would appear that the pneumonia poison and the quinine counteracted or neutralized each other. This tended to prevent cardiovascular failure, one of the most dangerous possibilities

in the course of the disease. Each case, however, should be treated upon its own merits. There was no one treatment for all, and in individualization lay the key to success.

**Pulmonary Syphilis, with Report of a Case Promptly Responding to Specific Treatment.**—This paper, by Dr. ALBERT E. ROUSSEL, of Philadelphia, will appear in the *JOURNAL*.

In discussion Dr. THOMAS E. SATTERTHWAITE, of New York, said that at various times he had tried to bring up a discussion of this subject. At first he could hardly get anyone to believe that there was such a disease as syphilis of the lungs. The cases were thought to be instances of pulmonary tuberculosis. The pathological findings, however, were very instructive—particularly the white radiations running out from the gumma. The difficulty lay chiefly in the differential diagnosis. Once a diagnosis had been made, the gummata in the lungs and all the symptoms rapidly disappeared under appropriate treatment, and this was an important diagnostic point. A positive blood reaction was a great help. The discovery of the germ would demonstrate that cases of pulmonary syphilis are more frequent than is generally supposed.

Doctor POTTINGER spoke of the difficulty of making a correct diagnosis. The absence of tubercle bacilli from the sputum was not conclusive evidence. Some tubercular patients but rarely presented bacilli in the sputum. In case of one patient who had been in the sanatorium for fifteen months, the bacilli were detected in the sputum only twice. Their presence could easily be overlooked in such a case unless the examinations were made frequently and very carefully.

Doctor OSBORNE spoke of the value of the iodides from a diagnostic standpoint. They were ordinarily contraindicated in pulmonary tuberculosis. If, however, there were no tubercle bacilli in the sputum they could be given, and if afterward no bacilli were found, the diagnosis was clear.

Doctor EVANS said that there were other affections than pulmonary tuberculosis that should be taken into consideration in making a diagnosis of syphilis of the lung.

Doctor MORRIS said that there was still another affection that should not be overlooked in making the differential diagnosis. He related a case which turned out to be a case of blastomycosis.

Doctor SATTERTHWAITE said that in the early stages it was almost impossible to differentiate between pulmonary tuberculosis and syphilis of the bronchial glands.

Doctor POTTINGER had not found potassium iodide harmful in tuberculosis. He had used it in a great many cases and often found it beneficial.

Doctor OSBORNE said that in incipient cases, according to his experience, the iodide was liable to stir up the pulmonary condition and make matters worse. He recollected in particular one such case in which the use of potassium iodide was followed by a lighting up of the symptoms and a change for the worse. In chronic cases the effect was something similar, but it enabled the patient to expel the bacilli.

**Climatic Conditions in California and Their Influence in the Treatment of Tuberculosis.**—Dr. GEORGE HERBERT EVANS, of San Francisco, after describing the climatic conditions of various parts of California in respect to the treatment of tuberculosis, entered a protest against the custom of sending tubercular patients away from home without provision for constant medical guidance. He hoped that medical men everywhere would come to realize that with tuberculosis, as with other chronic diseases, provision for proper medical care should be the first consideration in sending patients from home. The selection of a suitable climate, based upon a careful consideration of the needs of the individual case; a proper correlation of rest and exercise; proper attention to the nutrition; tuberculin; all of these were important factors in therapy. No theoretical argument, however, as to climate could weigh for a moment against the abundant testimony of successful treatment by men trained in the handling of these patients, regardless of the locality in which they lived.

**What Does Treatment Offer to the Advanced Tuberculous Patient.**—Dr. FRANCIS M. POTTINGER, of Los Angeles, emphasized the necessity for early diagnosis and treatment. Failure to make an early diagnosis was sometimes the fault of the patient and sometimes of the physi-

cian. Too often the physician regarded lightly the request of the patient for an examination of the lungs. Sometimes an early diagnosis was practically impossible, as in old unrecognized cases in which the symptoms suddenly became acute. While the early tubercle was comparatively easy to heal, the disease became progressively more difficult to handle as it advanced. After describing the clinical features in different stages, the essayist dealt with treatment including the advantages of sanatorium treatment for chronic cases. An important factor was a careful regimen, suited to the individual, and carried out for a long time. Failure often came from giving up too soon. A case was not hopeless so long as the patient could digest and assimilate food and the heart was capable of performing its functions.

Dr. SPENCER L. DAWES, of Albany, heartily agreed that the physician should see that his patients received individual medical attention. It was not sufficient to send these patients to California, or Colorado, or elsewhere. If one had to choose between care without climate and climate without care, he would do well to choose care without climate. Each patient should have individual treatment.

Doctor OSBORNE expressed appreciation of the paper. He agreed with Doctor Pottinger as to the value of tuberculin. Late tuberculosis was always with us. Every patient recovering from pneumonia, typhoid, and other diseases and even those suffering from slight debility should be carefully watched. In tuberculosis one should never give up. Recovery had occurred in cases that seemed absolutely hopeless.

Dr. J. W. CHAPPELL, of Washington, D. C., agreed with this. The physician could learn a lesson from the very persistence with which these patients held on to life. They lived along from year to year and some of them managed to recover even when left alone. Several years ago he noted that one lung of an apparently healthy man, whom he was examining, was inactive. Inquiry disclosed that twenty years before, the man had had "lung trouble" but had recovered without treatment. Tubercular patients should never be given up. The endeavor should be to see that each one received careful personal medical attention. As to incipient cases, whenever he had a patient who was running down steadily without any known cause he strongly suspected tuberculosis.

Doctor KINYOUN said that the management of tuberculosis was a nice problem. It took two to make a bargain. The physician could make the diagnosis and prescribe the treatment, but it rested with the patient to carry it out. Any form of treatment that failed to restore the patient to his former physical condition fell short; for example, one that only enabled the patient to live and do light work in the place to which he had been sent, but not to return home, was a mere apology for a cure. All cases were not suitable for treatment away from home.

Doctor POTTINGER said that many patients did better away from home than at home. The beneficial effects of change of surroundings, freedom from care and worry, association with optimistic people, a suitable climate, etc., were well recognized. Changing and moving around from place to place was fatal.

**The Medical Treatment of Cholelithiasis.**—Dr. H. B. ANDERSON, of Toronto, Canada, admitted that while surgical procedure was frequently the best, and often the only means offering a chance of relief, its advocacy based on certainty of cure and assurance of nonrecurrence was unwarranted. The main object of treatment was the relief of the infection and inflammation and not merely the removal of gallstones. This not infrequently occurred under nonoperative treatment, especially in early and mild cases and particularly after first attacks before serious local damage had been done by the infection. Medical treatment should be fully carried out in all cases where the patient's physical condition did not warrant operation, and in the numerous cases in which operation was refused. It should be employed in many cases as a preliminary to operation in order to allow the acute infection to subside as far as possible. It should be carried out in all cases after operation, to prevent reinfection and recurrence, if possible. He never advised strongly against operation in any case unless an operation was definitely contraindicated because of the patient's physical condition; but, after explaining the possibility of failure and



that operation might eventually be required, he did not hesitate in early or mild cases, or after first attacks, to give medical treatment a thorough trial, and this course in many instances gave excellent results.

Doctor ROESSEL pointed out that whereas gallstone patients were usually first seen and treated by the physician and by him often referred to the surgeon, the surgeon but rarely after operation turned the patients over to the medical man again for subsequent treatment. This practice was very different from that obtaining abroad, especially in Germany, where it was the custom for the surgeon to turn the patient over to the physician after operation for medical treatment and care. Instances had occurred where failure to provide this care had been attended with undesirable results.

Doctor STEWART spoke of the treatment of cholelithiasis by bacterial vaccines. Whether or not the treatment was efficacious was a mooted question.

**Orthotherapy; the Power Which Correct Posture, Organic Adjustments and Mobility Exert upon Health and Its Recovery.**—Dr. JOHN MADISON TAYLOR, of Philadelphia, stated that deformities caused by posture and costume impaired the health in many ways. Physical peculiarities, present in every individual in varying degrees, were too often regarded as mere matters of course, as distinguishing characteristics, and dismissed as of no moment. A conspicuous stoop, a lateral twist, a sagging waist, high shoulders or hollow chest, bent knees and such asymmetries were looked upon as merely evidences of bad taste, or as finger marks of fate. They were often deliberately perpetuated, even exaggerated, and too frequently imitated. A grave significance was added when it was realized that these departures from normal attitudes were in truth exaggerations of developmental faults, inducing degenerative changes in nerve centres or conduction paths; morbid slackness in tissues, central defects, impaired nutrition in important structures, causing compression of bloodvessels and nerves, all tending to produce yet worse conditions in vital structures.

**Treatment of Splanchnoptosis, with Report of Cases.**—Dr. ELMER B. FREEMAN, of Baltimore, emphasized that congenital cases should be recognized in early childhood. Exercises that would tend to increase the capacity of the abdomen and develop strong abdominal muscles might decrease the number of severe cases. Cases without adhesions, or with loose adhesions, could be relieved and made comfortable by proper medical treatment. Cases with firm adhesions which caused a definite kinking or constriction of any portion of the gastrointestinal tract, with symptoms of chronic obstruction, required surgical intervention. The medical treatment referred to above had for its object the improvement of nutrition, an increase in the nervous and muscular tone, the correction of gastric disturbance, and the removal of constipation. Forced feeding, rest in bed, and the use of a suitable corset might be required. The author preferred the corset recommended by Doctor Gallant some years ago.

Dr. A. ERNEST GALLANT, of New York, said that in many cases the organs could be adequately supported and the downward pressure counteracted. The corset referred to by Doctor Freeman, to his mind, best met these indications. He had used it since 1893. The average corset on the market to-day failed to furnish an adequate support, or if it did furnish a support it acted upon an erroneous principle. Under them all at the bottom in front was a space that allowed sagging of the abdominal contents. One of the chief objects of support was to do away with this. The best way was to put the patient on her back, raise her hips, and allow the organs to flow back, using massage if necessary, and then to fit the corset snugly and properly so when the patient arose there should be no tendency to falling down of the abdominal contents. He believed that his corset met these requirements. It did not permit of any sagging, whether the patient were standing, sitting, or lying down. It put a shelf under the abdomen to hold it up, thus doing away with the sensation of "dragging" that so many women experience. The cause of this sensation was the sagging of the unsupported organs upon the whole system of attachments within the body from the neck down. Proper support held up not only the abdominal viscera but the thoracic viscera as well. If the epigastrium was hollow as compared with the hypogastrium the chances were that

there was displacement. Each organ might not sag much but the downward pull of all together caused the discomfort. The relief afforded by a properly adjusted corset was demonstrated by the change that came over these patients when they had to lay the corset aside for a time. Some of them had to go to bed while it was being repaired.

Doctor ZUEBLIN, of Baltimore, referred particularly to the etiology. Heredity was undoubtedly of importance. Some of the patients came from poor stock and were by nature predisposed to visceral displacement. There might be impairment of the muscular tone, for example, or tendency to stomach trouble. The patients were especially liable to infection owing to lowered resistance. There was often hypochondriasis, but when a proper support was applied the mental depression disappeared. The indications were to remove the cause of the displacement if possible, and furnish a support for the sagging organs. Efforts should be made to improve the muscular tone by exercise, posture, massage, etc. Disturbances of the stomach and other organs should be corrected if possible. Especial effort should be made to improve the general nutrition.

**The Effect of Scarlet Red in the Treatment of Ulcer of the Stomach and Duodenum.**—Dr. JULIUS FRIEDENWALD, of Baltimore, with the collaboration of Dr. T. F. LEITZ, of Baltimore, after describing scarlet red and giving its effects upon the lower animals, set forth the results of its use in thirty-seven cases of gastric ulcer. The conclusions were as follows: 1. Scarlet red was a useful adjuvant. 2. While it could not replace the usual forms of treatment, when administered with them, it increased the beneficial effect. 3. It was of great service as an aid in the treatment of ambulatory cases and the results seemed even more favorable than those obtained from bismuth. It did not interfere with the administration of other remedies, like the alkalies or belladonna, and indeed the effect of the combination was at times most beneficial.

Dr. W. WAYNE BABCOCK, of Philadelphia, referred particularly to cases with perforation. In seventeen such cases that had come under his observation there were no symptoms prior to perforation, excepting in one instance. The perforation was usually sudden, usually after a meal. This gave rise to the reflection that many persons in perfect health were probably going about with gastric ulcer. Sixteen of the patients were males. Treatment was surgical, the object being to secure drainage. No especial measures were taken to heal the ulcerated surfaces. All of the patients recovered.

Doctor MORRIS said that as a rule the less that was done for these patients in the way of a radical operation the better. In three cases, within a year and a half, with perforation and collapse, he had operated to secure drainage, expecting to do a complete operation later on. No second operation was required, however, as all of the patients recovered without it. If he had done a complete operation in the first place all might have died.

Doctor FREEMAN said that the paper marked a distinct advance in the treatment of gastric ulcer. Methods so far suggested had proved unreliable. He had used a two per cent. spray of scarlet red in one instance. The patient had presented symptoms of gastric ulcer, off and on, for two years. Just before entering the hospital he had vomited blood, and passed blood per rectum. The spray was used over a period of eight days, during which the patient's condition improved rapidly; the pain subsided and the symptoms disappeared. He would like to believe that the scarlet red was responsible for the good result. He wondered whether there was any possibility that it might irritate the ulcerated surfaces and thus have a tendency to cause cancerous degeneration.

Doctor GALLANT spoke of the difficulty sometimes encountered in securing drainage. When practicable, however, the treatment mentioned by Doctor Morris was undoubtedly the safest and quickest. In one case he was unable to keep the patient in bed after the eighth day and he was at work at the end of two weeks.

Doctor FRIEDENWALD said that he had seen a number of cases of gastric ulcer with sudden perforation and collapse, and had reported ten such cases last year. Those treated with scarlet red, however, were subacute cases. He made no claim that it was a specific, but it was a useful adjuvant. The patient should be given the usual treat-

ment. Some cases did very well with rest in bed and atropine, bismuth, or one of the other remedies commonly employed. The treatment was either medical or surgical. The patients who did not respond to medical treatment should be treated surgically.

(To be concluded.)

### Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*Surgery of the Eye. A Handbook for Students and Practitioners.* By ERVIN TÖRÖK, M.D., Surgeon to the New York Ophthalmic and Aural Institute, Ophthalmic Surgeon to Beth Israel Hospital, and GERALD H. GROUT, M.D., Assistant Surgeon to the New York Ophthalmic and Aural Institute, etc. With 509 Original Illustrations, 101 in Colors, and 2 Colored Plates. Philadelphia and New York: Lea & Febiger, 1913. Pp. x-507.

The first two chapters of this book are devoted to general surgical methods, operating room, preparation of patient and surgeon, anesthesia, aftertreatment, and instruments, the balance to the operations on the eyeball and its appendages. The writers give this as the plan they have followed: "First, before describing each group of operations we have discussed the disease for the relief of which they are intended, and have given clear indications for the selection of the proper procedure in any given case. A detailed description of the steps of each operation follows, with a list of all the instruments required. After this the complications, that may occur at the time of operation or later, are taken up together with the postoperative care of the patient." The book is admirably illustrated and is a thoroughly practical work. The personal element stands out clearly, while the differences between the American and the European methods of operating for cataract and glaucoma, due to the positions taken by the operators, are beautifully brought out. The directions are clear and precise; so far as such directions can go toward the making of a surgeon they are excellent. But why should Saemisch's keratotomy be described in full when it has been superseded by the better procedures of paracentesis and cauterization? In speaking of canthoplasty Agnew's method is referred to several times and is described as a step in Kuhn's operation, but Agnew's cantholysis is far more efficient than simple canthotomy when it is desired to relieve the pressure of the upper lid upon the eyeball and deserves a separate paragraph. The omission of such operations as the extraction in capsule by the Smith-Indian method and the preliminary capsulotomy suggested by Smith of Norwich leaves us to infer simply that they have not been practised by the writers. The only distinct slip we have noticed is the advice to make a free and deep incision in anthrax of the lid; this we believe to be absolutely contraindicated, for the less the site of the lesion is interfered with in anthrax, the less is the danger of a systemic infection. Quite a number of operations are described which are seen more commonly in the European clinics, while others not infrequent in America are omitted, but on the whole the purpose of the book, to be a practical work on the surgery of the eye, of use to every one interested in ophthalmology, is well carried out.

*Maladies du pancréas, de la rate et du mésentère.* Par G. CHAVANNAZ, professeur à la Faculté, chirurgien des Hôpitaux de Bordeaux, et J. GUYOT, professeur agrégé à la Faculté, chirurgien des Hôpitaux de Bordeaux. (Bouveau Traité de Chirurgie, publié en fascicules sous la direction de A. Le Dentu et Pierre Delbert.) Avec 126 figures intercalées dans le texte. Paris: J. B. Baillière et fils, 1912. Pp. 406.

This volume is a very timely addition to our knowledge of the surgery of the pancreas, spleen, and mesentery, which surgeons have to a great degree left to the field of physicians. Disorders of the spleen and mesentery have undergone considerable change in recent years, and advantage is well taken in the present book not only of the work done in France, but also in other countries whose surgeons are given merited credit. The aim of the authors has been

to produce a practical work. Nevertheless the data furnished are very complete, and the physician will find in it information quite as valuable to him as to the surgeon, particularly in so far as diagnosis is concerned. On the whole, the volume is a very commendable one, and a very useful addition to our knowledge of the subjects treated therein.

*Physical Diagnosis.* By RICHARD C. CABOT, M.D., Assistant Professor of Medicine in Harvard University. Fifth Edition. Revised and Enlarged, with Five Plates and 268 Figures in the Text. New York: William Wood & Co., 1912. Pp. xxi-519. (Price, \$3.)

Cabot's diagnosis differs from other books on the subject in that he omits the description of tests and clinical data which, to the author at least, seem of no advantage or with which he is not familiar. For instance, because of his lack of acquaintance with cystoscopy, ophthalmoscopy, and laryngoscopy, he fails to describe them, without, however, decrying their value as clinical resources. His aim, briefly, is to describe those features of diagnosis which he has found valuable, precisely as a therapist recommends only those remedies which he has found helpful. This attitude renders the diagnostic data which he describes in detail all the more valuable in that they are treated with a degree of care and lucidity seldom met with in books on diagnosis, which, too often, are rather careless compilations of the useful and useless; thus serving to fatigue rather than instruct the reader.

*A Method of Measuring the Development of the Intelligence of Young Children.* By ALFRED BINET and TH. SIMON. Authorized Translation with Preface and an Appendix Containing an Arrangement of the Tests in Age and Diagnostic Groups for Convenience in Conducting Examinations. By Clara Harrison Town, Ph.D., Director of the Department of Clinical Psychology, Lincoln State School and Colony, Lincoln, Ill. Lincoln, Ill.: The Courier Company, 1912. Pp. 83. (Price, \$1.)

This little book, in pamphlet form, on poor paper, badly printed, miserably illustrated, is a good translation of the Binet-Simon papers on their system of ascertaining the mental status of children, now well known in the United States. The translator, Dr. Clara Harrison Town, has, however, given considerable care to the text, and we hope that the cheap makeup—which is quite inexcusable, seeing that one dollar is charged for the book—will not militate against its success.

*Systematic Case Taking. A Practical Guide to the Examination and Recording of Medical Cases.* By HENRY LAWRENCE MCKISACK, M.D., M.R.C.P. Lond., Physician to the Royal Victoria Hospital, Belfast, etc. New York: Paul B. Hoeber, 1913. Pp. x-166. (Price, \$1.50.)

Although the writer rightly holds that no mere book can take the place of the personal instruction in the wards, the fact remains that the student requires at least a carefully coordinated summary of the knowledge he is to see applied at the bedside if he is to profit seriously from the clinical instruction it affords. The book before us aims to supply a *multum in parvo* of the means of investigation the student needs for this purpose, viz., the various methods of investigation and the significance of symptoms and their relative value as signs to detect each condition present. The text is prepared with much care and obviously by a master hand. It lacks illustrations, which are always so elucidative in diagnosis, and we hope that the author will further enhance the value of his excellent work by filling this omission in the next edition.

*A Dictionary of Treatment. Including Medical and Surgical Therapeutics.* By Sir WILLIAM WHITLA, M.A., M.D., LL.D., Professor of Materia Medica and Therapeutics in Queen's University, Belfast, etc. Fifth Edition. London: Baillière, Tindall, & Cox, 1912. Pp. ix-1204. (Price, 16s.) (Agents in America, Chicago Medical Book Company.)

That Whitla's *Dictionary of Treatment* should have reached its fifth edition and a sale of twenty-eight thousand copies sufficiently emphasizes the fact that commendation is hardly necessary. Judging from the dedication, the book is intended at least in part for missionaries, but its excellence has doubtless caused it to be used extensively by the profession at large. The fifth edition



represents a thorough revision of the preceding, which had been out of print some years. So numerous have been the changes, in fact, that the book may almost be regarded as a new one. Naturally it is too small to have permitted anything but very brief summary of the many subjects treated, but this has been done in such a way as to afford the main features necessary for everyday work. The subject matter has been carefully brought up to date, and ample evidence is available to indicate that the selection of new facts introduced has been done judiciously.

*Electrotherapeutics for Practitioners. Being Essays on Some Useful Forms of Electrical Apparatus and on Some Diseases Which are Amenable to Electrical Treatment.* By FRANCIS HOWARD HUMPHRIS, M.D., F.R.C.S.P., M.R.C.S., etc., President of the American Electrotherapeutic Association, etc. Illustrated. New York: Longmans, Green, & Co., 1913. Pp. v-243. (Price, \$2.40.)

This small book is intended to furnish the general practitioner a summary of the practical features of electrotherapeutics, indicating those diseases in which its various forms are most generally useful. The author adduces facts based on his own experience, the therapeutic indications advocated being all capable of duplication by any painstaking practitioner supplied with good instruments. On the whole, this little book is a very satisfactory one; it is not overburdened with the physics of electricity and in clear concise language gives the practitioner precisely what he should know to do justice to his cases. An excellent glossary, which deprives the text of any asperities, even for the merest tyro, closes the volume.

*Malingering and Feigned Sickness.* By Sir JOHN COLLIE, M.D., J.P., Medical Examiner, London County Council, Chief Medical Officer, Metropolitan Water Board, etc. Assisted by Arthur H. Spicer, M.B., B.S., Lond., D.P.H. Illustrated. New York: Longmans, Green, & Co.; London: Edward Arnold, 1913. Pp. xii-340.

This book has for its main purpose to protect insurance companies, manufacturers, etc., against imposture, and indirectly to protect the worthy sick and victims of industrial accidents. As the author states, many deserving cases do not receive proper consideration because unworthy persons have had expended upon them the sympathy and help which are the legitimate right of the true sufferer. Many litigations would be avoided, we might add, if the malingeringer did not cause most applicants to be suspected of being dishonest. A careful survey of the means to identify the actual wrongdoer, each organ being studied in turn, constitutes the bulk of the work, which is certainly a meritorious one and one entitled to a large circulation.

*Studio su la Morte Apparente e la Morte Reale.* Par Dottor ARCANGELO CREAZZO. Roma: Ermanno Loescher & Co., 1913. Pp. 184.

This is an able attempt to place on a more stable foundation what knowledge is available on apparent death as differentiated from real death. Many examples of burial before life was extinct are related—all garnered from authoritative sources—the need of a scientific study of the whole question being emphasized. The general subjects taken up are: Latent biological activity; the autonomy of organs and functions as vital entities; latent life in superior organisms; the stages of moribundity; the persistence of life notwithstanding apparent death; the physiopathology of death; latent life in the newborn and fetus; phenomena of residual life; the signs of death, and, as the closing feature, a critical appendix of the various means, so far as proposed, to avoid premature burial. The work is a valuable one and well worthy of translation.

*Die Erkrankungen des Herzmuskels und der nervösen Herzerkrankheiten.* Von Dr. LUDOLF KREHL, Professor der speziellen Pathologie und Therapie in Heidelberg. Zweite, umgearbeitete Auflage. Wien und Leipzig: Alfred Holder, 1913. Pp. 578.

The author's name is sufficient to indicate that the book is one of value, and a perusal of it will show that the confidence has not been misplaced. The writer takes up the question from all points and gives it a very complete presentation. Considerable emphasis is laid upon the various ways of making a careful examination of the heart, particularly by means of the electrographic method which is now daily employed. The disturbances in other organs

are reviewed, and much attention is given to the underlying principles in the treatment of cardiac disturbances. Somewhat more than half the book is devoted to lesions of the heart muscle resulting from certain definite conditions. The publication can be recommended as a valuable addition to the literature on the subject.

*Protective Inoculation against Cholera.* By W. M. HAFKINE, Bacteriologist with the Government of India. Calcutta: Thacker, Spink, & Co.; London: W. Thacker & Co., 1913. Pp. 98.

In this monograph of ninety-eight pages Doctor Hafkine divides the subject into three portions: One dealing with the technic of preparation of an anticholera vaccine; the second with the immunization of man against cholera; the third with the anticholera vaccine after its devitalization. The material originally used was a virus in live condition, brought by successive cultivations in guineapigs to a uniform and stable degree of virulence. This, known as vaccine II, has been employed as a rule, but it was found that its toxic and immunizing effects are still observable in the vaccine when it is devitalized by delicate chemical or physical processes. If it should still retain sufficient potency for immunizing man against natural cholera there would be a great simplification in the application of the protective inoculation. Doctor Hafkine, therefore, believes that the devitalized vaccine II should be subjected to a careful study in cholera epidemics. The article is a valuable one in that it represents the opinions and experiences of the originator of the method of cholera protection, and should be read by those interested in the subject.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending July 30, 1913:*

**Bolten**, Joseph, Assistant Surgeon. Directed to proceed to Stapleton, N. Y., and report to the medical officer in charge of the marine hospital for duty and assignment to quarters. **Cody**, H. C., Assistant Surgeon. Directed to proceed to Ellis Island, N. Y., and report to the chief medical officer for duty. **Cumming**, H. S., Surgeon. Authorized to direct Mr. W. C. Purdy to proceed to such points on the Potomac River watershed as may be necessary in the collection of plankton in connection with the investigation of the pollution of the Potomac River. **Lavinder**, C. H., Surgeon. Directed to visit Jackson, Miss., for conference with the State Board of Health and to proceed to Arcola, Miss., and such other points in the State as may be necessary in the investigation of pellagra; directed to proceed to Long Beach, La., in connection with the investigation of pellagra. **Liddell**, T. J., Assistant Surgeon. Assigned to temporary duty at the marine hospital, New Orleans, La. **Manning**, H. M., Passed Assistant Surgeon. Relieved from duty at the New Orleans Quarantine Station and directed to proceed to Key West, Fla., and assume charge of the marine hospital at that port. **Preble**, Paul, Passed Assistant Surgeon. Directed upon the completion of the work at Buffalo, N. Y., in connection with the investigation of the pollution of boundary waters between the United States and Canada, to proceed to Clayton, N. Y., and other points on the St. Lawrence River to continue the same work. **Ruoff**, J. S., Assistant Surgeon. Directed to proceed to New Orleans Quarantine Station, Quarantine, La., and report to the medical officer in charge for duty and assignment to quarters. **Stimpson**, W. G., Surgeon. Directed to proceed to Tuckerton, N. J., to arrive on the morning of July 23, 1913, thence to Atlantic City, N. J., for the purpose of making the annual physical examination of keepers and surfmenn of the Life Saving Service; detailed to represent the Service at the meeting of the Pennsylvania Homeopathic Medical Society at Bedford Springs, Pa., September 2 to 4, 1913. **Stimson**, A. M., Passed Assistant Surgeon. Directed in compliance with a resolution of the United States Senate, to proceed to Asheville, N. C., and vicinity, for the investigation of a remedy for tuberculosis. **Treadway**, W.



L., Assistant Surgeon. Directed to proceed to Ellis Island, N. Y., and report to the chief medical officer for duty.

#### *Appointments.*

Dr. Joseph Bolten, Dr. Robert C. Derivaux, Dr. John S. Ruoff, Dr. Tully J. Liddell, Dr. Harry C. Cody, and Dr. Walter L. Treadway commissioned assistant surgeons in the Public Health Service July 22, 1913.

#### *Boards Convened.*

Board of commissioned medical officers convened to meet at the bureau to examine and grade the papers of applicants for appointment as assistant surgeon. Detail for the board: Assistant Surgeon General W. J. Pettus, chairman; Assistant Surgeon General L. E. Cofer, recorder.

Board of commissioned medical officers convened to meet at the Marine Hospital, Detroit, Mich., on Monday, August 4, 1913, at 10 o'clock a. m., for the physical examination of applicants for appointment as assistant surgeons and for the presentation of questions for the written examination. Detail for the board: Senior Surgeon H. W. Austin, chairman; Surgeon M. J. White, recorder.

Boards of medical officers convened to meet July 7, 1913, for the examination of applicants for appointment as assistant surgeons, reconvened to meet August 4, 1913, for the same purpose.

Assistant Surgeon Liston Paine detailed as recorder of board of medical officers reconvened to meet at the marine hospital, Chelsea, Mass., August 4, 1913, for the physical examination of applicants for appointment as assistant surgeons and for the presentation of questions for the written examination, vice Surgeon H. W. Wickes, relieved.

Board of medical officers convened to meet at Washington, D. C., for the reexamination of four children of Morris Hoffman, an alien resident of Washington. Detail for the board: Surgeon Joseph Goldberger, chairman; Surgeon J. W. Scherschewsky, recorder.

#### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending August 2, 1913:*

**Baker**, David, Major, Medical Corps. Detached from duty at Fort McPherson, and ordered to Camp Perry, Ohio, accompanying troops. **Bradley**, A. E., Lieutenant Colonel, Medical Corps. Ordered to make inspection of the following coast defenses: Long Island Sound, Narragansett Bay, New Bedford, Boston, Portsmouth, and Portland. **Davis**, William T., Captain, Medical Corps. Resignation accepted to take effect November 15, 1913. **Doerr**, C. E., Captain, Medical Corps. Detached from duty at Fort Thomas, and ordered to Camp Perry, Ohio, accompanying troops. **Dosher**, Julius A., First Lieutenant, Medical Reserve Corps. Paragraph 7, Special Orders No. 167, is so amended as to extend detail on active duty until August 16, 1913. **Ford**, Harry G., First Lieutenant, Medical Corps. Relieved from further duty at the Presidio of Monterey, Cal., and will proceed to Camp E. S. Otis, Canal Zone, Panama, and report in person to the commanding officer for duty, and by letter to the commanding general, Eastern Department. **Kennedy**, J. S., First Lieutenant, Medical Reserve Corps. Ordered to Fort McPherson, Ga., on August 9th for temporary duty. **Lyster**, Theodore C., Major, Medical Corps. Upon arrival in the United States, in compliance with orders heretofore issued, will proceed to Fort Monroe, Va., and report in person to the commanding officer of that post for duty and by letter to the commanding general, Eastern Department. **McKinney**, G. L., Captain, Medical Corps. Granted leave of absence for twenty days, about August 29th. **McMillan**, Clemons W., Lieutenant, Medical Corps. On arrival in the United States from Alaska, will proceed to Fort Myer, Va., for duty. **Metcalfe**, Raymond F., Major, Medical Corps. Granted leave of absence, effective on relief from present duties. **Mills**, Raymond W., First Lieutenant, Medical Corps. Resignation accepted, to take effect August 20, 1913; granted leave of absence to and including August 20, 1913. **Porter**, Ralph S., Captain, Medical Corps. On arrival in the United States from Alaska will proceed to Fort Sheridan, Ill., for duty. **Roberson**, Horace M., First Lieu-

tenant, Medical Corps. On arrival in the United States from Alaska, will proceed to Fort Terry, N. Y., for duty. **Smith**, Herbert A., First Lieutenant, Medical Reserve Corps. Ordered to active duty and will proceed to Fort Porter, N. Y., for duty during the illness of Major Sanford H. Wadhams, Medical Corps, upon whose return to duty Lieutenant Smith will return to his home and upon arrival there will stand relieved from active duty in the Medical Reserve Corps. **Stayer**, M. C., Captain, Medical Corps. Detached from duty at Madison Barracks and ordered to Camp Perry, Ohio, accompanying troops. **Thode**, E. F., First Lieutenant, Medical Reserve Corps. Ordered to Fort Ontario for temporary duty. **Wadhams**, S. H., Major, Medical Corps. Granted leave of absence for eighteen days, to terminate not later than August 14th, by Special Orders 136, Eastern Department. **Wickline**, William A., Captain, Medical Corps. Granted leave of absence for one month, effective on or about August 15, 1913. **Williamson**, L. P., First Lieutenant, Medical Corps. Will report at 9 a. m., on August 18, 1913, to Colonel Charles Richard, Medical Corps, president of the examining board at the Army Medical Museum Building, Washington, D. C., for examination for promotion, on completion thereof to return to proper station.

#### United States Navy Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending August 2, 1913:*

**Camerer**, C. B., Assistant Surgeon. Detached from temporary duty at Washington, D. C., and ordered home to await orders. **McMullin**, J. J. A., Passed Assistant Surgeon. Commissioned a passed assistant surgeon from March 28, 1913. **Smith**, H. W., Passed Assistant Surgeon. Detached from the *Montana* and ordered to the *Montgomery*.

#### Births, Marriages, and Deaths.

##### *Married.*

**Johnson-Haymore**.—In Asheville, N. C., on Wednesday, July 16th, Dr. Harry McCrindle Johnson, of St. Louis, Mo., and Mrs. Haymore. **Thompson-Reeves**.—In Fond Du Lac, Wis., on Tuesday, July 22d, Dr. W. L. Thompson, of Milwaukee, and Miss Hazel L. Reeves. **Wheat-Flint**.—In Manchester, N. H., on Saturday, July 19th, Dr. Arthur F. Wheat and Miss Rachel Flint.

##### *Died.*

**Bell**.—In Baltimore, Md., on Wednesday, July 23d, Dr. Samuel Bell. **Corson**.—In Plymouth Meeting, Pa., on Thursday, July 24th, Dr. J. K. Corson, aged seventy-seven years. **Dowd**.—In Waltham, Mass., on Saturday, July 26th, Dr. Edward F. Dowd, aged thirty-eight years. **Duhigg**.—In Bath Beach, N. Y., on Tuesday, July 29th, Dr. Bernard A. Duhigg, aged forty-one years. **Evans**.—In Cheswold, Del., on Sunday, July 20th, Dr. Owen Herbert Evans, aged forty-nine years. **Harris**.—In South Bend, Ind., on Tuesday, July 22d, Dr. Robert Harris, aged ninety years. **Kirsten**.—In Jersey City, N. J., on Friday, July 25th, Dr. August J. Kirsten, aged forty-eight years. **Linn**.—In Oconee, Ill., on Sunday, July 27th, Dr. W. T. Linn, aged one hundred and eight years. **McLenathen**.—In Willsboro, N. Y., on Wednesday, July 30th, Dr. William H. McLenathen, of Brooklyn. **Reynard**.—In Stamford, Conn., on Wednesday, July 30th, Dr. Walter E. Reynard. **Smith**.—In Washington, D. C., on Wednesday, July 23d, Dr. Thomas C. Smith, aged seventy-one years. **Straughn**.—In Snow Hill, Md., on Tuesday, July 29th, Dr. William D. Straughn, aged forty-nine years. **Swift**.—In Boston, Mass., on Tuesday, July 29th, Dr. John Baker Swift, aged fifty-nine years. **Taylor**.—In Hartford, Conn., on Sunday, July 27th, Dr. Oliver Brewster Taylor, aged ninety-three years. **Westbrook**.—In Benson, Vt., on Saturday, July 19th, Dr. George R. Westbrook, of Brooklyn. **White**.—In Glyndon, Md., on Wednesday, July 23d, Dr. John W. White, aged seventy-five years. **Wunder**.—In Sabillasville, Md., on Sunday, July 20th, Dr. Joseph C. Wunder, of Baltimore, Md.

# New York Medical Journal

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### Original Communications.

#### THE PREVENTION OF DEAFNESS.

By G. HUDSON-MARKEN, M.D.,  
Philadelphia.

Some one has said that the duty of the physician is threefold: (1) to prevent; (2) to cure; and (3) to alleviate. Applying this principle to the subject of deafness, it would seem that we have reversed the order of the three duties, and our efforts have been (1) to alleviate; (2) to cure; and (3) to prevent. Some one has also well said that the time to cure deafness is before it begins, a seemingly paradoxical statement, and one implying that the affection when thoroughly established is incurable. The prevention of deafness, therefore, is a subject toward which the attention of the modern otological world is rapidly turning, and one which the progressive general practitioner of medicine can no longer ignore.

One of the difficulties arising in any discussion of this subject is to make a satisfactory etiological classification of it. The assigned causes for deafness are so numerous and varied that it is difficult even to group them. In a recent report issued by the United States Bureau of the Census, in which 89,287 cases of so called deaf mutism were returned, over 500 different causes were assigned for the condition. The classification usually made in dealing with the subject, namely, congenital and acquired deafness, is not altogether satisfactory, because it is difficult to differentiate between the two conditions, and many of the recognized causal factors are common to both congenital and acquired deafness. Similar objections arise, however, in any classification of the subject, but the one that appears to be the most satisfactory for my purpose is the following:

#### CLASSIFICATION OF DEAFNESS.

Deafness	Inherited	Gross physical anomalies, congenital. E. g., deafness, deaf mutism	
		Minor physical anomalies—congenital	Pastal deafness of infancy
	Acquired	Diseases of the ear	Tendency to become deaf in childhood and adult life
			Primary, originating in the ear
		Injuries to the ear	Secondary, resulting from systemic diseases
			Falls Blows Explosions Burns Scalds

The great objection to this classification is the fact that it is extremely difficult to entirely eliminate

heredity as a causal factor even in many of the so called acquired cases.

Deafness, let it be remembered, is not a disease, but the result of certain physical conditions which are either inherited or acquired. The inherited conditions which result in deafness are for the most part congenital, and they appear either as gross physical anomalies of the organs of hearing, such as are productive of the profound deafness of deaf mutism, or as minor physical anomalies not necessarily confined to the ear, but extending to other portions of the organism as well, and productive either of the partial deafness of childhood or of the somewhat indefinite state known as the "tendency" or "predisposition" to become deaf in later life.

The acquired conditions which result in deafness, on the other hand, are more pathological in character, and they arise (1) from diseases of the ear, either primary or secondary, and (2) from injuries to the ear, which are usually traumatic in origin. Primary diseases of the ear are those which originate in the ear itself, and secondary diseases of the ear those which result from general systemic diseases, such as the exanthemata and other infectious fevers and diseases, including syphilis and tuberculosis.

#### 1. INHERITED DEAFNESS.

Time was when the existence of inherited deafness could reasonably be questioned, but that time has now passed. Recent investigations have shown conclusively that heredity is the great predominating factor in the causation of so called congenital deafness, and there is good reason to suppose that much of that usually classified as acquired deafness is also of hereditary origin. The United States Bureau of the Census, working in conjunction with the Volta Bureau in Washington, and at the suggestion of Dr. Alexander Graham Bell, has been engaged for many years in the collection of data and the tabulation of statistics relating to the educationally deaf, and the result is a book by Dr. Edward Allen Fay, entitled, *Marriages of the Deaf in America*. Doctor Fay's book is replete with carefully tabulated statistics, based upon a personal correspondence with thousands of deaf persons whose names and addresses were furnished by the enumerators of the eleventh census, and I have summarized the conclusions as follows:

Marriages of the deaf are far more common in our country than in Europe, and during the past century they have increased enormously, their increase being proportionate to, and simultaneous with, the increase of schools for the deaf. Marriages of the deaf with the deaf are more numerous than those with hearing persons, and they are only a

little less productive than ordinary marriages. Marriages of the deaf are exceedingly liable to result in deaf offspring. Marriages of the congenitally deaf are more liable to result in deaf offsprings than are those of the adventitiously deaf. Deaf persons having deaf relatives, however they are married, and hearing persons having deaf relatives and married to the deaf, are very liable to have deaf offspring, the proportion of marriages resulting in deaf offspring and the proportion of deaf children born therefrom being almost invariably highest where both of the partners had deaf relatives, and next where one of them had deaf relatives, and the other had not, and least where neither had deaf relatives. The marriages of the deaf most liable to result in deaf offspring are the consanguineous marriages. Out of thirty-one such marriages, fourteen, or 45.1 per cent., resulted in deaf offspring, and of the 100 children born from these marriages thirty, or thirty per cent., were deaf.

The investigations of which this is a summary have been confined hitherto to the congenitally deaf, or to those acquiring deafness so early in life as to place them for all practical purposes in the congenital class, but I am informed that the plan is about to be enlarged so as to include in the future a study of all classes of deaf persons, whatever may be the character or cause of the affection. This will be a great improvement, for it will serve to clear up some mooted points in connection with the etiology of what has been called sporadic and acquired deafness. I have long been of the opinion that heredity is an important factor in the causation of these forms of deafness, as it is in the educational form, although perhaps this theory may not be so easily proved.

The sporadic cases of congenital deafness are generally supposed to be due to such diseases and conditions as syphilis, tuberculosis, alcoholism, insanity, idiocy, and the like, and in as much as these diseases and conditions have themselves been shown to be largely transmissible, I see no reason why the conditions giving rise to such forms of congenital deafness may not be regarded as having an hereditary origin. Moreover, by far the greater number of cases of so called acquired deafness may be similarly explained. They are acquired because inherited physical anomalies have made their acquirement easy, and in some cases perhaps unavoidable, and thus they may be regarded as indirectly inherited.

True, hereditary deafness has been limited in our classifications to that of those showing a clear family history of deafness, either in direct or collateral branches, and this limitation has been made because of the mistake of supposing that deafness is the particular thing inherited, whereas, as I have said, what are really inherited are the physical anomalies which result in deafness. These physical anomalies may be transmitted by those having other forms of defectiveness in the same manner as they are transmitted by those having a family history of deafness. Thus, even the seemingly acquired deafness of adult life, or so called catarrhal deafness, may be regarded as hereditary in so far as the particular physical and systemic conditions which cause it, such as rheumatism and gout, are hereditary or transmissible, and, reasoning thus, we may

be justified in the conclusion that all deafness, with the exception of that of traumatic origin, is in part at least due to some hereditary taint. Whether or not I am right in this supposition, time and further study will reveal, but we now know beyond any doubt that heredity is an important and increasing factor in that most serious and distressing of all forms of deafness, namely, the congenital form, and the question arises, What are we going to do about it? What prophylactic remedy is indicated?

The procedure that naturally suggests itself is embodied in the phrase, "a stricter application of the principles of eugenics" to the subject of deafness. And what does this mean? It means, among other things, a more determined effort on our part to check the transmission from parents to offspring of the particular physical anomalies which result in deafness. And how can this be done? It can be done most effectually, of course, by rendering those who transmit such anomalies physically incapable of reproduction.

In a paper read before the American Academy of Medicine in 1900, I advocated sterilization for the prevention of crime, pauperism, and mental deficiency, and I am pleased to note that the procedure is now being sanctioned by law and practised in Indiana, California, Oregon, and Connecticut. Moreover, there was recently appointed in the State of New York a special committee on procreation, composed of three physicians. We shall watch with interest the action of this committee, and it is a matter of congratulation, I think, that it should be composed of physicians who are in a position to know the facts which should warrant any action on the subject. Who knows but that the time will come when the practice of sterilization, drastic as it now seems to us, will be adopted even for the prevention of hereditary deafness.

Another effective measure, and one less radical, would be the denial of the marriage license to those who transmit the physical anomalies which result in deafness. This measure should be considered at once. Surely, the "strong arm of the State" should be used to regulate such marriages of the deaf as are known to result in a high proportion of deaf offspring, and this is especially true in view of the fact that the State is doing all that it can to make these marriages possible by bringing the deaf together in large institutions and increasing their economic efficiency. In other words, our efforts to ameliorate the conditions of the deaf have tended to foster their increase. In the first decade of the last century the proportion of marriages of the deaf to the whole number of marriages during the century was only 0.02 per cent., and it increased with the increase of the number of schools during each subsequent decade until in the ninth it was 22.7 per cent. This fact suggests, as another possible preventive measure, a change in our methods of education for the deaf. Instead of bringing them together in large residential schools, of which we now have about 150, with upward of 13,000 pupils, I would recommend special day school instruction, which would not only obviate the state of propinquity which is so likely to result in marriage, but would have the additional advantage of keeping the deaf in closer association with hearing people during their educational career.



These are somewhat radical measures for the prevention of deafness, but they are measures which should be discussed and which sooner or later must receive serious consideration. We are face to face with conditions which have led close students of the subject, like Dr. Alexander G. Bell, to fear the possible "formation of a deaf variety of the human species," and thus they seem to call for drastic measures. In the meantime we can do much by a campaign of education, in which the truth may be disseminated, and the facts in the case given the widest possible publicity. Those of us who know should discourage as much as possible the marriage of the deaf which are liable to result in deaf offspring. I use the word discourage because the times do not yet seem to be ripe for absolute legal prevention. We may, forsooth, control the breeding of our cattle, but our modern notions with reference to personal liberty, especially as it relates to the question of marriage, are such as to interfere very materially with the application of eugenic principles. I am a believer in "personal liberty," but when it interferes with the happiness and usefulness of unborn generations of fellow persons, I think it should be at least curtailed, and if necessary prohibited by legal measures.

## 2. ACQUIRED DEAFNESS.

When the measures which I have suggested for the prevention of inherited deafness shall have been more generally adopted, we shall have fewer of the conditions or anomalies which make the acquirement of deafness so easy and in some instances almost unavoidable. When we shall have eliminated heredity as a factor in the causation of deafness, the prevention of acquired deafness will be greatly facilitated. As it is, I am of the opinion that acquired deafness is preventable in the great majority of instances, and I am thus optimistic, not because I have any new remedies to exploit, but because I have so much confidence in the old ones when applied in a timely and rightful manner.

The way to prevent acquired deafness is to prevent the development of those pathological conditions of which it is a result. Primary diseases of the ear proper are exceedingly rare. Most of the so called primary ear diseases arise in the nasopharynx, and their secondary effects upon the ear are largely preventable by a stricter application of well known remedial principles. Our modern surgical treatment of adenoids is probably the best procedure yet devised for the prevention of acquired deafness, but it could be made far more effective by doing the operation earlier and by making it more general and more thorough. Many ears are still being sacrificed to tardy and careless surgery in this region. As someone has said, we are in the habit of calling the fire engine after the house has been burned, and I may add that the coming of the fire engine often renders the house uninhabitable. Our operations are performed in too many instances for the sole purpose of relieving some immediate symptom, and with too little consideration for the saving of an important function. I have called attention to this point in connection with the tonsil operation. Just as the surgeon has not done his full duty in a tonsil operation until he has improved the speech and voice, so has he not done his

full duty in other operations in this region until he has eliminated the acting and predisposing causes of deafness.

Moreover, as a further preventive measure, I would advocate a thorough and careful examination of the ears of very young children and an earlier treatment of the conditions which have been found to result in deafness. This work should not be left entirely to the general practitioner, but it should be done in part at least by the skilled otologist. Another important measure is that suggested by Dr. Sohler Bryant, namely, a periodic examination of all ears similar to that practised with reference to the eyes, in order to detect and enable us to treat threatening conditions. Early examinations and treatment are especially indicated in those cases showing a family history of deafness.

The exanthemata and other infectious fevers of childhood are common causes of acquired deafness, and their prevention, of course, should be regarded as among the possibilities of the near future. Notwithstanding the attitude of certain foolish sentimentalists toward vaccination, smallpox has been almost entirely eliminated as a factor in the causation of deafness, and typhoid fever bids fair to have a similar fate. May we not hope that scarlet fever, measles, whooping cough, mumps, and cerebrospinal meningitis may soon follow in their wake? In the meantime, no effort should be spared to mitigate the awful effects of these diseases upon the ears of children. This is a work that calls for a fuller cooperation of the general practitioner with the specialist, and it is no credit to either that about twenty-five per cent. of all cases of acquired deafness should have their origin in these infectious diseases.

Interesting investigations are now being carried on across the water with reference to syphilis as an etiological factor in the causation of deafness. It has been shown that in the congenital form it may cause congenital deafness, and that it is an undoubted factor in the causation of so called acquired deafness. In view of these facts, Dr. James Kerr Love suggests as preventive measures, making the pregnancies of syphilitics and all still births notifiable, in order that preventive measures of treatment may be promptly adopted. He calls attention also to the fact that our modern remedy, salvarsan, when given for the eye complications of congenital syphilis, has seemed to have the effect of actually impairing the hearing.

Finally, as has been well said, the prevention of deafness is the work of the eugenicist, the hygienist, and the legislator. It is the function of the eugenicist to see that children are well born, of the hygienist to see that the mother is cared for during pregnancy, and the child immediately thereafter, and it is the function of the legislator to enact such laws with reference to deafness as the eugenicist and hygienist find to be desirable and practicable. Moreover, in these days of progressive medicine, the physician himself should be a eugenicist, as well as a hygienist, and should take a leading part also in the adoption of the laws which make for health and happiness.

## THE IMPORTANCE OF SEROLOGICAL ANALYSES IN NEUROLOGY.

By D. M. KAPLAN, M. D.,

New York,

Director of Laboratory, Neurological Institute.

The discovery of the cause of tuberculosis established for all time the importance of finding tubercle bacilli in the sputum. Routine clinical microscopy and chemistry of the gastric and intestinal contents rendered gastroenterology an inestimable service, in furthering the diagnosis of the diseases of the digestive tract. A study of renal functions is useless without urinalyses. The various hematological findings are essential in the diagnosis and treatment of a number of diseases which without such aid would prove very uncertain. It is just as important for the neurologist to be able to obtain laboratory corroboration in the making of a diagnosis in a case where syphilis is suspected. The etiology of many nervous diseases is obscure, and it is very desirable to be able to ascertain the presence or absence of a syphilitic factor (acquired or congenital) in an obscure neurological disorder. It is very natural that the spinal fluid, coming in contact with the nervous system as it does, should receive chemical and morphological constituents from these structures. When abnormal constituents are given off to the spinal fluid the importance of a laboratory analysis is established when it furnishes to the clinician the proof of such abnormality. Besides this there are other arguments why routine laboratory work is essential to neurology. Owing to the comparative difficulty in obtaining spinal fluids for clinical purposes, the analysis of this medium was resorted to very infrequently. The earliest attempts at withdrawing spinal fluid were made for therapeutic purposes, with the idea of relieving pressure. In 1889 Essex Wynter in England conceived the plan of performing an intraventricular puncture on an infant with tuberculous meningitis and effected the desired reduction of intracranial pressure. The following year he had under his care a case of purulent meningitis in a child whose fontanelles had closed. Being desirous of reducing the pressure in this case, and being unable to puncture the ventricles of the brain as in the former patient, this pioneer induced a surgeon to remove the laminae of the second lumbar vertebra and incise the dura to allow of the escape of the cerebrospinal fluid, and thus reduce the intracranial pressure. This was the first "lumbar puncture," and the idea was rapidly seized upon by other workers. The year 1891 saw the reports of four cases of tuberculous meningitis, in which paracentesis of the theca vertebralis was done as a therapeutic measure, and in one case, that of an infant thirteen months old, a Southey's tube was inserted between two lumbar spines and four ounces of fluid withdrawn. The result of this last experiment was unfortunate, for the little patient died after two hours. The name of Quincke is very rightly associated with lumbar punctures for therapeutic and diagnostic purposes. Quincke in his first publication in 1891 not only simplified the technic of the lumbar puncture, so as to bring it within the reach of the many, but also made studies upon the pressure of the spinal fluid in dif-

ferent states. His first puncture was performed under anesthesia, but he soon discarded this precaution.

Up to this time only the pressure of the spinal fluid had interested clinicians, but, following Quincke's work of making lumbar puncture not only a simple but a safe operation, many laboratory workers now began to investigate the physical and chemical properties of the fluid thus obtained. It was very natural for the physiological chemists to grasp eagerly this newly obtained body fluid for analysis. Early observers reported the finding of blood products in the fluid following brain hemorrhages. In 1901 Mott and Halliburton published the statement that nerve degeneration manifested itself by the presence of cholin in the spinal fluid. Further investigations along this line, however, showed that the method for the detection of cholin was of little value, as it proved to be not specific for cholin alone, but might be obtained with other substances normally present in the spinal fluid. Coriat, in 1904, continued this line of investigation and determined not only the cholin, but also the lactic acid content of the fluid, and established the nature of its copper reducing constituent. In regard to the latter substance Pfandl found that the fluids of patients with tuberculous meningitis rarely reduced Fehling's solution, while those of acute cerebrospinal meningitis never did. Nissl again led us back to the subject of spinal fluid pressure, a subject upon which the last word has by no means been spoken, and he also introduced a quantitative test for the protein content of the fluid. This latter was a new point and one fraught with much diagnostic interest, as the amount of protein, so called globulin, was seen to vary in different conditions. Nissl's method entailed the use of Esbach's reagent and the centrifuge; soon attempts were made to simplify this method, all of which have depended upon the same procedure, *i. e.*, precipitation. In Nonne's globulin test ammonium sulphate is used to obtain precipitation; depending upon the amount of precipitate obtained, the designation of "Phase I, II, III and IV" is used. Phase I represents the greatest excess, phase IV the least excess. Later, Noguchi applied the butyric acid precipitation test to the spinal fluid to determine the globulin excess, and still later Ross devised a ring test with ammonium sulphate for the same purpose. The writer has combined the last two methods and has thus introduced a method whereby the globulin excess in the spinal fluid may be ascertained with considerable accuracy. While the chemists were busy with spinal fluid the microscopists were not laggards. The presence of lymphocytes in the spinal fluid had long been noted, but it remained for Widal, Sicard, and Ravaut, in 1901, to attach diagnostic significance to this lymphocyte content. This was a great step in advance for neurological diagnosis, as it opened a wide door of approach to the clinician. These authors showed that there is a preponderance of lymphocytes in tuberculous meningitis, while in the purulent and epidemic forms the polynuclear elements are in excess. More important than this, they determined that in tabes and in general paresis the number of mononuclear cells was

greater than normal. In investigating other nervous diseases the authors found no increase of cells in recent and old hemiplegias, in brain tumors, in alcoholism, in peripheral neuritis, in hysteria, and in two cases of anterior poliomyelitis. In 1902 Joffroy and Mercier studied the spinal fluid of the insane by means of this method. They found the cell count normal in ten cases of dementia praecox and in seventeen of alcoholic psychosis. In general paresis the cells were always in excess, and these authors believed that they could exclude this diagnosis where the cell content of the spinal fluid was normal. The method of Widal, Sicard, and Ravaut was cumbersome and tedious, as well as inaccurate. The number of cells was estimated by counting the cells observed on a smear after centrifugalization. Investigators soon attempted to simplify the technic and to make it as ready of application as is blood examination. Kraemer used the ordinary Thoma-Zeiss blood counting chamber, and in eleven cases of general paresis he found that the number of cells ranged between five and forty-five to each c. mm. Merzbacher considered fifteen cells to each c. mm. the upper limit for cells in normal fluids.

He found a cell increase in 100 per cent. of general paresis and that among these sixty-five per cent. showed globulin excess. According to Parkinson, the number of cells in the fluids of paresis tends to lessen in the stages of decline and to increase during the lucid intervals. Undoubtedly the best method of estimating the cells in the spinal fluid is that with the chamber devised by Fuchs and Rosenthal. This chamber, which is larger than the Thoma-Zeiss blood chamber, has the advantage of reducing errors to a minimum, this being the method used on fluids reported in this article.

The appearance in 1906 of the work of Wassermann, Neisser, and Bruck on the serodiagnostic reaction in syphilis opened a new field for spinal fluid research. This reaction, now so widely known as the Wassermann reaction, has been extensively studied by many workers, and while it is not accepted as specific, its practical utility is now above question. It was ascertained at a very early date that this serodiagnostic reaction need not necessarily be present in every patient who had come in contact with syphilis, and also, that there are diseases other than syphilis capable of giving this reaction. Boas and Hauge found it in scarlet fever, Bruck and Gessner in lepra, Kaplan in scleroderma and in certain jaundiced sera, Hartoch and Jakimoff in trypanosomiasis. From the very beginning attempts were made to produce an equally sensitive test of less complexity, chiefly by M. Stern, Bauer, Tchernogouboff, von Dungern and Noguchi. Zeissler's "Auswertungs Methode" with serum, and later Hauptmann's application of the method to spinal fluids, were designed to make the test more sensitive. Working with sera from general paresis patients, Muirhead obtained seventy-six per cent. of positive Wassermann reactions. The most comprehensive exposition of the serology of nervous diseases is to be found in the work of Plaut and of Nonne. The former established a definite serological picture for cerebrospinal syphilis, finding a positive Wassermann re-

action in the serum and a negative result in the spinal fluid in the majority of instances.

Hauptmann, with the use of his "Auswertungs Methode," obtained almost 100 per cent. of positive results, working with spinal fluids from patients suffering from cerebrospinal syphilis. This work and Nonne's article, appearing in the September, 1911, issue of the *Deutsche Zeitschrift für Nervenheilkunde*, being in line with the work carried on by myself, will receive more detailed consideration. It is my opinion that the use of larger quantities of spinal fluid, as advocated by Hauptmann, may in some instances be responsible for a nonspecific inhibition. It is a well known fact that there are conditions other than lues capable of giving a positive Wassermann result; it seems to me that these nonspecific results could be reduced to a minimum if it were not for the fear that some serological workers possess of missing a positive Wassermann reaction on a syphilitic patient. Regardless of this, suspicion should be aroused when the laboratory begins to claim infallibility of methods and results. Of the forty-four cases analyzed by Hauptmann only two were admitted to have been benefited by previous therapy. The fact that about twenty per cent. of fluids were absolutely free from a pleocytosis did not seem to affect the value of the method in the least, although Hauptmann's chief, Nonne, strongly emphasized the importance of an increase in the cell content in fluids from all patients with true paralytic affections of the nervous system. (See above mentioned article, page 203.) In about four per cent. of this material Hauptmann was unable to obtain a positive result on the fluids. From the arguments that follow one carries away the impression that a negative Wassermann reaction was unexpected and undesirable. The attitude of the "Auswertungs Methode" advocate becomes apparent when the following statement is analyzed: "Not until larger quantities of fluid were utilized could a positive Wassermann reaction be obtained." The critically inclined worker is fully justified in asking what the factors were that prompted Hauptmann to look for a positive result and to make use of larger quantities of fluid in a given case. Evidently, the reason why a negative Wassermann result was not desirable was because the author possessed data suggestive of neurological lues. This will in a measure account for the positive Wassermann reactions obtained in some patients who undoubtedly had received sufficient treatment to negative the fluid serology, and will also explain why he did not in one instance find a serological picture similar to those described by Plaut. It is important to remember that cerebrospinal lues is invariably accompanied by a pleocytosis. A few exceptions are to be obtained in the endarteritic form of this disease and in those patients with general paresis who survived a very persistent and strenuous antiluetic treatment. Hauptmann entirely ignores the importance of a pleocytosis and on page 260 of his article states with considerable emphasis that "now we are enabled to detect syphilis of the nervous apparatus without the help of the other three tests (cell count, protein excess, serum Wassermann)".



Concerning the work of Nonne, who introduced the "Phase I" test, I would say that this method of estimating an excess of protein in the spinal fluid lacks a well defined end reaction. This makes the test largely a matter of personal interpretation, preventing other laboratory workers from comparing results. The frequently uncertain attitude of Nonne in reading end results is apparent from an analysis of the article previously mentioned, pages 283, 284, 251, 255, 272, and 275. The chief weakness of Nonne's contribution, however, lies in his noncritical acceptance of the results obtained by Hauptman. The clinician ought not to be puzzled by a positive result in a case of multiple sclerosis, nor should the laboratory worker attempt to explain or defend his result in such a case. If no clinical evidence of lues is obtainable it is to be taken for granted that the laboratory made a mistake. Some of Nonne's cases which gave a positive Wassermann reaction showed at the autopsy no luetic tissue changes. The question of posttherapeutic negatization was entirely overlooked by Nonne in accepting a positive Wassermann reaction in every case with signs of neurological syphilis.

My experience is based upon an analysis of over 3,000 spinal fluids and over 15,000 Wassermann tests, the material being chiefly neurological. In a previous report, in association with Dr. L. Casamajor, this material was arranged in three groups, viz., the positive types, comprising the diseases of the nervous system caused by syphilis; the negative types, including the nonluetic nervous affections; and the types as altered by therapy. The last is practically a subclass of type one, as it deals with the serological changes produced by treating syphilis of the nervous system.

My conception of neurological serology can be seen from the following statements:

1. A nervous disease of syphilitic origin showing no increase in the cell content in the spinal fluid will as a rule show the absence of a positive Wassermann reaction in the fluid. Among the 3,000 spinal fluids that were sent to my laboratory 1,091 were from patients with syphilis of the nervous system. Among these 1,091 fluids, six exceptions to the stated rule were seen. One general paretic who had received in the neighborhood of fifteen full doses of salvarsan intravenously showed an absence of cells and a positive Wassermann reaction in the fluid. The same was obtained in five cases of the endarteritic form of cerebrospinal syphilis.

2. With the above exceptions in view, it can be accepted that a positive Wassermann reaction in the spinal fluid is as a rule accompanied by a pleocytosis.

3. Untreated cerebrospinal lues of the menigitic and gummatous forms without a pleocytosis has never been observed by me, although negative Wassermann reactions in fluids from such patients were frequently encountered (Plaut type).

4. Some tabetics and a few cases of general paresis will show a negative serology throughout.

5. After proper treatment a positive serology may become entirely negative.

In my work on neurological serology the protein content was determined as described by me in various publications on the subject; the Fuchs-Rosen-

thal method was used in counting the cells; the Wassermann reaction was performed as practised by the Berlin school, except for the method of standardizing the amboceptor. Here normal serum and two units of inhibitory extract were used, together with the original hemolytic system. This procedure eliminated the possibility of using an amboceptor that was too weak to cope with the interfering qualities of normal serum and the antigen. The chief aim in the laboratory of the Neurological Institute is to eliminate as much as possible positive reports on nonluetic material; when a negative report on a syphilitic is obtained the clinical facts decide the diagnosis and therapy. Regardless of these precautions, it was impossible to eliminate errors to the extent of two tenths of one per cent. This occurred in the serum only; it never took place in the spinal fluid. In 316 spinal fluids the method of Hauptmann was resorted to, and the result gave one fluid positive where with the original procedure a weakly positive result was obtained. The patient suffered from tabes and showed thirty-seven lymphocytes to each c. mm. in the fluid. As will be pointed out in this communication, an abnormal serology may become entirely normal after appropriate therapy. It is an important fact that during the period of return to normal (negatization) the Wassermann reaction becomes negative in the spinal fluid before the cell count becomes entirely normal. Had this been observed by Nonne, less weight would have been placed on the positive Wassermann reaction in the fluid, and the clinical interpretation would have been differently construed. For example, on page 216 is given the case of a letter carrier of twenty, admitting an infection three and a half years previous, who became irritable and brutal to his family. The serological findings revealed a positive Wassermann reaction in the serum and fluid, the latter showing no cell increase and no excess of protein matter. Objectively there was nothing to suggest general paresis, and during twenty-one months of observation the patient was still able to attend to his duties, the clinical picture remaining the same as before. Again, on page 217 the following case is presented: A merchant who knew nothing of a syphilitic infection complained of vague pains in the back, a tired feeling, and general irritability. With the exception of unequal pupils, which, however, reacted normally, the patient showed nothing clinically. The Wassermann reaction was positive in the serum and fluid, and the latter showed neither a pleocytosis nor a globulin excess. In view of the lack of sufficient clinical signs and the absence of a pleocytosis in the spinal fluid, one should not consider these cases as syphilis of the nervous apparatus, but rather disregard the positive Wassermann reaction obtained in the spinal fluid. With the original method the Wassermann result was entirely negative in the last case.

If one stops to consider the penalty an innocent patient pays as the result of a faulty laboratory report, one appreciates the necessity for greater accuracy in this work. As a rule, a patient with a positive Wassermann result is treated with anti-luetic remedies. When such a patient consults

another doctor for some obscure ailment the history reveals the previous therapy and the laboratory report. Although the clinical analysis of the case shows nothing luetic at the time, the patient, in view of the previous history, is again unnecessarily subjected to specific therapy. In this instance, as a result of faulty laboratory work, various clinical entities that resemble some of the paralytic nervous diseases would receive specific treatment and be wrongly considered either cerebrospinal syphilis or general paresis. I am almost certain that the advocate of the "Auswertungs Methode" committed such errors on more than one occasion where patients with neurasthenia, multiple sclerosis, and traumatic brain and cord lesions gave positive Wassermann reactions in the spinal fluid. Such seems to me the case (No. 3) reported on page 245. A positive Wassermann reaction was also obtained in a case of tuberculous meningitis. Some cases came to autopsy without any luetic tissue changes being found. At no time does the author of the "Auswertungs Methode" admit the possibility of a faulty report, but prefers to regard such as instances of obscure lues. It will not surprise me, if the near future proves some of the cases with positive Wassermann tests reported by Hauptmann to be either simple arteriosclerosis, trauma, or disseminated sclerosis—at any rate, not syphilis.

I will now outline the work that permitted those criticisms and endeavor to prove my contention that at the present time there are no laboratory methods capable of detecting syphilis in every patient who may have come in contact with this disease. It must be remembered that the discoverer of the reaction himself and others who have had a large experience with it do not credit it with such accuracy. My ideas as far as the occurrence of the Wassermann reaction in neurology is concerned may be gathered from several of my previous communications on the subject, as well as from the tables and conclusions in this communication. It will be shown here that the reaction is most strongly and most frequently present in patients suffering from general paresis, and that in this disease antisyphilitic therapy has little or no influence on the abnormal serology. In cerebrospinal syphilis and in tabes, in the majority of instances, a change is noted first in the cellular increase; this, without becoming entirely normal, tends to diminish. In some exceptional cases where vigorous and persistent treatment was resorted to, it was possible to reduce the cells to a normal count; though before such a result was obtained all the other constituents of a positive serological status also became normal. It came to my notice that a few patients suffering from tabes and general paresis had no abnormality in their serological status, regardless of the fact that they had received no recent treatment. It is important to note that up to this time (April, 1913) I have not encountered a single patient with cerebrospinal lues of the meningitic or gummatous form who, unless recently and thoroughly treated, showed a negative serology. I can also frankly defend the statement made by me some time ago, that at no time should a patient be considered as suffering from general

paresis where the cell count reaches the hundreds, but should be considered rather as a case of cerebrospinal syphilis, and treated as such. This is shown by two years' observation on four patients and by the analyses of three post mortem examinations. Taking into consideration certain characteristic features of the Wassermann reaction, it is often possible to determine the transition stage from cerebrospinal syphilis to general paresis by means of the cell count. The persistently positive Wassermann reaction and the cell count often permit of the anticipation of a taboparesis. It will be shown later that some forms of tabes remain not only unimproved, but are frequently harmed by antiluetic remedies. Guides for or against active specific therapy will be found in the tables and in the comments accompanying them. Up to the present time, so far as I know, no treatment has ever permanently cured a full fledged case of general paresis. I believe that where cures were reported one's attitude should be extremely skeptical, as the case may have been an unrecognized cerebrospinal syphilis.

#### SEROLOGICAL FINDINGS IN TABES.

Cerebrospinal fluid analyses						Reduction	Remarks
No. of cases	Serum Was- mann	Ser- mann	Globu- lin	Pleocytosis 60 to 96	Hyperlym- phocytic tabes		
381	—	—	—	—		—	+
54	—	—	—	30 to 88	Hyperlym- phocytic tabes	—	2 cases with 192 and 240 cells respectively.
108	—	—	—	25 to 95		+	
90	—	—	—	12 to 32		+	
26	—	—	—	3 to 8	Negative tabes	+	
12	—	—	—	20 to 50		—	3 cases with 10 cells each.

In four of the patients signs of a paretic dementia developed, and each was very resistant to treatment and showed no return to the normal serological picture.

In the first series of thirty-eight cases with a positive serological finding throughout, six showed the findings usually obtained in full fledged general paresis, and in two that of cerebrospinal syphilis. For a time these seemingly exceptional cases were looked upon as general paresis and cerebrospinal lues. As I believe that the laboratory findings are of only secondary importance in the making of a diagnosis, I warned against too much faith being placed on such results, regardless of the fact that a few other cases had corroborated the laboratory contention as against the clinician's attitude. It will be shown later that whereas negative findings in the fluid may obtain in tabes and in general paresis, on the other hand, positive findings are as a rule absent in fluids from the diseases scheduled under the heading of negative types. Four patients from the first group became the subjects of general paresis. The intensity of the positive Wassermann test in these patients was unchanged by the counteracting drugs taken, and the last cell count showed less than forty cells for each c. mm. It is permissible to infer from this that one may be able to diagnose taboparesis from the serological findings at an early stage when only the tabetic component is clini-

<sup>1</sup>Reduced negative after treatment.

cally in evidence. One such patient began to show the signs of general paresis after three years, during which time nine serological investigations showed that the Wassermann reaction was not in the least affected, the last cell count being twenty-seven lymphocytes to each cubic millimetre. The so called tabes which is really a beginning general paresis, without as yet any somatic or psychic changes, reveals its true nature first in the unchanged serological status after vigorous treatment. Among the first three groups of cases were eighty-six tabetics who showed a cell count of over sixty per cubic millimeter. These cases are designated in the table as "hyperlymphocytic tabes." These patients presented active manifestations of the disease (crises, girdle, shooting pains) which together with the high count were considered as significant of an exudative syphilitic condition. With but two exceptions these cases showed an improvement after appropriate treatment. A study of the table also shows that the hyperlymphocytic type of tabes does not necessarily possess a positive Wassermann reaction, or an excess of globulin in the cerebrospinal fluid. In two instances the serology resembled that of cerebrospinal lues, but the clinical interpretation and the course of the disease showed them to be tabes. It may be argued that in these cases a very active spinal lues giving the high cell count was superimposed upon the degenerative process. As no post mortem examinations were obtained in these cases, the argument remains hypothetical.

The negative types of tabes were in the majority those which had been recently treated. They presented a negative serological picture and no active signs of the disease, and were permitted to go without therapeutic interference. It was ascertained that negative tabes is best left alone, especially if no active signs exist and the condition is purely degenerative. The presentation of the serology of general paresis makes it evident, at least in my experience, that a typical serological picture of cerebrospinal syphilis cannot be mistaken for one of typical general paresis, or *vice versa*. As is sometimes the case, a clinical differentiation is very difficult, and although the clinicians in a few instances upheld their opinion of general paresis, the autopsy proved that in these instances the laboratory contention was correct.

#### SEROLOGICAL FINDINGS IN GENERAL PARESIS

No. of cases	Cerebrospinal fluid analyses				Remarks
	Serum Wassermann	Wassermann	Globulin	Pleocytosis	
78	—	—	—	17 to 50	2 cases with 81 and 83 respectively; likely transition from cerebrospinal lues.
69	—	40—	—	62 to 78	
25	—	29—	—	30 to 83	
14	—	—	—	15 to 29	•
10	—	—	—	5 to 11	

This table shows seventy-eight cases (forty-four per cent.) with the typical serological picture of general paresis. The findings are positive throughout, and the cell count does not exceed fifty cells to each c. mm. The next sixty-nine cases showed a negative fluid Wassermann reaction in twenty-

nine instances, which fluids showed the higher cell counts in this group, and serologically could have been considered as treated cerebrospinal lues. In fact, a vigorously treated cerebrospinal lues may give the serological reaction of tabes, as well as that of this form of general paresis. The French school (Marie) has advanced the theory that beginning or incipient general paresis shows a negative Wassermann reaction in the spinal fluid, and a positive one in the serum. This variety is to be seen in the third line of the table. Two cases from this group were considered by clinicians as transitional forms from cerebrospinal syphilis to general paresis. The fourth line shows the serological status of the advanced disease as viewed by the French. These observations are corroborated to the extent of thirty-six per cent. of cases studied in the Neurological Institute, the remaining showing the early serological picture in advanced cases or the late one in recently developed general paresis. In ten cases of unquestionable general paresis the serological condition was entirely normal. This tends to disprove the conclusion that general paresis always shows a positive serology, regardless of the fact that this disease is the most intensely positive Wassermann paralytic disease of the nervous system. The greatest benefits obtainable from a knowledge of serological interpretations is where one is called upon to differentiate clinically between general paresis and cerebrospinal syphilis. This need not necessarily convey the idea that the key to every obscure paralytic nervous disorder is to be found in a serological study; I say this, regardless of the fact that it often proved to be corroborative and not infrequently diagnostic. Of great importance is the typical serological picture of cerebrospinal syphilis obtained in a patient where the clinical diagnosis of general paresis was made. The physician in such a case is warranted in proceeding very cautiously, treating his patient for the time being as a case of cerebrospinal lues, regardless of slow progress, and only after vigorous treatment has failed to improve the condition should the diagnosis of general paresis be accepted as final. Three such patients were observed by me, all enjoying good health and attending to their affairs. These facts, and many others, tend to show the usefulness of serological investigation in nervous diseases; making the presentation of a neurological disease without it, to say the least, incomplete.

#### SEROLOGICAL FINDINGS IN CEREBROSPINAL SYPHILIS

No. of cases	Cerebrospinal fluid analyses				Remarks
	Serum Wassermann	Wassermann	Globulin	Pleocytosis	
41	39+	—	—	104 to 1240	The fluids showing no reduction had a polynucleosis of 40, 92, 101, and 100.
26	24+	—	—	90 to 770	
36	33—	—	15+	100 to 1008	The 2 nonreducing fluids showed a polynucleosis of 49 and 72. In the nonreducing fluid 260 polynuclears were found.
16	—	—	—	Normal	

(To be concluded.)



# SAFETY PIN REMOVED FROM LARYNX OF CHILD BY DIRECT LARYNGOSCOPY.

By HARMON SMITH, M. D.,  
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Mary McD., aged two and one half years, was seen by Dr. S. T. Quinn, of Elizabeth, N. J., on February 22, 1913; at which time she was hoarse and had a croupy cough, and examination of the chest revealed some bronchial râles. Examination of the throat and nose were negative. The temperature was 99° F. and pulse 90. The diagnosis of bronchial croup was made upon the evidence found. The administration of syrup of ipecac and a laxative relieved the condition.

Five days later he was called again, as the child had become suddenly worse, and he found marked dyspnea, a dry croupy cough, and a temperature of 99° F. Again the examination of the nose and pharynx was negative. He called in consultation Dr. J. S. Greene, who made the diagnosis of membranous laryngitis, and as the obstruction to breathing had increased, an O'Dwyer intubation tube was inserted, which gave prompt relief to the obstructive symptoms but which was coughed up on the second day; 3,000 units of diphtheria antitoxine were also injected, although a culture from the pharynx proved negative. The condition of the patient improved in every respect except the hoarseness, which remained.

On March 18th, while Doctor Quinn was out of town, the consultant, Doctor Greene, was called in to see the child with another similar attack, and she again responded to the administration of syrup of ipecac. On March 30th, the hoarseness still persisting, it was deemed advisable to have the advice of a laryngologist to ascertain, if possible, the occasion for its continuance. Dr. Norton L. Wilson was called in consultation, and by means of the laryngoscopic mirror thought he determined the presence of a growth in the larynx, and concluded from the history that it must be a papilloma. He advised, however, that the child be examined by the direct method, and sent her to me for this purpose.

On March 31st, thirty-seven days after the child had first been seen by Doctor Quinn, an examination was made with the Jackson laryngeal spatula, at the Manhattan Eye, Ear, and Throat Hospital, under the administration of chloroform anesthesia. Preparations had been made for the removal of the papillomatoma, if present, and for the introduction of a tracheal tube, provided they were of a multiple character. Considerable mucus filled the larynx, and the breathing was of an obstructive character, which necessitated rapid work to obviate performing a preliminary tracheotomy. After the mucus had been sponged from the larynx, a bright object was seen protruding from between the vocal cords. With a pair of ordinary straight laryngeal forceps it was grasped and extracted, without difficulty and without hemorrhage. The patient's breathing immediately became less labored, and the cyanosis improved. On the following day the patient was sufficiently well to be taken to her home in Elizabeth, N. J., where she made an uneventful recovery. For several weeks the voice remained somewhat hoarse, but in a subsequent report from Doctor Quinn he stated that the child's voice had returned to normal and there was no sequence to her unique experience.

The important facts in this case are, the liability of physicians, unsuspecting the presence of a foreign body, to diagnose the case in accordance with the symptoms presented, without utilizing the x ray as an infallible method of determining its presence; secondly, that an intubation tube could occupy the larynx at the same time with the safety pin without giving evidence to the operator of its presence, and that the tube could be coughed up and the pin remain *in situ*; thirdly, that the absence of microscopical evidence of the Klebs-Loeffler bacillus in the examination of a specimen from the pharynx should direct the attention of the physician in charge to something else as a causative factor, although in many instances diphtheria can

exist where the superficial culture will not reveal the presence of the infection; fourthly, that the examination of a child's larynx by the laryngoscopic mirror, although performed by an expert, is inadequate, owing to the struggles of the child, the smallness of the larynx, and the presence of mucus which cannot be removed and which obscures the character of the body or growth.

44 WEST FORTY-NINTH STREET

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## THE ETIOLOGY AND TREATMENT OF HYPERTRICHOSIS.

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The importance of this abnormality is, in my opinion, too frequently underestimated by medical men. The tendency to bemean the operation of electrolysis, to consider it only as a beautifying measure, and not worthy of serious attention, is to be deplored. The result of this policy causes a number of women suffering from this unsightly defect to resort to "beauty specialists," accommodating druggists, or skillfully advertised, and often harmful, depilatories. Hydrogen peroxide and ammonia, pumice stone, epilation, depilatories, various skin creams, and unskillful electrolysis, are tried one after the other; coarse hairs made coarser, downy hairs transformed into coarse ones, unsightly scarring, follicular infection, and eczematoid dermatitis are some of the sequelæ which frequently follow such attempts.

The frequent association of at times serious mental depression and melancholia is a fact which has been insufficiently noted in the literature on the subject. A considerable proportion of the patients I have seen were extremely sensitive about their condition, this sensitiveness amounting at times to the highest degree of mental anguish. One of my patients gave up a very lucrative position, shunned all her acquaintances, refused to go out unless heavily veiled, and slowly drifted into true melancholia, because of her excessive polytrichia. Her mental condition became entirely normal after the removal of the superfluous hair. The amount of mental suffering which these patients go through is surprisingly great, judging from their gratitude after recovery.

There are only two plausible theories as to the causation of this anomaly, namely, heredity and functional or organic disorders of the uteroovarian system. That there are a number of instances of this condition arising in generations of one family cannot be denied. Even universal congenital hirsuties has been observed in some families, a good example being the much quoted "Russian dogfaced man" (Andrian Jeftichjeff) and his son; but, in spite of these instances, I do not believe heredity plays an important rôle in the causation of hirsuties. I have, through the courtesy of Dr. L. Duncan Bulkle, been enabled to combine some of his clinical histories with mine, and have a total of one

hundred and forty-six cases, in which etiological factors have been thoroughly gone into, and there are surprisingly few in which heredity seemed to be a possible cause. Time and again patients deny any family history of hypertrichosis. Of course, it cannot be gainsaid that, in some families, especially of the brunet type, excessive hair growth is common, but it does not invariably develop into a noticeable hirsuties.

The connection between hypertrichosis and the internal organs of generation is, in my opinion, a much closer one—for instance, the growth of hair on the male chin and lip, which occurs only at, and slightly beyond puberty, is certainly the result of the action of some new formed unknown secretion, probably of testicular origin. The influence of the uterovarian system and normal sexual life is well brought out in the analysis of the cases previously alluded to. Of 146 cases analyzed, 106 patients were unmarried. In none of the cases did hypertrichosis occur before the establishment of puberty. Of the 106 single women, only four were less than eighteen years of age—two were sixteen, one fifteen, and one fourteen; in all four puberty was well established.

In noting the number of abnormal menstruations I have endeavored to be most conservative, and have been careful to exclude all but the most serious abnormalities, so that, of the 146 cases, eighty patients were found to have severe menstrual disturbances, but fully twenty-five per cent. of the sixty-five remaining patients had minor anomalies of menstruation. A considerable number of cases of spontaneous disappearance of superfluous hair after pregnancy, or the reestablishment of the normal flow following a prolonged amenorrhea, have been reported. Jackson observed a woman who, after having borne several children, suffered from a persistent amenorrhea, during which time an extensive hirsuties developed. Several years later she again became pregnant, and, after the birth of the child, the growth spontaneously disappeared. Hyde reported a married woman, thirty-three years of age, mother of three children, who had not menstruated for over a year. She had a general and facial hirsuties. After some years she began to menstruate, and the hypertrichosis of the general surface spontaneously disappeared—the facial hirsuties having been previously removed by electrolysis. In all reported cases of the early development of pubic hair, menstruation apparently invariably occurred. Lesser reports a girl of six with extensive hair growth, who had been menstruating since the age of three. In view of all these facts, it seems to me perfectly plausible to believe that hypertrichosis is the result of a functional or organic derangement of the ovaries, whereby some unknown hormone, with a specific influence on pilosity, is so altered in character that pilosity results.

For the permanent and safe removal of superfluous hair nothing has as yet been able to supersede the operation of electrolysis. The x ray at first promised brilliant results, and most enthusiastic reports were made, but the subsequent dermatitis, atrophic changes, or telangiectasis which so frequently followed its application, caused a reversal

of the favorable opinion first held, and many now refuse to use it. Considering that the removal of superfluous hair is entirely a matter of cosmetics, one should hesitate to use such a powerful agent, so capable of ultimate harm. It should be used only in those cases not otherwise amenable to treatment, and the exposures made by an expert only. As Norman Walker aptly says, "No beginner should use the x ray for this condition save in his own family."

Electrolysis, on the other hand, is entirely harmless, and, in the hands of the skilled, results are permanent and perfectly satisfactory. Poor results are entirely caused by inexperience on the part of the operator. There is no dermatological procedure which requires more practice to master. As every operator has, more or less, a different method of doing the operation, I shall describe my own.

My apparatus consists of a galvanic battery, with the street current as motive power, a milliampere-meter, a rheostat, connecting cords, foot switch, magnifying glass, head light (for use on dark days), needle, needle holder, sponge electrode, epilating forceps, and ninety-five per cent. alcohol. The strength of current used is from one half to one and a half milliamperes, one milliampere being the average. As the meter is the only way of measuring the current, it is an absolute necessity. What takes place at the site of the operation is no indication of the strength of the current, and much scarring would be prevented by an accurate knowledge of the amount of electricity used.

The needle with the holder is attached to the negative pole, for if attached to the positive pole, a steel needle will become oxidized, iron rust will be deposited in the tissues, and a bluish black stain result. The needle I use is iridoplatinum—I have found it much less painful than a steel one, and it has the added advantage of pliability. The needle holder should be light, and capable of easy manipulation. The foot switch brings the current entirely under the control of the operator and prevents the tiresome and oft repeated requests to the patient to make or break the current. The head light is a great convenience on dark days, and at night. The site of operation is swabbed with ninety-five per cent. alcohol, which, besides being antiseptic, acts as an anesthetic, and dissolves fatty accumulations at the follicular openings, thereby facilitating the entrance of the needle. The needle is rinsed in alcohol, and frequently dipped in it during the course of the operation. The patient is seated in a chair with a movable back and head rest, faces the light, and is given a damp sponge electrode, which should be held in the palm of the hand. The needle is introduced into the hair follicle, alongside of the hair, down to the papilla, the depth of which varies from about one sixteenth to one quarter of an inch. A sense of resistance is usually an indication that the papilla has been reached. The current is then turned on, by placing the foot on the foot switch, and allowed to flow for from ten to sixty seconds, according to the size of the hair. Frothing and bubbling at the point of entrance is due to the formation of hydrogen, the result of chemical reaction, and is not a positive indication of the destruc-

tion of the papilla. When sufficient action is thought to have taken place the current is turned off by lifting the foot from the switch. If the papilla has been destroyed the hair will slip out with little, if any, traction.

The frequency of the sittings vary with the degree of hypertrichosis, but the same area should not again be gone over before a week has elapsed. The duration of the sittings should not exceed a half hour, because of the excessive strain on the eyes of the operator. The pain of the operation varies with the susceptibility of the individual, but it is not excessive, and I have never had occasion to use a local anesthetic. The aftertreatment consists of the liberal use of a calamine and zinc lotion, which is applied immediately after the operation, and for several successive nights thereafter; it is cooling, antiseptic, and astringent, and certainly lessens the chances of future scarring.

The number of returning hairs depends upon the skill of the operator, but should not exceed three out of every ten treated. Returns would less frequently happen if the temptation to remove the needle too quickly, and before the papilla is destroyed, were guarded against. Another temptation is the desire to remove too many hairs in immediate proximity to one another—while this may be gratifying to the patient, it greatly increases the chance of marked scarring. The use of too much current is another frequent cause of scars. It should be kept in mind that the least amount of electricity necessary for the permanent removal of a superfluous hair is followed by the least chance of scar formation. It is unwise to attempt electrolysis in extensive growths of lanugo hair. It is outside the province of the physician to attempt the removal of hair from the breasts, legs, arms, or other parts of the body usually covered with clothing.

In those cases not amenable to electrolysis, I prefer, before falling back on other measures, to use strong hydrogen dioxide, as suggested by Dr. L. Duncan Bulkley. In time it certainly bleaches fine hair, until it is practically invisible, and, in cases that I have been able to observe over the space of some years, it has, to a certain degree, inhibited growth. It occasionally causes slight reddening of the skin, and, when it does, it should be discontinued until the skin is normal again, and then reapplied.

In those cases where a depilatory is demanded, barium sulphide gives the most satisfaction. It should be used in the strength of two to four drachms to the ounce of zinc oxide and starch. A thick paste is made by adding water; the paste is then immediately applied to the part to be treated, and left on for a minute or two. A slight burning sensation is an indication that it should be removed. The hair reappears in one or two weeks, and the application must be repeated.

Any marked deviation from normal ovarian function should, if possible, be corrected, in the hope of restoring to normal action the particular hormones having a possible influence on hirsuties.

40 EAST FORTY-FIRST STREET.

## SECRETIN AS A REMEDY IN GASTROINTESTINAL DISORDERS.

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For many years preparations of animal origin have taken an important place in the orthodox treatment of certain forms of indigestion. The use of pepsin and pancreatin has been established on a firm basis, although at times dissentient voices are heard to the effect that the continued use of such preparations tends to induce laziness on the part of the organs in question. Our conception of the treatment of the indigestions has in the past few years been very materially modified. The discovery of certain other substances also of animal origin has begun a revolution, not only in our conception of the physiology of the digestive glands, but in the treatment of their functional disorders.

The most notable of these remarkable substances is the hormone "secretin," first isolated by Starling and Bayliss in the research laboratories of University College, London, in 1902 (1). It would appear that in this substance we have a most valuable and reasonable remedy for many forms of indigestion; a recapitulation, therefore, of some of the fundamental facts regarding its application is appropriate. Hitherto experimental investigators have used this substance, and these, usually, not in clinical work. It is still the exception to find physicians using secretin as a therapeutic agent.

Secretin is a definite chemical product of the mucous membrane of the pyloric end of the stomach and the duodenum. The story of its discovery may be briefly recalled: On the investigation of the properties of enterokinase, that remarkable tryptic activator first discovered in Pavloff's laboratories at St. Petersburg, Bayliss and Starling noted that the injection of acid or acid chyme into a loop of small intestine was followed by a secretion of pancreatic juice, even when all nerve channels had been destroyed. These investigators were convinced that the message from the intestine to the pancreas was not carried by the nervous system, but by the blood; they presumed, therefore, that the activating substance was produced in the duodenal walls under the influence of the acid, and that it was then absorbed into the blood and served to excite pancreatic function. A portion of the intestinal mucous membrane was accordingly scraped, pounded up with dilute hydrochloric acid, and filtered. Injection of a portion of the neutralized filtrate into the blood of an animal resulted in a copious flow of pancreatic juice, and the chemical messenger or hormone responsible for this action was named "secretin." Later it was called "pancreatic secretin," to distinguish it from other similar substances which excited other glands (2).

Since this epoch making announcement was made other investigators, notably Edkins (3), have shown that the gastric walls near the pylorus produce a similar secretin which has been called "gastrin" or "gastric secretin." Its action is through the blood and upon the peptic and oxyntic glands of the stomach.



In a recent editorial reference to *The Gastric Secretin* (4), the results of this work are outlined as follows:

Edkins has carried out experiments to see whether such a chemical mechanism, in distinction from the nervous control which is usually called on to elucidate the phenomena of secretion, may not also serve to explain the secretion of the gastric juice when food is introduced into the stomach. He finds that substances such as peptones, broths, dextrin, etc., which are known to induce gastric secretion when ingested, are without influence on the secretory act if they are injected directly into the blood stream. But when such known excitants of secretion are allowed to stay in contact with the pyloric mucous membrane, and a decoction of this is then injected into the circulation, a secretion of both acid and peptic enzyme into the stomach ensues. Infusions of the cardiac portion of the stomach or of other organs do not act in this secretion producing manner. Edkins concludes that this typical secretion of gastric juice is determined by a chemical mechanism; the first products of digestion act on the pyloric mucous membrane, in which they produce a substance which, entering the blood stream, is carried to the gland cells of the stomach, where it acts as a specific excitant of their secretory activity. This is the gastric hormone—gastric secretion.

The St. Petersburg School has long opposed the "secretin theory." Bylina, in 1911 (5), intimated that secretin was not quite what Bayliss and Starling had made out, stating that the pancreas possesses a constant secreting function for which nervous influences are principally responsible. Later (6), he admits that the pancreatic secretion to a certain extent is dependent upon a humoral mechanism; but he still asserts that nervous influences are concerned in the excitation of pancreatic secretion and, indeed, determine the chemical character of the juice. L. B. Popielski insisted similarly that secretin played a minor part in the activation of pancreatic juice, and that the results purported to be due to its influence were obtainable in other ways.

Experiments seem to discount these statements, and the most conclusive proof of the fallacy of Bylina's idea is to be found in a 100 page thesis (7) which gives the details and deductions of Hustin's study of the mechanism of the external secretion of the pancreas. The subject is very thoroughly discussed, the importance of secretin being emphasized in a convincing manner and certain of the experiments being most decisive. Among other things it is interesting to note that Hustin has demonstrated that the pancreatic secretion cannot be stimulated by secretin alone. He has proved that a certain element in the blood must be associated with the secretin. His method consisted in taking the pancreas from an animal, placing it in a bath of paraffin, and then irrigating it with liquids, which were introduced by means of a cannula through the pancreaticoduodenal artery, and were conveyed away by another cannula in the portal vein. A third cannula was introduced into the duct of Wirsung, to lead off the pancreatic juice. As a result of numerous experiments the author established the important fact that a gland irrigated independently with physiological serum (Locke), blood, or secretin solution gives no secretion; but irrigation with a mixture of blood and secretin gives an abundant secretion of clear liquid containing trypsin, lipase, and amylase. The author further states that secretin is

used up in the gland in the impregnation of the pancreatic cell, in a manner that renders it sensible to the action of certain substances in the blood. The presence of calcium electrolytes is a third essential.

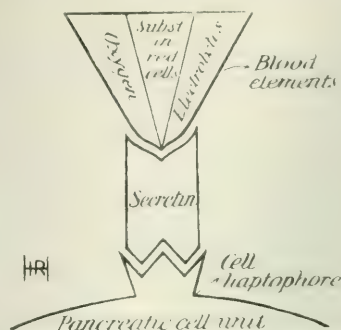


FIG. 1.—Schematic representation of secretin action. (Based on Edkins' experiments.)

For convenience, Hustin compares this action with the side chain theory of Ehrlich, viz., that living protoplasm carries certain chemoreceptors, or contains chemoreceptive substances, and it is by combination with these that drugs, etc., induce their specific effects.

Recent reports from St. Petersburg seem to indicate that at last there is a tendency to admit that the "secretin theory," so long discounted by certain Russian and Italian physiologists, is no longer so untenable. Sawitsch and Zelony (8), reporting a series of experiments which were carried out in the physiological laboratory of the Military Medical Academy in St. Petersburg, have established the essential accuracy of Edkins' contentions that normal gastric secretion is due to the cooperation of at least two factors; the one a nervous secretion induced by the stimulation of the mucosa of the mouth or by the awakening of the appetite through psychic channels, and the other a chemical factor dependent on the elaboration of a hormone which acts as a chemical messenger to all parts of the stomach through humoral paths, and whose effects linger long after the psychic stimulus has disappeared.

In his book on *The Action of Medicines* (9), Sir Lauder Brunton illustrates his statements by

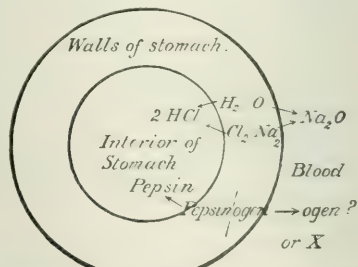


FIG. 2.—Diagram to illustrate the chemical changes during secretion.

means of a diagram (Fig. 2). This diagram (for the use of which I have cordially to thank this dis-

tinguished therapist) shows that it was hardly possible, before the discovery of hormones, to explain the phenomena of gastric digestion without presuming the presence of an indefinite entity. It is evident that in this diagram, which is intended to illustrate the chemical changes during secretion, the unknown quantity, or  $x$ , is no other than secretin, or rather, in this particular case, gastrin or gastric secretin.

A very similar and perhaps identical hormone is probably produced by the spleen (10), the function of which is to stimulate the digestive glands to do their normal work. This splenic hormone has been proved by numerous physiologists to have a part in the activation of trypsinogen.

Some of the French physiologists have proved that secretin not only influences the gastric and pancreatic glands, but that it also stimulates the production in the duodenal walls of the same substance, while others have shown that it also stimulates the functional activity of the liver and jejunum. Clinically, too, it is evident that secretin preparations do not influence the stomach and pancreas alone, for it will be frequently noted that alcoholic clay colored stools resume their normal color following a few doses of this remedy.

Dixon and Hamill made a series of experiments at the pharmacological laboratory of Cambridge University (11) to test the hypothesis of Ehrlich (which has been referred to above and illustrated by Hustin's deductions and diagram—Fig. 1). Secretin was investigated first, as its marked action on the pancreas was already known. As a result of this work, the physiology of secretin action is now very definitely known. The prosecretin of the duodenal wall is first changed into secretin by contact with hydrochloric acid. It is then carried in the blood stream to the pancreas, where, as a result of chemical change, its characteristic features are lost; secretin combining with amylopsinogen and steapsinogen, to form the ferments amylopsin and steapsin and, with the precursor protrypsinogen, to form trypsinogen. This last, only, becomes the ferment trypsin after it has come in contact with enterokinase in the intestinal canal. The action of secretin, then, may be conveniently expressed by the following equations:

Pepsin—hydrochloric acid production (pylorus)  
 Food (peptones, dextrin, etc.) or psychic stimulus + pro-gastrin = gastric secretin (gastrin)  
 Gastrin + pepsinogen = pepsin  
 Gastrin + oxyntic precursors = hydrochloric acid  
 Trypsin production (duodenum)  
 Hydrochloric acid + prosecretin = secretin  
 Secretin + protrypsinogen = trypsinogen  
 Trypsinogen + enterokinase = trypsin.

From the foregoing it will be seen that in this remarkable substance, or series of substances, we should have a therapeutic weapon with vast possibilities. This is especially true when we remember that "it is now a demonstrated fact that a large share of the wonderful coordination of the activities of different parts of the body, which determine their mutual cooperation for the common weal of the organism, is played by production and circulation of chemical substances which are strictly analogous to the drugs employed during countless ages by mankind in the treatment of his diseases"

(12). In my opinion the analogy is not as thorough as the foregoing quotation would indicate, for the use of secretin and other hormones is much more reasonable, and its stimulating effect far more nearly physiological, than that of other means to the same ends.

Secretin is not particularly difficult to obtain. As already mentioned, Starling secured it by pounding up duodenal scrapings with hydrochloric acid. Various methods of extracting secretin are outlined in articles by Bayliss and Starling (13), Stepp (14), and Launoy (15). Aqueous solutions of secretin are easily made, but they must be used while fresh, as, if left unstopped, they lose their activity in about twenty-four hours. If, however, they are preserved in sterile ampoules and kept in the dark they remain active for a long time. Fortunately, dried extracts of duodenal mucous membrane keep well, and from them potent solutions can be easily prepared as desired. Several trade preparations are now made in America, France, and England. Provided that in this manner one can stimulate the production of hydrochloric acid in the stomach, the rest is simple. The passage of the acid gastric contents into the intestine will be a natural stimulus to the production of secretin, so that the administration of such a remedy serves a double purpose. Not only will it stimulate the pancreas directly, but also indirectly by the production of an additional supply of this important activator.

In practically all animal experiments with secretin, this substance has been administered by the intravenous method, and it has been stated that secretin when taken into the stomach is not active. Some experiments have been made the results of which indicate that in animals secretin is not absorbed when introduced even in large doses into the digestive canal. Undoubtedly the comparisons between the intravenous injection of secretin solutions and the oral administration of solid or liquid secretin preparations would give evidence in favor of the direct method—intravenous medication, for obvious reasons, is more rapid, active, and pronounced than any other method of giving drugs—but, such statements to the contrary notwithstanding, one can overlook the noticeable influence on digestion and nutrition following the administration of secretin by mouth. This will be still more apparent when all the evidence gathered in this paper is considered. It must also be remembered that, in the preparation of secretin, boiling with dilute hydrochloride acid is a part of the process, and any conditions which might be found in the stomach would seem theoretically to be negligible; in fact, in practice the oral administration of secretin accomplishes definite results which are sometimes nothing short of marvelous.

At present there is a paucity of literature on the clinical use of secretin. There are numerous references to its physiology, and in the French literature there are many interesting papers. In one of these Hallion (16) notes that secretin has also a distinct influence upon the liver and the motor functions of the bowel. In his experiments, in which he was associated with Enriquez (17), he noted that secretin also increases in a great measure the secretion of bile. This fact has also been confirmed by

Portier, Falloise, and others. He also calls attention to other physiological data which he has secured, and refers to a statement by Delezenne and Frouin (18) to the effect that "the action of secretin is not limited to the liver and pancreas, but extends to the intestine and influences the production of succus entericus." Enriquez, in a communication to the Paris Academy of Medicine, writes (19): "Based on the greater importance to normal digestion of the production of secretin in the duodenum, why should not, clinically, a large number of dyspepsias be secondary to a disturbance in the highly specialized function of the duodenal mucosa? When it is remembered," he continues, "that secretin also possesses an incontestable influence upon intestinal motility, one of the first and most constant signs of secretin insufficiency must without doubt be clinically represented by constipation. Thus, guided by our experimental research, we have found a means of stimulating this function in certain constipated dyspeptics." Enriquez prepared keratin coated capsules of gluten, containing an active and harmless acid (tartaric), which was proved experimentally to be stable in the stomach and easily destroyed in the duodenum.

The results of this form of medication were most interesting. All the patients showed a more or less noticeable constipation, and in seven of the cases it was the dominating symptom, inconveniencing the patients as much by its persistence as by its obstinacy. In these seven cases acid medication of the duodenum brought about, with varying ease, according to the dose, a stimulation of the secretory and motor functions of the intestine and a regulation of the stools. Two cases were of special interest. One was that of a person suffering from localized sclerosis ("*sclérose en plaques*") for many years, with intractable constipated periods lasting from six to eight days, and which resisted all kinds of purgatives, enemas only having any action. Under this treatment the stools were immediately regulated, giving way again to constipation as soon as the treatment ceased, this occurring several times. In five of the observations mucomembranous colitis was complicated alternately with constipation and painful abdominal crises, terminating by the passage of glairy mucous and membranous casts. In four of the cases the colitic symptoms were much relieved at the same time as the constipation.

Of course, the principal value of the method of treatment outlined above depends upon the production of secretin. There may be cases in which the duodenal cells will not be stimulated, and here it would seem that secretin itself could be used to good advantage. I have personally noticed, and my experience has been confirmed by several correspondents, that the administration of preparations of secretin is followed quite constantly by the relief of fermentation and flatulence in the upper bowel, and the reason for this is not far to seek. The principal cause of gastric and intestinal fermentations is a deficiency in the amount and activity of the digestive juices. It has long been known that the administration of hydrochloric acid not only favors the digestive action in the stomach, but also tends to increase the amount of pancreatic ferments in the duodenum, and only since the discov-

ery of secretin has it been clear how this is brought about.

Very little clinical work seems to have been done with secretin in the United States. The only article<sup>1</sup> referring to a secretin preparation that I have been able to find is from the pen of Boardman Reed (21). In this article he compares his standard pepsin hydrochloric mixtures, referred to in his excellent book,<sup>2</sup> with an elixir containing gastric and pancreatic secretins, and finds that these organic principles are considerably more active, rapidly bringing the work of the stomach to the normal, and, usually, at the same time improving the intestinal indigestion and assimilation. Reed states that secretogen is apparently the most powerful excitant of gastrointestinal secretion so far tried by him, and refers to a number of cases, one of which is mentioned in an addendum to his paper, which follows: "Since the foregoing was written I have examined chemically the stomach contents of one of the patients referred to, in which none of the secretogen has been taken for a month, and the proportions of both the free and combined hydrochloric acid were found still a little above normal, though, before the remedy was taken, there had been no free hydrochloric acid at all, and the proportions of both the combined hydrochloric acid, and of the total acidity, had been decidedly below normal."

Moore (22) of the Biochemical Department of Liverpool University, has called attention to deficient secretin production in cancer and gastric cancer. It is well known that achlorhydria is an almost constant symptom of this disease, and the lack of hydrochloric acid—the physiological stimulus to normal secretin production in the duodenal walls—results in a marked decrease in the amount and effectiveness of pancreatic ferments. This nearly suffices to account for the nutritional disorders which are pathognomonic of carcinoma. With the foregoing in mind, it can be readily appreciated that secretin may be used in cancer and cachexias generally, not to influence the disease *per se*, but rather as a means of increasing the digestive activities and nutrition. The same ideas naturally hold good in other conditions where toxemia, superfunction, or asthenia, has lessened the digestive capacity. In no disease is this influence more desirable than in tuberculosis, and attention is already being turned to the possibilities of this new adjunct remedy for tuberculosis (23).

Secretin has been recommended as a means of treating diabetes, and much was expected from its use because several very good results occasionally followed its early administration in this disease. The basis of this study was the clear physiological evidence of a connection between pancreatic activity and diabetes, as well as between secretin and pancreatic activity, and that where functional disorder of the pancreas was present advantage might be expected to follow the stimulus caused by secretin. In their first communication on this subject, Moore, Edie, and Abram (24), described three cases of diabetes in which improvement followed

<sup>1</sup>The writer has drawn special attention to the possibilities of secretin as a factor in the control of the summer indigestions of infants (20).

<sup>2</sup>*Diseases of the Stomach and Intestines*, Third Edition, 1911, New York.



the oral administration of an acid extract of duodenal mucosa. As a result of this treatment, the sugar diminished gradually, and finally disappeared. Later these same authors (25), whose work in the meantime had been augmented by the discovery by Bainbridge and Beddard (26), that in many diabetics prosecretin is absent from the duodenum,<sup>3</sup> admit that the majority of cases treated in this manner showed no appreciable change in the sugar output. They call attention, however, to the fact that "in some of these negative cases there has been noticed an improvement in the digestion, and in certain cases the patient's weight has increased." In one case in particular this incidental influence on digestion was very decided. "Almost at once the dyspepsia from which he was suffering was relieved, and his general nutrition improved to such an extent that he regained over eighteen pounds in weight, and this improvement was accompanied by a complete recovery of his mental and physical energies" (25). It seems, however, that these failures are due, not to the lack of activity in secretin, or to its administration, but rather to the fact that the external secretion of the pancreas plays a very minor part in the carbohydrate metabolism. The internal secretion, on the other hand, has a specific influence on sugar combustion, due in all probability to the so called "Langerhansian hormone," which is now known to antagonize the chromaffin hormone produced by the adrenal system, and that the influence of secretin on the production of the internal pancreatic secretion is almost negligible, or at least, decidedly less than upon the digestive or external secretion.

#### CONCLUSION.

Without further dilution upon this most interesting subject, the principal facts regarding the therapeutic possibilities of secretin may be briefly stated:

1. Secretin is a specific excitant of all of the important digestive juices—gastric, hepatic, and intestinal.

2. It may be secured just as are other animal extracts, and it has the advantage of being a definite, stable preparation.

3. It may be given by mouth with good results in the large class of gastrohepatointestinal disorders described under the general head of "digestive insufficiencies."

4. Such medication is absolutely physiological, as in certain cases it seems that secretin is a necessary substance which the body is not supplying in its normal amount (just as thyroidin supplies the athyroidic a most necessary hormone, the lack of which happens to be more definitely manifest).

5. Secretin is not a digestant, having no influence whatever comparable with that of pepsin or pancreatin, but its fundamental value is superior to these ferments, as well as to other forms of stimulation, such as strychnine, ginger, etc.

6. The administration of secretin is quite harmless, causes no habit, and does not interfere with other orthodox treatment, and its administration may with advantage be associated with digestants, tonics, etc.

It seems clear, therefore, that the use of hormones as therapeutic agents—and in particular the use of secretin in various forms of indigestion—is destined to become much more general, and as the foregoing statements become further confirmed by clinical experience, the present day treatment of gastrointestinal disorders will be augmented, if not revolutionized.

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20. RIBBLEDALE ROAD, HORNSEY, N.

#### IMPORTANCE OF EARLY OPERATION FOR THE RADICAL CURS OF HERNIA.

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In my experience in the hospital treatment of adults suffering from hernia, I am impressed with the facts that a large proportion of the patients were men who had large scrotal hernia acquired some years previous, and that the number who applied for

<sup>3</sup>It is interesting to note that Evans made a series of experiments at the Institute of Physiology, University College, London (27), to ascertain the fate of prosecretin in depancreatized dogs. The information thus gained shows that total extirpation of the pancreas is rapidly followed by complete disappearance of the precursor of secretion in the duodenal walls, but if a small portion of the pancreas is left (to preserve a sufficient amount of the pancreatic hormone to prevent glycosuria) there is no appreciable diminution in prosecretin. It is suggested that the loss of secretin in pancreatic diabetes is simply one symptom in the general train of metabolic disturbances consequent on loss of the internal secretion of the pancreas.

relief for recently acquired hernia was proportionately small.

I have operated for the radical cure of hernia 265 times (including all varieties—inguinal, femoral, umbilical, ventral, strangulated inguinal and umbilical, and large irreducible scrotal hernia containing bowel, appendix, and omentum) successfully, with no serious result due to the operation in any case. The one unfortunate result was a death from ether before the operation, the only death that has occurred from anesthesia in my practice. While I have fortunately met with no serious results in operating for the radical cure of very large irreducible scrotal hernias containing bowel, I fully appreciate the difficulty and gravity of the operation in elderly men, and it is the purpose of this paper to emphasize the necessity for early operation for hernia to obviate the inconvenience, disability, and danger to patients, especially laboring men, in temporizing or postponing operation until their hernias are so large that they become practically disabled. The seriousness of the operation and the permanency of the cure depend in a large measure upon the age of the hernia. The inconvenience of wearing a truss and the danger of strangulation are avoided by early operation. If complete histories of all cases of hernia could be obtained at one time, it would be found that there is a close relation between the duration of the hernia and the size, degree of disability, risk from strangulation, risk from operation, and probability of permanency of cure by operation.

In recently acquired inguinal hernia the operation for radical cure is a simple operation, entailing scarcely any risk to the patient, quickly performed under local anesthesia. It affords almost certain guarantee of permanent cure. In very large inguinal hernia of long standing, irreducible, the sac containing bowel, omentum, etc., the operation for cure is always more or less serious and the chances for a permanent cure less certain. Cases of this kind should be undertaken only by an experienced operator. Occasionally cases of old and very large hernia are seen that are absolutely inoperable; cases in which an operation would promise no permanent relief and the risk taken would be unwarranted. I have seen several cases of this character in old men.

Usually an old hernia that has not been carefully retained by a truss is a large hernia, and the sac frequently contains bowel and omentum which are firmly adherent to the cord and sac throughout. I operated upon two patients having this kind during the past year, men who were sixty years old. They were, before the operation, entirely disabled for any kind of work; their hernias were very large. A considerable portion of the omentum was excised before the bowel could be returned. There was a good result in both cases, but the operations were both difficult, requiring careful dissection and prolonged general anesthesia, and were not without danger to the patient. I reported a number of successful operations for the radical cure of hernia in 1886 and in 1890 upon patients who were completely disabled prior to the operation.

The inguinal canal in these cases is entirely obliterated by pressure of the sac upon the transversalis fascia causing its atrophy; extending the internal ring as low as the external and making a direct opening at the neck of the sac from one and

a half to two inches in diameter. To close this large opening in the fascia is not always easy, and we must depend upon the muscular tissue for the support, usually the internal oblique and transversalis, which in some cases are also atrophied. The edge of the rectus may be brought over, but the permanency of the cure in very large old hernias is not certain, while in recent hernias the operation almost always affords a permanent cure. In recent inguinal, femoral, umbilical, or ventral hernia the operation for cure can be safely performed under local anesthesia in persons of all ages. But a few weeks ago I operated for complete oblique hernia upon a man seventy years old under local anesthesia. The Bassini operation was performed, and it required but twenty minutes. The patient suffered no pain nor inconvenience except that of having to remain in bed one week, when the wound was perfectly healed and a permanent cure effected. It requires but from fifteen to twenty minutes usually to do the Bassini operation in a recent hernia (it can be done in some cases in ten), while in very large, old irreducible hernia it may require an hour and a half. Where hernia occurs in young children early operation is no doubt advisable, but I have had little experience in operating upon children.

There are physicians to-day who are prescribing trusses for their patients suffering from all varieties of hernia, and others who, while they recommend an operation, do not fully explain the advantages of an early operation. There are many people, however, who when they first find they have a hernia go directly to some druggist and buy a truss, and continue to wear one until they become partially disabled. We find many of the latter cases in the Service hospitals.

Hernia is probably the most frequent natural anatomical defect found in the human body. It occurs in about one out of every thirteen male persons during life, and thousands of laboring men are at the present time more or less disabled on account of it. The degree of disability depends to a great extent upon the occupation of the person, it being greatest in those engaged in physical labor, and it ranges from partial to complete. I have seen a number of persons with an inguinal hernia sac extending nearly to the knees, which they suspended in a bag attached to a waist belt. These are merely mentioned as examples of complete disability. All such cases can be prevented, as well as others of less degree of disability, by early operation, and I believe that it is an obligation which every physician owes to his patients to fully explain the importance of early operation in hernia, and advise them not to seek relief from trusses, from the use of which they become disabled, nor to wait until an operation becomes a serious matter.

UNITED STATES MARINE HOSPITAL.

## THE USE OF PHOSPHORUS IN DISEASES OF THE LUNGS.

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So far as I have been able to ascertain by reference to literature and records, no mention, for the last thirty years at least, can be found of phos-

phorus, in the pure state, having been administered as a therapeutic measure in the treatment of diseases of the lungs. During the past eleven years this drug has been exhibited by me in all classes of cases in lung disease, acute, subacute, and chronic, and the result leads me to the belief that in pure phosphorus a most potent agent exists for the restoration of patients suffering from these diseases.

On entering the profession I became a partner in a large suburban practice and during the first six months, owing to my partner's absence in Europe, I personally conducted the whole of the practice. Before his departure we had an incidental talk over treatment of different kinds and he gave me, among others, a hint, that in all cases of acute lobar pneumonia, the exhibition of pure phosphorus in small doses, that is from 1/1000 to 1/200 of a grain, at fairly close intervals, would bring about an almost marvelous shortening of the crisis. He was specially referring, while on this subject, to a particular patient, very far advanced in pulmonary tuberculosis, who had a special symptom of recurrent hemorrhages at three monthly intervals. These hemorrhages gave rise to an acute form of pneumonia and he had found in his experiences that phosphorus in 1/500 grain doses had a wonderful effect in bringing the patient back to his normal condition.

#### PULMONARY TUBERCULOSIS.

It was not many weeks before the patient referred to had one of his recurrent hemorrhages. After the initial dose of morphine had been injected, phosphorus in 1/500 grain doses was administered every alternate hour, and it was rather remarkable to see how rapidly this patient recovered from the posthemorrhagic pneumonia.

When the patient was his normal self again, a thorough examination of his chest was made. It showed the whole of his right lung riddled with large vomicae, loose bubbling râles all over, back and front, and all the other accessory signs of advanced pulmonary phthisis. The apex of the left lung very closely resembled that of the right lung; then after a fairly wide belt of absolute consolidation, the lower lobe, though free of consolidation, was markedly infected with early tuberculous disease; fine crepitations were heard all over the lower part, and prolonged expiration and increased vocal resonance were marked. A picture, on the whole, of very widespread tuberculous degeneration. So advanced was his condition that it is a wonder he continued to exist at all, much less to carry on his work, that of a proof reader to a large publishing firm in Melbourne, in the intervals between the attacks.

For some years he had been treated in the orthodox fashion for phthisis, that is by nourishment, principally in the form of large quantities of milk, creosote, etc. He was little more than skin and bone, and to the casual observer he was past all possible hope of improvement. He had always resolutely refused to sleep in the open air.

Seeing the wonderful effect that phosphorus had had on his condition the question arose, would the prolonged exhibition of this drug give rise to any

further improvement? He was asked, if, as an experiment, he was prepared to carry on a course of treatment for, say, three months. After some demur he eventually consented.

Nothing was changed as regards his ordinary way of living but he was advised for the first month, at least, to give himself up to the treatment and rest instead of going back to work. This he did, taking notes of his case and keeping a chart.

Hitherto he had suffered from copious night sweats and occasionally profuse expectoration. The first two marked symptoms noticeable at the end of the first week or ten days were continual excessive expectoration and a diminution of the night sweats. The former continued to increase rather than diminish during the first six weeks, but at the end of that period a night sweat was an unusual phenomenon. The cough up to this stage had been very loose and the sputum had been brought up without any effort.

After this period the cough commenced to be harder and the sputum perceptibly lessened every day while the temperature in the evening, which had always gone up to 100° F. or more, during the first few weeks, greatly declined till it was rarely above 99° F. From the tenth week onward the cough was practically the only troublesome symptom; the night sweats had completely disappeared and the sputum was practically nonexistent. On examination of his chest, at the end of three months, the right lung which had practically been filled with a copious secretion in the early stages, appeared comparatively dry; moist sounds were a rarity and the air passed freely in and out of the numerous vomicae. The left lung also showed signs of marked improvement and though the consolidation band seemed as dense as hitherto, the fine crepitations in the lower lobe had almost disappeared; the breathing was harsh and puerile; prolonged expiration continued; vocal resonance was still very marked.

His bodily condition at the end of the third month was greatly improved; though he had not been weighed before starting the course of treatment, he appeared to have put on at least a stone (14 pounds) in weight, looked very well, and very different from the dying appearance of three months before.

He returned to his work, taking one dose of 1/500 grain of phosphorus daily for the next three months and, with the exception of an occasional friendly visit, was not attended again for hemorrhage during the next three years when professional relation with him ceased. It was not till some years afterward that he was seen again and hardly recognized. He made himself known in the street. He was then looking very well, and stated that he had not had to see a doctor since his treatment. It was not till twelve months ago, in January, 1912, that we met again casually and he said that, with the exception of some hemorrhage in the bladder, he had been perfectly well. He is now over sixty and, though probably he has not more than half a sound lung, is comparatively healthy and still able to carry on his work.

The result of this experimental treatment inclined to the belief that phosphorus had a very valu-



able effect in the treatment of consumption, and during the past eleven years case after case of pulmonary tuberculosis has been treated by its means, and in only a very few cases out of over one hundred have its results been disappointing.

While the use of phosphorus as the main active principle in the treatment of all cases of pulmonary tuberculosis has been retained, the addition at various times of other drugs has been made with a view to enhancing the general value of the treatment. Where patients have been too feeble and would have rejected stronger measures, treatment has been commenced with extremely small doses of phosphorus, then as they improved in condition, such drugs as calcium hypophosphite, arsenous iodide, and ferrous iodide were added, these being introduced to provide calcium in an easily absorbable form, arsenic and iron with the object of improving the blood, and iodides to assist in the absorption of the toxic products.

While in most cases the patients have been able to take the full strength of the prescription during their treatment, several of them have exhibited intolerance for iodine even in small doses, whereupon this product was deleted from the prescription. Where the patient is considered strong enough to stand the full treatment the following prescription is generally given:

R	Calcii hypophosphitis, .....	5ss-ij
	Tincture phosphori (1-1000), .....	
	Liquoris arseni iodidi (1-100), .....	aa 5ss-ij
	Syrupi ferri iodidi, .....	5ss-j
	Aque, q. s. ad, .....	5vj.

M. et Sig.: One dessertspoonful four times a day after food and at bedtime, in water.

#### Diet Chart:

7 a. m.	Glass of hot milk and a biscuit.
8 a. m.	Warm sponge bath. Rest till 8:30.
8:30 a. m.	Breakfast: Porridge, eggs, bacon, fish, large cup of milk coffee, bread and butter, honey, etc.
9 a. m.	Medicine.
9:15 a. m.	One dessertspoonful of malt and cod-liver oil.
10:30 a. m.	Rise from bed.
11 a. m.	Basin of milkbroth and dry toast.
11 to 12 a. m.	Short exercise in the open air.
12 to 12:30 p. m.	Dinner. Any white meats, vegetables, milk puddings, stewed fruits, etc. Glass of milk.
1 p. m.	Medicine.
1:15 p. m.	Malt and codliver oil.
1:15 to 3 p. m.	Rest or quiet exercise in open air.
3 p. m.	Large cup of milktea and cakes.
3:30 to 6 p. m.	Rest or quiet exercise in open air.
6 p. m.	Tea, fish, eggs, etc., large cup of milk-cocoa, bread and butter, jam, honey, etc.
6:30 p. m.	Medicine.
6:45 p. m.	Malt and codliver oil.
8:45 p. m.	Medicine.
9 p. m.	Retire to rest in open air.
9:15 p. m.	Glass of hot milk.

This prescription, as already remarked, goes to form the basis of all general treatment of tuberculosis, but it is altered according to the capacity of the patient, drop doses of phosphorus being given well diluted with milk where the stomach rejects stronger measures.

While this is the basis of all general treatment the ordinary approved methods of rest, graduated exercise, and sleeping in the open air treatment and feeding are not neglected. Sleeping in the open air has often been impracticable on account of the obstinacy or poverty of the patients, as in Cases I and II, and this specially refers to Case II, in which the patient was confined during the whole of her treatment to a small ill ventilated room.

During the past four years high frequency current has been given twice a week during treatment to some of the patients, each patient completing the actual course in three months. However, they generally take a month's course of medicine at the sixth, ninth, and twelfth months. This treatment has met with almost unbroken success, notwithstanding the fact that all classes and conditions of tuberculous disease in every stage from earliest to latest have been treated. The conclusion has been arrived at, that where patients have any power of resistance at all they make a good recovery to health, and though the signs of trouble, particularly in the later stages, remain, all active symptoms disappear. No patient is considered cured till the sputum is absent, or if any sputum should still be present all trace of bacilli is lost.

The few failures that have been experienced were advanced cases where the whole lung was involved, the larynx greatly affected, and digestion impaired, and where the patient's power of resistance was destroyed by the disease. Even those cases which were so far gone as in the first case referred to, where nothing short of transplanting lungs, were it possible, would effect a cure, the patients have been so improved as to be practically well.

The cases that have shown greatest resistance to the treatment have been those patients who, for varying periods, have undergone administration of morphine in any of its forms; but they eventually react to the phosphorus and exhibit the same signs of drug reaction as those who take it *a priori*.

It is rather remarkable how the course of each case treated by means of phosphorus followed closely that of other cases. When first given, except in cases which had been treated by morphine for some time, even where the expectoration was not greatly increased before treatment, it was copious during the first half of the course, in certain of the cases so profuse as to cause alarm to the patient; this continues more or less during the first four to eight weeks, varying according to the gravity of the disease. In early stages this excessive expectoration ceases at the end of about a fortnight, while advanced cases, particularly those previously treated with morphine, do not begin to expectorate profusely until a week or ten days after the commencement of treatment, and in these the sputum does not diminish greatly in amount for ten weeks, and in extreme cases, for fourteen or fifteen weeks.

<sup>1</sup>Tincture of phosphorus is an alcoholic preparation of phosphorus containing a known percentage of the active drug, recognized officially by the members of the British Medical Association. In preparing it for the use of the author, the druggist dissolves phosphorus in warm chloroform and then adds absolute alcohol till the phosphorus is diluted to one part in 1000.—EDITOR.

The next main point in the average patient is that a rapid diminution of the sputum, with a consequent hardening of the cough, takes place in the sixth week. From this time on the sputum rapidly diminishes till it is absent, the cough becoming harder and harder till it is the only symptom left.

During the later periods it is not uncommon to get a slight trace of hemorrhage with what sputum is brought up. In only two cases has hemorrhage of any consequence developed. The cause of this hemorrhage appears to be due to the cleaning up of the diseased surfaces of the lungs, and as these surfaces proceed to heal and to contract, they in their turn induce the hardening of the cough; the hard cough, in its turn, causes slight ruptures of the healing surfaces. In the two cases where the hemorrhage was excessive it could easily be traced to the patients' overexerting themselves before their lungs had properly healed. In the one case after quietly resting for a month no other hemorrhage took place; in the other, which has only just occurred, advice has been given that she is not to be alarmed, as quiet rest for a month will complete her cure.

While this form of treatment has been mainly directed to tuberculosis of the lungs, it has also been administered where opportunities occurred in tuberculous disease of the glands and joints. Where the cases have not come to actual suppuration, great improvement and apparent cure have resulted. Even in suppurating cases patients have, after operation, rapidly improved in health, the sinuses healing quickly, and the patients gaining greatly in weight.

This article has been kept back for five years with the hope that in the meantime a very large number of cases could have been presented, but, owing to inadequate means, sanatoria treatment on a large scale was impossible. It is impossible to give progressive reports of patients treated, as some of them were seen only at intervals of months; some after the initial examination actually carried out the treatment in distant parts of the country and were not seen till the end of the course; most were seen only at weekly or fortnightly intervals. While all did their best to keep notes of their cases, from a practical point of view they were useless.

In conclusion is given a series of cases treated at various periods. All patients are now in full health and working at their occupations. Then follow two cases in which the patients improved under treatment, but did not experience a cure; finally, three cases in which the patients have failed to respond to the treatment.

CASE I. Previously described in context.

CASE II. Mrs. M., of D. Aged thirty-five years. Family history extremely bad, two sisters and a brother died in their early twenties, father and mother also died young from tuberculosis of the lung. She had a family of five, her husband was a prospector in the creeks of one of the most inclement parts of the country. She became ill in the middle of the winter of 1906-1907. The house was small and ill ventilated and altogether unsuitable for so sick a woman. Having decided that it was a case of acute phthisis a fellow practitioner was called in consultation. He agreed with the diagnosis and considered the case to be extremely grave, and that the probable course under

ordinary circumstances would not last three months. It was decided to administer phosphorus, and nourishment according to the diet chart was ordered. Continual snow, rain, and sleet prevented the taking of so frail a woman into the open air, so she was treated indoors, confined to a room eight feet by eight feet and only seven feet high, with but one little window for ventilation. She responded to the treatment immediately and continued to improve daily notwithstanding the disadvantages under which she labored. When at the end of three months the consulting practitioner was asked to call upon her he found her lying out for the first time in a veranda tent room that her husband had built for her, preparatory to the coming of spring. When, three months afterward on Christmas day, this woman walked five miles in the blazing heat over the mountains to show herself, she had improved beyond recognition. From a slight frail woman of six stone or thereabouts, she had grown to be a fine healthy looking woman of ten stone weight. She lives to this day, a perfect specimen of womanhood.

CASE III. Miss I. S., of W. Aged fifteen years. Sought treatment on December 2, 1902. Weight four stone nine pounds. No sign of menses for five months. Emaciated, anemic, and obviously very ill. Condition induced by close hard study for a teachers' examination. On examination a band of consolidation the size of the palm of the hand was discovered in the left lung between the spine and scapula. The left apex, back and front, was filled with fine crepitations; the expirations were prolonged, and the vocal resonance increased. Calcium hypophosphite was combined with phosphorus in her treatment, while Bland's pills with arsenic were also given. Diet as indicated in the chart was prescribed, and open air sleeping. Rapid improvement took place. After passing through the usual phase of excessive expectoration and loose cough, to no expectoration and dry cough, at the end of the third month all signs of tuberculous infection had left the lung, and the menses were reestablished. Her weight was now eight stone. Three months after completing her course of treatment she was over nine stone in weight, a bright healthy girl in whom no trace of tubercle could be found.

CASE IV. Mr. G. S., of P. Aged twenty-seven years. Unmarried. Commenced treatment on September 9, 1909. He had suffered since 1902 from hemorrhages, some slight, some excessive. His weight at the time of the first consultation was nine stone, nine and one half pounds. Tubercles in large numbers were found in the sputum which was profuse. He suffered also from night sweats and high temperature. The whole upper lobe of the right lung was greatly consolidated, the base being fairly free, the left apex, however, showing early signs of disease, with fine crepitations, prolonged expiration, and increased vocal resonance. An x ray examination confirmed the diagnosis. Steady progress was made from the first. He passed through the same reactive series of symptoms as those already referred to. His weight increased from the outset and at the end of the third month he was eleven stone. Sputum was still slight in amount in the morning, but several examinations showed no sign of tubercle. A sea trip was advised to complete the cure. He had the misfortune to be quarantined at Honolulu for three weeks and had to exist on rice and fish for the whole of the term. When he returned to Melbourne his weight was down to ten stone, but he looked perfectly well. No sputum was expectorated, and though he still showed signs of having had grave trouble in the right apex all other signs had disappeared. He was advised to rest and to take a more liberal diet for a month. At the end of that time he had attained eleven stone in weight and went to the country to take up a position as accountant in a fruit packing firm. He has been seen yearly since and is now a man of nearly twelve stone showing little or no trace of ever having had tuberculous disease of the lung.

CASE V. Mr. S., of D. Aged thirty-seven years. The patient suffered, in August, 1906, from influenza which left him with extensive bronchitic trouble, out of all proportion to the severity of the attack. After the subsidence of the attack, he showed well marked signs of tuberculous degeneration in the right apical area. He was at once put on the mixture and advised to sleep in the open air and take diet as indicated. Owing to the business he was

engaged in being a personal one he could not give his attention to the treatment or enjoy the necessary rest. For the first six weeks, however, he only did what was absolutely necessary at his office and managed to get home at four o'clock in the afternoon, taking all care of himself till the following morning when he went to his office at ten o'clock. Early in the treatment intolerance for iodine developed, which gave rise to rather peculiar symptoms, which, he explained, resembled rats gnawing at the flesh under his nails and at the roots of his hair, also some slight inflammatory condition in the eyes. The iodine was immediately stopped. Liquor arsenicalis was substituted for the arsenous iodide and syrupus ferri phosphati for the syrupus ferri iodidi. Notwithstanding his disabilities and the fact that after the sixth week he returned to the full work of his business, which often compelled him to return at night, he made an uneventful and perfect recovery. The same peculiar course that has been seen in practically all cases showed themselves in his case. All signs and symptoms had disappeared at the end of three months and in no time after that was a specimen of sputum able to be procured for examination purposes. He has remained well ever since.

CASE VI. Miss A., of A. Aged thirty years. She had suffered from tuberculous infection, mostly of the right lung, for several years. Slight traces were also seen, at the time of the examination, in the left apex. At the time of first consultation in September, 1911, she was suffering from persistent hemorrhage in small quantities. Tubercle bacilli were discovered in sputum. This lady had been for varying periods in several sanatoria and had undergone among others the tuberculin treatment. The full prescription was administered and the diet according to the chart was advised. After two weeks all hemorrhage ceased, though, as in other cases, the sputum rapidly increased during the first four weeks of her treatment, after which it diminished till, at the ninth week, it had disappeared except in the early morning; the cough, however, which had been soft at first, became her only troublesome symptom. The morning sputum and cough disappeared at the end of the third month, and for three months she remained perfectly well, putting on a stone and a half in weight. No symptom of her trouble remained and for so far advanced a case very few signs were left. Quiet exercise was advised but thinking herself more capable than she really was, she went one day for a walk of two miles each way carrying back with her a fairly heavy parcel. That night she had a rather sharp hemorrhage, which was considered due to her having strained the recently healed lung. Complete rest and a return to the treatment for a month ended the trouble. It is nine months since she was treated and although she has been examined and x rayed at various intervals no signs of the disease could be detected, and in a letter from her the other day she stated that she was perfectly well, doing all necessary housework, and that she had no symptoms whatever.

CASE VII. Mrs. S., of D. No children after several years of marriage. A cough had developed with slight hemorrhagic streaks. At the time of her first examination, in September, 1906, with the exception of a few signs of apical catarrh, no definite symptoms or signs pointed to tuberculosis. Not thinking that the case was one of any gravity she was treated for a few weeks and allowed to go away for an extended holiday in Melbourne. About three weeks later she was taken ill suddenly and called in a leading doctor in Melbourne who announced that she had rapid exudative pleurisy of the left lung, probably due to tuberculous infection, and he advised tapping; she preferred, however, to return at once to her own doctor in the country. By this time definite signs of tuberculous infection had made their appearance. It appeared from the outset to be a case of very rapid acute phthisis. She was immediately placed upon the phosphorus treatment and kept in bed. The pleuritic effusion, which was very extensive and for which perhaps under ordinary treatment she would have been tapped, was allowed to become absorbed under counterirritant treatment. She made very rapid progress and as in all other cases the sputum rapidly increased in the early stages, but at the seventh week it had practically ceased, and though the cough remained hard for some weeks afterward, so far as the tuberculous signs were concerned, they had prac-

tically disappeared. Absorption of the fluid was completed in about four weeks and, though the pleura remained thickened for some months, at the end of the third month all other signs had disappeared and so far as her lungs were concerned she had no further trouble.

CASE VIII. Mr. H., of S. Aged twenty-three years. Bank clerk. Returning to his father's home under leave of absence, his doctor had told him that he had tuberculosis of the lung and that he would have to rest for six months. Being called in, April, 1909, to see him, his doctor's diagnosis was confirmed. His main symptom was high evening temperature and cold sweats. The diseased area was located in the upper lobe of the right lung especially about the apex. A pathological examination was not made, but the patient stated that his doctor had found tubercle bacilli in his sputum. Being temporarily in the district he was only seen three times. The chemist was advised as to the special nature of the prescription, and promised to have it made up in proper form. The young man was instructed to take it for three months together with rest and nourishment according to the chart and was warned as to the probable symptoms that would arise during the course of the treatment. Nothing has been heard of him personally since, but a patient requested by his father to call upon the writer stated that the young man had returned to his work at the end of six months and that his doctor had pronounced him perfectly free from the disease.

CASE IX Mr. S., of M. Aged nineteen years. He had suffered for two years with tuberculosis of the lung. His main symptoms were excessive hemorrhage, night sweats, and profuse sputum. On examination at his first consultation, in January, 1912, his right lung was found to be largely infected, with fairly large vomicae near the apex of the right lung, with consolidation more or less over the upper lobe, the lower lobe showing signs of infection in the earlier stages. Owing to the difficulty of housing him in or about Melbourne he was placed in the care of a friend at Brighton and a properly made tent was erected for his use in the back garden. Weight on starting treatment was ten stone five pounds. Rapid improvement took place from the outset of treatment, which was fortified by the administration of high frequency twice a week. His weight rapidly increased, sputum was excessive during the first six weeks and, unlike other cases treated, though the cough became harder the sputum did not diminish to the vanishing point. Tuberculous bacilli were found in it at the end of the tenth week. Owing to the winter coming on he was advised that he should return to his home which was in a warmer part of Victoria at the end of the third month, but unfortunately during the twelfth week acute pleurisy of the right lung developed with bronchopneumonic temperature and for some days it looked as though he would not survive. Phosphorus was exhibited as in pneumonia treatment, the surface region of the lung was painted well with iodine and cataplasms of kaolin were applied. At the end of the third week the fluid was absorbed and the temperature was down to normal night and morning. It was thought best that he should carry on no further treatment at his own home. Three months afterward another consultation was sought when, except for a slight thickening of the pleura and signs of healing vomicae all active signs of tuberculous infection had disappeared; slight sputum continued to be brought up in the morning which, however, on examination showed no tubercle bacilli. The weight at the last consultation was eleven stone twelve pounds. He writes stating that the doctor in his district can find no trace of active disease in his lungs, but that there remains slight dullness over the base of the right lung and some consolidation over the area of the vomica. There is now no sputum, and coughing is very infrequent.

CASE X. Mr. J. C. Aged twenty-three years. He had been suffering for four years from pulmonary tuberculosis, the initial attack of severe hemorrhage having taken place four years previously while traveling in foreign parts. He had been treated by every known means including long stays at sanatoria, tuberculin injections, etc. When first seen, in March, 1912, the whole of the right lung and the upper lobe of left lung showed signs of slowly progressive tuberculous degeneration, that is, fine crepitations, increased vocal resonance, prolongation of ex-



piration, and uniform dullness on percussion were all marked, but no definite area of actual loss was found either by physical or by x ray examination. The sputum was not profuse but contained large quantities of bacilli. He was large and flabby and had been told that he was well on the way to cure. This was one of the marked morphine cases already referred to; at first he responded but feebly to the exhibition of phosphorus. Morphine seems to have an inhibiting effect on the growth of the bacilli but it does not prevent widespread degeneration from going on quietly. The patient, lulled to false security, is led to believe that he is progressing very favorably because the cough is slight and easy and the sputum scanty. In this case the reaction to the phosphorus did not take place for three weeks when the sputum became markedly profuse and contained excessive numbers of bacilli. This continued till the third month after which it began to diminish rapidly. The treatment was continued regularly till the sixth month, the patient living during the later three months on a farm in a healthy part of the country, and being allowed to do slight exercise such as riding. The sputum was only seen after this period in the early morning, while the cough was the only troublesome symptom. At the ninth month, when he was seen and examined, the whole lung seemed to have become perfectly normal except for the evidence of small patches of adherent pleura. He was again seen at the end of twelve months, when expectoration had completely ceased, and though occasionally on exertion he had a hard cough, this symptom was very rare, and physical and x ray examinations showed practically a normal lung. He has now returned to his farm and though he has been warned not to overexert himself, he attends to all branches of the farm work.

#### PATIENTS IMPROVED BUT NOT CURED.

CASE XI. Mr. J. D., of D. Aged thirty-nine years. Bad family history. At the first consultation he complained of general weakness, shortness of breath, soft cough, profuse sputum and frequent night sweats. He had been treated for two years by approved sanatorium methods with no improvement. On examination, July, 1909, both apices were found to be well advanced in tuberculous degeneration, the right lung at the base being fairly free from adventitious signs, though the left lung throughout had marked signs of advanced degeneration with evidences of vomica near the apex. His weight at the commencement of treatment was nine stone ten pounds. He was placed upon the full phosphorus treatment, and nourishment according to the chart. During the first six weeks he made fair progress, the sputum increased rapidly showing large numbers of tubercle bacilli. At this date he had gained six pounds, the night sweats had disappeared, and his breathing was much better. During the next six weeks though he kept up his treatment he would not conform to his instructions, but continually went among the workers during the reaping and threshing, assisting at times in the dirt and dust. Notwithstanding this he improved to a great extent and at the end of the treatment he had gained over a stone in weight. His cough became harder and his sputum less profuse, nevertheless he refused further treatment. He has not been heard of for the last four years.

CASE XII. Mrs. G., of D. Aged twenty-eight years. Married five and a half years she had one child who died in infancy from tuberculous meningitis. She has suffered from tuberculosis since her nineteenth year, when she had tuberculous pleurisy for which she was tapped. The symptoms at the first consultation, in April, 1912, were general weakness, thinness to emaciation, night sweats, profuse sputum and soft cough; three months before she had had severe hemorrhage and since then there has been a constant color in the sputum. Her menses had not been seen for over two years. Weight six stone two pounds. On examination she exhibited marked signs of advanced degeneration in both lungs, both apices very far advanced with large vomica in the left; the whole of the left lung was more or less consolidated, with a marked band of absolute consolidation over the middle third of the lung, and large moist bubbling rales heard all over this area. On the right side below the level of the upper lobe although early signs were marked, it was, compared with the rest of the lung, comparatively free of disease and

puerile breathing was conspicuous. She had been treated for some time in various sanatoria and pronounced incurable. Treatment by phosphorus, diet as indicated in the chart, and open air living were instituted, while high frequency current was given twice a week. She reacted well to the treatment, all hemorrhage ceasing by the third week; the sputum continued profuse till the twelfth week and at this period the menses returned. She kept on the treatment for another three months when the cough became hard and the sputum greatly lessened, but all original signs remained with but slight improvement. However, she was advised to continue the treatment and her husband, who was a railway official, was transferred to a warm country district in the hope that she would improve. Unfortunately, on her entrance into this district, she was attacked with ptomaine poisoning the result of eating potted meat. This impaired her condition very greatly. She returned to me a year after the beginning of treatment with evidences of early tuberculous caries of the right tarsal bone due, she stated, to having tripped and sprained her foot. The local doctor thought that either dislocation or fracture had resulted, but x ray examination showed neither trauma nor tuberculous focus. On examination of the lungs at this time a distinct drying up process had taken place; the vomicae were dry and apparently greatly reduced in size; the moist band of consolidation gave all signs of advanced tuberculous degeneration but the moist sounds had disappeared; the base of the right lung had become practically free of all adventitious sounds. Her weight at this time was only seven stone, a gain of less than one stone in twelve months. At the present time she writes stating that she is keeping very well with the foot in a splint. Hopes are still entertained that further improvement will be seen and all signs of early caries may disappear.

#### PATIENTS IN WHOM TREATMENT FAILED.

CASE XIII. Mr. P., of E. Aged thirty years. He had been treated for several years at various sanatoria by the approved methods. At first consultation, in August, 1908, he exhibited all the signs of advanced tuberculous infection of the right lung. The left lung, except for the apex, was fairly clear. His family history was very bad. He was engaged in a noxious occupation in an analyst's laboratory. He was placed upon the full phosphorus treatment and diet as in chart, and was advised to go to his home in the country which he did. When he returned six months later marked improvement had taken place in his whole condition, so much so that hopes were held out for his ultimate recovery. Against medical advice he returned to his occupation and continued thereat practically well for over twelve months, when he was stricken down with influenza which induced bronchopneumonia of the left lung. After the acute stage had passed it was discovered that the left lung was rapidly becoming infected with tubercle and, though the right one remained apparently healed, the disease took on a rapid form and he was again sent home to undergo another course of the phosphorus treatment. Though he appeared to improve at times and his letters were occasionally very hopeful, he succumbed about four years after his initial treatment.

CASE XIV. Mr. R., of M. Aged twenty-three years. Had suffered from tuberculous disease for several years. Examination, in August, 1909, showed advanced disease of the lungs and larynx with evidence of tuberculous enteritis. His case was hopeless from the outset, he was nothing but skin and bone, no resistance was possible, and he was advised that treatment would probably be worse than useless and entail suffering to no good purpose. However, his people insisted that everything should be tried to stem the course of his disease, and the phosphorus treatment was entered upon, but after four weeks it was abandoned, the boy dying less than four weeks afterwards.

CASE XV. Mr. G., of K. Aged thirty-eight years. Had suffered from advanced pulmonary disease for several years, his friends, hearing of the phosphorus treatment, desired its administration. When seen, in June, 1909, no hope was held out from the first particularly in view of the fact that tuberculous degeneration of the kidney was discovered. After six weeks' treatment its administration was abandoned. General dropsy set in, and the patient died six weeks later.

## ACUTE PNEUMONIA.

While the results of the exhibition of phosphorus in chronic diseases of the lungs have been more than satisfactory, its administration in acute pneumonia has been very successful and, out of several hundred patients treated by it, there has not been a death except in the case of one patient who suffered from chronic cirrhosis of the liver.

The first successful case was treated during the winter of 1902. A young married man, of rather delicate type who was suffering from acute congestion of the liver, was suddenly attacked with double pneumonia of a rapid type. His temperature was 105° F. from the commencement, pulse 140, respirations 45, and rusty sputum appeared early. Everything of an orthodox nature was tried to stay its onrush. At midnight, notwithstanding the administration of oxygen, cyanosis was rapidly becoming more and more marked. The pulse had risen almost beyond the counting point, the respirations were so rapid that they were hardly recognizable, and to every appearance the man had no possible chance of lasting till the morning. All the usual remedies having failed, the phosphorus treatment was tried. One drop of the one to 1,000 tincture was administered every hour, and the patient was watched right through the night. In three hours improvement took place and the cyanosis gradually subsided; at the sixth hour the temperature dropped to 103° F., the breath came slower and deeper, the pulse became easily countable, and a slight facial perspiration broke out. His crisis came on the fifth day and eventually perfect resolution resulted. The patient was up and about again in a month from the time of taking ill.

Since then several hundred cases of pneumonia, both lobar and bronchial, have been treated and in all cases except the one previously referred to, the patients have made a rapid and perfect recovery.

In several cases of bronchopneumonia, however, thickening of the pleura resulted, but all eventually gave way under proper treatment.

Several interesting cases stand out. Chief among others was my own case. During the winter of 1908 while suffering from an attack of influenza, I was called out to a confinement in the bush. Owing to the roughness of the roads, driving was only possible for eight miles; riding had to be resorted to for the other three in a driving, sleety rain. On returning home I was thoroughly chilled, and though I took several whiskies and toasted myself before a log fire, I could not get warm. At two o'clock in the morning I had a rigor which lasted more or less for several hours; this was accompanied by sharp stabbing pains in the left side; my temperature ran up to 105° F. The respirations were 40, and the pulse was 120. The bottles containing the drugs were brought to me, and I made the mixture up for myself, taking a dose every hour for six doses, then every two hours for another six doses. By six o'clock in the evening the temperature was down to 102.4° F.; the respirations were 32, and the pulse was a little over 100. The pain in the side had been mitigated greatly after the application of a kaolin cataplasm. The nearest doctor was unable to put in his appear-

ance till nine o'clock that evening. By that time I was fairly comfortable and was sweating quietly about the head and neck. The next day my temperature was down to 101° F. There was a profuse rusty sputum and the pain in the side was almost gone. My respirations continued about 30 for the remainder of the week, but my temperature fell to normal by lysis on the fourth day and, though somewhat irregular, between that and 99, it never rose again.

A series of nine cases was attended while acting as *locum tenens* in a country district of Tasmania. These patients were all widely separated by divergent routes and it was impossible to see more than half of them each day. The nursing in most of them was of the crudest, generally devolving upon the wife or mother of the patient, but notwithstanding the difficulties and the want of proper attention, all came through their illnesses successfully.

A very striking cure was recently seen in a case of pneumonia supervening upon fulminating appendicitis. The operation was performed by Dr. George Horne, and the next morning a severe type of pneumonia had developed. Phosphorus was immediately exhibited following the method usually adopted, that is, small doses repeated hourly for six doses, then every two hours for another six doses, then every three hours till such time as the patient is well enough to discontinue. Within twenty-four hours the boy was out of danger from the pneumonia. Notwithstanding the fact that the wound, which was well drained, broke down and fecal discharge was profuse for several days, the boy returned to his home perfectly well three weeks from the day he entered the hospital.

The usual prescription for pneumonia in all its branches is as follows:

R	Tincture phosphori (1-1000).....	3ss-j.
	Liquoris ammonii acetatis.....	5i.
	Spiritus aetheris nitrosi.....	3ss.
	Aque, q. s. ad.....	5vi.

M. et Sig.: Desertspoonful hourly for six doses. At alternate hours for six doses; then every three hours till crisis.

While this prescription is the standby, strychnine injections and spirits are administered when necessary, and kaolin cataplasms, or poultices are applied locally as the case may demand. During convalescence, particularly after bronchopneumonia, the prescription as given for tuberculosis is often administered with the object of fortifying the patient against any after weakness.

## ACUTE AND CHRONIC BRONCHITIS.

The invaluable aid that phosphorus has been both in tuberculosis and pneumonia suggested, quite early, its tentative administration in all cases of bronchitis, acute and chronic, it being added as an ingredient to bronchitic mixtures. In the acute stage it soon brings about a breaking down of the hard useless cough, and as a rule within twenty-four hours the cough becomes soft and the sputum profuse, while the second stage is considerably shortened and patients are well long before they would be if under ordinary treatment. In chronic bronchitis the attack is rapidly relieved and patients who have been more or less subject to this ailment soon attain a state of partial, or actual freedom

from the disease. It seems to act in a direct manner on the lung itself, because these cases, which have been troublesome and stubborn in their reaction to ordinary treatment, show a marked improvement in a very short time.

#### SUMMARY.

Phosphorus has been successfully administered in all classes of cases of lung disease during the past eleven years, and though, in the majority of the cases it has been used in combination with other drugs, occasionally necessity compelled the use of it alone, and it is obvious that the success which has attended all cases where it has been used has been largely, if not altogether, due to its presence in the mixture.

What the precise action of phosphorus is it is impossible to state, but in view of the foregoing it would be interesting to have a physiological research made into its action on healthy and diseased lung tissue. One is convinced, however, that while it has a direct action upon the lung tissue—which perhaps accounts for its rapid effects in acute bronchitis and pneumonia—there is also a probability that the tendency toward tuberculosis is generally, particularly so in the wasting diseases. The patients not only improve as regards the lung but their whole bodily condition shows renewed vigor and capability of standing against the onslaughts of their disease. This suggests the possibility that the tendency toward tuberculosis is brought about by a great lack of phosphorus in the nervous and other tissues of the patients. Whatever or however its action, its results as shown in this paper have been of a very beneficial character and, it is hoped that in thus giving these experiences some of my fellow practitioners will be induced to give this drug a thorough trial in all cases of lung disease, particularly so in tuberculous disease of the lungs.

90 COLLINS STREET.

#### NOTES ON THE RESPONSE OF VEINS TO EPINEPHRIN.

By ALBERT C. CRAWFORD, M. D.,  
AND MARGARET M. TWOMBLY,  
Stanford University, California.

From the Laboratory of Pharmacology, Leland Stanford Junior University.

We have been interested in the study of the physiological explanation of the bluing of the cock's comb by ergot. At first we believed it was due to an active venous dilatation, but as yet have not been able to prove this by oncometric measurement; hence, we decided to see if active venous dilatation could be induced by the action of certain drugs on the isolated veins.

Vasomotor nerves have not been positively proved to be present in veins, but we argued that they were present, and that the vasodilator fibres probably predominated. It has been shown that epinephrin will act on the extreme terminals of vasomotor nerves, and, if these are inhibitory in character, will relax the vessels, while if they are of constrictor quality it will constrict the vessels.

Hence, a response to epinephrin would indicate the presence of vasomotor nerves.

This action can be proved by using strips of bloodvessels by Meyer's method. Rings were taken from the jugular vein of white Leghorn roosters. Contrary to our expectations, the rings taken at about the middle of the neck contracted slowly, but markedly, in an oxygenated Ringer's solution. On the addition of epinephrin (one in 60,000). Those taken near the head gave no response, and a similar negative result was obtained with rings taken from the large veins of the wattles.<sup>1</sup> Therefore, we would argue the absence of a vasomotor supply to the veins of the wattles and cephalic end of the jugular vein and, perhaps this absence of vasoconstrictor fibres in the wattles may be one of the reasons why they blue easily.

At the time this work was begun there was only one report as to the action of epinephrin on mammalian veins, that of Meyer (1). He reported that strips taken from the jugular vein of oxen contracted to some extent.

We found that isolated rings of the femoral, iliac and saphenous veins of dogs also contracted.<sup>2</sup> Recently we have noted that Gunn and Chavasse (2) have been carrying on experiments with the veins of mammals, and have obtained similar results, so that this portion of our report must be considered merely as corroborative of their work.

#### REFERENCES.

1. MEYER, O. B.: Ueber einige Eigenschaften der Gefässmuskulatur. *Zeitschrift für Biologie*, xlviii, p. 380, 1905.
2. GUNN, J. A., and CHAVASSE, F. B.: Action of Adrenalin on Veins. *Proceedings of the Royal Society, Series B*, xxxviii, 1913, p. 102.

#### SO CALLED LATENT SYPHILITICS. OR PARETICS AND TABETICS; A WATER SUGGESTION.

By J. C. MINOR, M. D.,  
Hot Springs, Ark.,

President of the Board of Health; Surgeon General, Arkansas  
National Guard.

A dirty sponge when soaked well with water can be cleaned. Without the soaking there will and must remain in the interstices of the fabric whatever waste and foreign matter may have been introduced. Fill the sponge with water and squeeze it; out comes the foreign matter. Continue this process, and after a time the sponge is clean. The human body is a sponge with millions of interstices that may become receptacles for foreign matter. Some of the tissues of the human body are dense—the brain, for instance, and the nerve structures generally, as well as the joints and tendinous and ligamentous structures. From this class of dense tissues lodgments of foreign matter will be liberated and eliminated with more difficulty than from looser tissues, such as the muscular tissue, from which these lodgments may be delivered to the excretory system by ordinary massage.

I am led to express this idea after reading the editorial in the *Interstate Medical Journal* of May

<sup>1</sup>About eight rings were used from two white Leghorn roosters. Rings from three roosters were used in testing the response of the jugular vein.

<sup>2</sup>About three or four rings were used from five or six dogs, a total of ten or fifteen rings.



13, 1913, in which comment is made on Dr. William W. Graves's paper read before the St. Louis Medical Society, on April 19, 1913. My remarks are in no way to be construed, I would have it understood, as criticising Doctor Graves's splendid report of his investigations, but rather to suggest a practical view, in addition to the scientific view taken by the profession.

"Latent or dormant syphilis of the cord" simply means, it seems to me, that the spirochetes of long years ago have been harbored in the denser tissues and have not been dislodged by the free emunction to be brought about by a systematic inhibition of water to flush effectively the four emunctories—skin, kidneys, bowels, and lungs—while the necessary medication was being used. We cannot flush sewers without water. It makes little difference whether the toxemia be posttyphoid, postsyphilitic, postdiphtheritic, or a toxemia from absorption of toxins from the small or large intestine or from other sources. There are but four channels of emunction, and we cannot get free emunction without water (approximately seventy-five per cent. of the normal weight of the body) in the system.

Many of our patients are below the normal weight. We must remember that food gives weight to the body only when transported to its destination by the requisite amount of water to keep up the body weight. Low weight, then, means an insufficient amount of water in the body. Lack of resistance to disease means that the food taken has not been delivered to its destination with the proper amount of water. Unless there is an adequate circulating medium (the proximate principle, water), it will be difficult to furnish the body with nutriment and much more difficult to rid the same body of a toxemia or the medication used in combating it.

Many of us observe unfavorable and often disastrous sequelæ from the use of the formula familiar to us as "606" or of mercury or of quinine, and many other potent remedies, but these valuable remedies with their havoc in the system, their unknown destruction and known destructive efforts, must be eliminated with the good work they have wrought, or else we have, or may have, deposits of their detritus pent up in the remote and dense structures of important organs of the body. The patient may be burdened with more waste and more dangerous waste than the toxemia itself might have caused.

The gist of this article is to ask for good elimination *pari passu* with the administration of drugs of so potent a character as salvarsan, mercury, serums, etc. Many cases of latent specific neuroses may be thus avoided.

## TYPHOID FEVER FROM UNCOOKED VEGETABLES.

By CHARLES PIXLEY, M.D.,  
Missoula, Montana.

It is not often that typhoid fever can be traced to its source as clearly as in the following unusual cases:

A gardener living near town hauled during the winter season a barrel of drinking water and load of manure on

the same wagon. Three weeks later three of his children were taken down with typhoid fever. This manure came from a locality known to have been visited by several outbreaks of this disease. The next spring two children of a brother in law living out in the mountains and getting their drinking water from a pure spring became sick with typhoid. A couple of weeks previous they had eaten a little uncooked rhubarb, from the garden upon which the typhoid manure had been placed.

In this way any raw vegetables, as celery, radishes, and young onions, can become the means of typhoid infection. In the first family, of course, the contaminated water was the cause, and in the second the manure which had lain all winter and then mixed with the soil and clung to the rhubarb.

## Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXXVI.—How do you treat cholera infantum? (Closed September 15th.)

CXXXVII.—How do you treat threatened abortion? (Closed August 15th.)

CXXXVIII.—How do you treat insomnia? (Answers due not later than September 15th.)

CXXXIX.—How do you treat chancreids? (Answers due not later than October 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXXV was awarded to Dr. Joseph V. Klauder, of Philadelphia, whose article appeared on page 234.

## PRIZE QUESTION CXXXV. THE TREATMENT OF BURNS.

(Continued from page 283.)

Dr. C. E. Montgomery, of Walla Walla, Wash., considers that:

The treatment of this deplorable condition is naturally divided into four stages as follows: 1. Treatment of the shock and pain. 2. Treatment of the wound. 3. Treatment of the toxemia from absorption and lack of elimination. 4. Prevention of deformity by cicatricial contraction.

When a physician is called to see a burned patient he is first confronted with a condition of shock proportionate to the severity and location of the burn. This condition first comes about largely as a result of fright, and then the continued irritation from the pain impulses reaches the brain and overpowers the vasomotor equilibrium. In children this is especially true. The first indication is, of course, to cut off the volley of pain impulses, and the best drug for this is undoubtedly morphine given hypodermically in the appropriate dose, instead of

strychnine, as is so often given for the circulatory disturbance of the shock. If the blood pressure remains low or unevenly distributed after the morphine has been administered, a normal saline injection per rectum, or otherwise, will reestablish it, if at all possible.

Concident with the alleviation of the pain by the opiate, is its relief by a dressing, which should be soothing, feebly antiseptic, and nontoxic.

If the burn covers a considerable surface it is not wise to spend unnecessary time in attempting to thoroughly cleanse the burned area before adding the first soothing dressing, for by so doing the shock is greatly increased and the infection is not imperceptibly lessened. It is well to irrigate the surface rapidly with a feebly alkaline solution such as sodium bicarbonate (one drachm to the pint), or to irrigate with a mild soap solution, which will cleanse and is nontoxic.

For a first dressing, I prefer a bland ointment base, to which may be added such ingredients as the particular burn requires. There is nothing more soothing or grateful to a burn than an antiseptic ointment; the ointment should be heated and rolled bandages placed in the liquid ointment until they are saturated. Then the wound should be rapidly bandaged, and over the ointment bandage a layer of cotton lint or a plain bandage may be applied. A dressing of this kind is easily removed, provided a sufficient amount of ointment has been used. Any good ointment base with picric acid, ichthyol, or even cocaine or extract of opium may be used and the strength regulated according to the amount used and the surface covered.

The next thing that appeals to the physician after the shock is relieved and the wound dressed is to aid elimination by making use of the reciprocating organs. Toxicity must be reduced as far as possible by cleansing the bowel thoroughly, and by stimulating the liver and kidneys as well as the uninjured skin. A brisk saline purge relieves the bowel quickly and also has a nonirritating stimulating effect upon both the liver and kidneys. As soon as the bowels are relieved, normal saline should be repeatedly given per rectum, for it dilutes the toxic substances within the blood and saves the kidneys from its irritant effect. The skin is also stimulated to elimination by a hot saline solution.

The wound must be redressed and cleansed to remove the toxic surface so far as possible. Irrigations with a very dilute picric acid solution are useful for this, after which the dead skin and flesh should be trimmed away and the dressing reapplied, or if the integument is so largely destroyed as to necessitate skin grafting the area is cleansed and the skin grafts applied. Grafting is always advisable provided a granulating surface or one supplied with blood can be had, but it is useless to place skin grafts upon a surface with a layer of burned or devitalized tissue between the graft and the blood supply, for grafts so placed soon decompose and add to the toxicity of the wound.

If granulations become exuberant, slightly astringent irrigations such as a solution of aluminum acetate gives good results, and if there is a tendency to overgranulation a dusting powder of zinc stearate with boric acid, acetanilide, or aristol will

cause the overgrowth to stop and a scab to form. After the scar tissue forms it has a tendency to contract and produce great disfigurement. This can be overcome to some extent by limiting the size of the scar by using all means to promote rapid healing, by skin grafting, and by drawing the unburned edges of the wound as near together as possible, even if small slits have to be made in the skin to allow it to be brought further over the denuded area. The skin can be drawn and held over the surface by adhesive plaster strips properly applied.

Aside from the cicatrix on the skin, there is apt to be deformity of the joints by ankylosis, and this should be prevented by placing the leg or arm in the most desirable position should ankylosis occur, and then prevent the ankylosis if possible by passive motion of the joint at frequent intervals. If the knee is burned the leg is usually flexed, and should firm ankylosis occur the member is of little use to the individual; by forethought on the part of the physician the limb can be kept in an extended position, so it is useful even if ankylosed. This position should be maintained by a Buck's extension instead of by casts or splints, for this will serve the double purpose, pulling the injured joint surfaces apart, and thereby make it more difficult for firm ankylosis to occur.

*Dr. Meyer A. Rabinowitz, of Brooklyn, observes that:*

The treatment is both constitutional and local. Constitutional treatment is of prime importance in order to combat pain and shock. A hypodermic injection of  $\frac{1}{4}$  grain of morphine and 1/100 grain of atropine—adult dose—should be given in all severe cases, and repeated if necessary. The patient should be gently transported to his bed, and the clothing then removed—best by cutting away his clothes where too much handling is otherwise needed. The following stimulants will be found of decided value especially for hypodermic use: Caffeine; sodium salicylate, five grains; strychnine sulphate, grain, 1/30; saturated solution of camphor in sweet almond oil; epinephrin solution (one to 1,000), fifteen to twenty minims, intravenously. If patient can swallow give plenty of fluids by mouth; otherwise give an intravenous injection of saline or administer saline per rectum by Murphy drip method.

Local treatment of the burn is in order when pain and shock have been overcome. If the lesion is at all extensive in size or degree of severity, or in an uncleanly condition, the preliminary cleansing must be done under an anesthetic to be at all thorough or permit of antiseptics. Cleanse the area thoroughly with soap and water, then with gasoline or benzine; then sponge off with sterile cotton pledgets medicated with one to 2,000 bichloride of mercury solution, or one half per cent. compound solution of cresol. Remove all debris and trim off all dead skin, leaving all blisters intact. Then mop surface dry with sterile gauze. In the preliminary cleansing do not render the surface antiseptic with tincture of iodine, as it may cause severe blistering of the skin, and don't puncture the blisters.

The preliminary dressing should consist of sterile gauze soaked in an antiseptic solution kept in place

by a gauze bandage, and the dressing should be moistened without removal from time to time, except in the case of picric acid solutions. The following solutions meet all indications: Normal saline; sodium bicarbonate, one tablespoon to the quart of sterile water; (picric acid, six parts; alcohol, sixty parts; sterile water, up to 1,000 parts). The last solution should not be used in lesions of great extent or depth for fear of toxic results from absorption. With these limitations it is beyond doubt the best available solution in burns. Do not use Carron oil because it is septic, or phenol solution because of its marked toxicity and renal irritation, or Burrow's solution because of the danger of lead poisoning, or ointments except where the skin is intact. The preliminary dressing should not be removed before the third or fourth day without special indication.

Subsequent dressings should be as follows: Remove the preceding dressing; mop surface free of discharge with cotton sponges soaked in a one to 2,000 bichloride solution; open blisters aseptically and evacuate the serum, but leave skin forming the blister; trim off dead pieces of skin; then cover the entire denuded area of skin with narrow strips of rubber tissue, previously soaked for a day in a one to 1,000 bichloride solution, with edges overlapping; this in turn covered with dry sterile gauze and bandage. This dressing should be changed as often as is necessary to keep the surface clear of pus, removing the cotton gauze and pieces of rubber tissue that do not adhere to the skin, and irrigating the surface with saline or boric acid solution. Do not use strong antiseptics or dry bandage next to granulating surface or prevent healthy granulations rapidly forming new skin. Where the granulations are sluggish and epidermization is slow, the use of scarlet R in four per cent. ointment form to the edges of the patch will work wonders. Only if reparation cannot occur in denuded areas should Thiersch grafts be used, and the covered over area of grafts is kept free of bandage and exposed to the atmosphere to get the quickest and best results.

Where the entire area of the burn, either at the very beginning or the very end, consists only of an erythematous area, then only are ointments or powders useful: Boric ointment, bismuth subgallate, or thymol iodide. Should the burn become infected use locally a five per cent. solution of boric acid and measures to combat sepsis. Toxemia due to the burn, nephritis, and Curling's ulcer of the duodenum are to be treated according to indications.

*Dr. Frank Levinson, of Portsmouth, Va., says that:*

In the treatment we must consider the local condition, the constitutional symptoms, and the sequelae.

In first degree burns there is apparently very little destruction of tissue; the chief indication of treatment is the relief of pain. The use of any non-irritating ointment, as boric acid (one drachm to one ounce of petrolatum), or mentholated petrolatum is followed by prompt recovery.

In second degree burns the relief of pain and prevention of shock are the chief indications. Morphine, grain  $\frac{1}{4}$ : strychnine, grain  $\frac{1}{30}$ ; should be given by hypodermic. The use of atropine will

check the secretion, which is a contraindication in burns, as we want to keep all channels of elimination wide open.

There are various methods of treating the local condition: The application of ointments or dressings, soaked with oily substances, of which Carron oil is the most frequently used, which protect the burned surface from exposure to the air and from change in temperature; the application of mild antiseptic solutions on gauze, which must be kept constantly wet, or may be allowed to dry, as aluminum acetate solutions and picric acid solution; the application of various dusting powders, leaving the burned part exposed to air in order to become dry and favor crust formation.

In second degree burns the application of dressings of sodium bicarbonate in saturated solution, or in a weak solution (five grains to the ounce of water) is useful. Aluminum acetate solution (twenty grains to the ounce of water) poured on gauze and placed on the wound and kept constantly wet with normal salt solution, is frequently used.

Picric acid, one per cent. aqueous solution, I have found to give me best service. This application (picric acid, fifteen grains; alcohol, two drachms; water, six ounces), on gauze, to the wound, should not be touched for three to four days. After this a second application of the same solution should be left on the part for a week or ten days. This dressing makes the patient feel very comfortable and lessens the pain, although at times it may increase the pain. A one per cent. solution of picric acid is safe in first and second degree burns. The chief dangers are in children, and the application of the solution to large surfaces; absorption of picric acid may take place. If absorption and poisoning is taking place the urine is dark and cloudy; albuminuria, pigmented and yellow skin, some diarrhea, and some elevation of temperature, are present.

The application of Carron oil has the great disadvantage of not being aseptic, and besides being a filthy dressing, pus formation frequently occurs.

These disadvantages to a great extent can be eliminated by using a modified Carron oil, consisting of

R	Olei eucalypti	.....	5iss;
	Olei olivæ	.....	5xiv;
	Liquor calcis, q. s. ad	.....	℥i.

M.

Phenol, from one half to one quarter grain, may be added to each ounce of this prescription, if the burn is very painful.

Of the ointments ichthyol, fifty per cent., is one of the best. I usually use the following with good results:

R	Ichthyolis	.....	5i;
	Thymolis iodidi	.....	gr. xxx;
	Adeps. lam.	.....	aa q. s. ad 5ii.
	Petrolati	.....	

M.

In third degree burns the treatment is practically the same as in those of the second degree. The use of picric acid solutions is very good, but requires watching of the patient for the development of poisoning.

If the area is very large apply a warm saturated solution of sodium bicarbonate or aluminum acetate solution, kept constantly moist. If the dressing



becomes saturated with pus and serum, it should be changed. Sloughing tissues should be cut away when they become loose.

If the burnt area is very painful, I usually irrigate the wound as thoroughly as possible with normal salt solution or a saturated boric acid solution, and then, when dried, apply a dusting powder.

After the acute inflammation has subsided, and the wound is clean, if it heals very slowly a dilute solution of silver nitrate is good to stimulate the granulating surface.

I have found scarlet red ointment, used cautiously, of particular value. Balsam of Peru, one drachm to one ounce of scarlet red (five to ten per cent.) ointment has given me good results in slowly granulating ulcerations. The ointment is applied very thinly at the margins of the granulating walls. The surrounding healthy skin should be protected by the application of some bland ointment, such as boric acid or zinc oxide. This dressing should be left on the surface for twenty-four to thirty-six hours only, and then the whole surface should have an application of some bland ointment for two days. The scarlet red should then be reapplied, as stated above. This ointment frequently causes a dermatitis, and therefore should be used with care on the tissues which are already damaged. Where the destruction of tissue is great, early skin grafting by Thiersch's method should be resorted to, as this will lessen the deformity to a great extent, and the surfaces will heal in a shorter time.

**Fourth Degree Burns**—When great charring is present amputation of the part is required.

**General Management**—In second and third degree burns the great pain and shock requires first attention. If large surfaces are burned remove the clothing with care, cutting it away if necessary, give morphine hypodermatically, and also stimulate the patient. Opium or morphine should be given at bedtime, otherwise the patient will not sleep on account of pain. Place the patient in a warm bath, particularly if chill is present. To the water some sodium bicarbonate may be added; apply hot water bottles to the extremities and keep the patient warm with light blankets, to prevent the loss of heat.

The diet should consist of easily digestible and concentrated foods. Milk should be given in large quantities. It is of great importance to keep the skin clean, so that it will be able to eliminate freely and not throw the bulk of the work on the kidneys. Water should be taken in very large quantities, so that the toxins will be eliminated more freely, and more diluted, and will not be so destructive to the kidney structure. The bowels should be kept open, two or three watery stools a day; this will also cause increased elimination of toxins. Magnesium sulphate is very good for this purpose. Large doses of potassium citrate, or citric acid, should be given; a solution of thirty to forty grains of citrate to two drachms of ammonium acetate every three to four hours, not only causes a lowering of temperature in the reactionary fever, but will cause increased action of the skin and of the kidneys, and therefore an increased elimination of the toxins. As there is a great tendency toward the clotting of the blood, and

of damage to various structures and organs, due to the clots, citric acid and the citrates are given to lessen the coagulability of blood and to prevent this threatened damage to the organic structures. The brain congestion which frequently follows burns should be treated by rest and quiet in bed, with head and shoulders elevated, hot foot baths, a sinapism to the chest and the calves, and free purgation. The application of cold to the head and a hot water bottle to the feet is often beneficial. The diet should be liquid and no alcohol should be given.

Ulceration of the intestines near the papilla of Vater (Curling's ulcer of the duodenum) occurs in large surface burns, and should be treated as any other ulcer in that region.

**Deformity**—In cases where two contiguous surfaces are burned they should be separated with gauze, as in cases of burns of fingers, etc., to prevent the webbing together of the two surfaces. Deformity is prevented to a great extent by the early use of skin grafting and the early application of splints—not when the contraction and deformity have already occurred.

## Therapeutical Notes.

**Treatment of Pulmonary Embolism.**—Oppenheim, in *Progrès médical* for February 15, 1913, after referring to the importance of prophylaxis with regard to lung embolism, states that where embolism has actually taken place the following symptomatic measures will alone prove of value:

To overcome dyspnea, and the tendency to syncope injections of camphor and ether should be given every hour:

R Camphoræ, ..... 5v (20 grammes);  
Aetheris, ..... 3viss (125 grammes);  
Olei olivæ sterilisati, q. s. ad..... 3iiss (100 c. c.).  
M. Sig.: Give hourly injections of 30 minims (2 c. c.).

One or two litres of oxygen should simultaneously be injected under the skin, and their effect kept up with repeated oxygen inhalations.

Next, dry cups should be applied to the chest, and if hemoptysis is not marked, from four to six of the areas may be scarified on the side that is subjectively painful. Venesection is indicated only where there are evidences of pulmonary edema. Where pain is not relieved by the cupping an injection of morphine should be given, to be immediately followed by one of ether or sparteine.

Cough, which is generally marked, should be assiduously combated, as it increases dyspnea and favours hemoptysis:

R Extracti opii, ..... gr. ½ (0.01 gramme);  
Extracti hyoscyami, .....  
Extracti tramoni, ..... 1.ãã gr. 1.12 (0.005 gramme).

Fiat pilula No. 1.

Sig.: One pill every two or three hours.

To prevent, in so far as is possible, suppuration or gangrenous degeneration of the infarct, a tablespoonful of the following mixture may be placed in a vessel containing water that is kept boiling:

R Olei thymi, .....  
Olei eucalypti, .....  
Olei terebinthinæ, ..... 3iiss (10 grammes);  
Tinctura benzoini, ..... 3i (30 grammes);  
Alcoholis, q. s. ad..... 3viii (250 grammes).  
Misce.

Another available procedure is to pass the oxygen that is being inhaled by the patient through the following combination, contained in a flask:

R	Thymolis, . . . . .	gr. xlv (3 grammes);
	Eucalyptolis, . . . . .	℥lxxv (5 grammes);
	Phenolis, . . . . .	gr. lxxv (5 grammes);
	Alcoholi absoluti, . . . . .	℥iv (12½ grammes);
	Aque, q. s. ad. . . . .	Oij (1000 grammes).

Misc.

In exceptional cases surgical intervention—Trendelenburg's operation—can be undertaken.

**Uses of Ovarian Extract.**—S. Wyllis Bandler, in the *Archives of Diagnosis* for January, 1913, states that in certain forms of dysmenorrhea, which he ascribes to a mild degree of hyperthyroidism, ovarian extract is of great value. He has also found it useful in lactation, atrophy of the uterus, and in the flashes of the climacteric period, natural or artificial, especially if administration is begun early. In anemias, including genuine chlorosis, it also served well. Combinations of iron, arsenic, and ovarian extract are particularly useful in such cases; wherever iron is indicated the author gives ovarian extract with it. In amenorrhea, relative or absolute, he has found the ovarian preparations the best remedy. They produce no untoward results and the main contraindication consists of profuse bleeding. Bandler often combines ovarian extract with thyroid, especially to promote metabolism and encourage oxidation. The annoying symptoms sometimes produced by thyroid are often greatly diminished by the addition of the ovarian extract.

**Treatment of Vernal Conjunctivitis.**—Aaron Brav, in the *Therapeutic Gazette*, April, 1913, states that the treatment of this affection is essentially palliative. At the first visit he prescribes a mild astringent:

R	Zinci sulphatis, . . . . .	gr. i (0.06 gramme);
	Acidi borici, . . . . .	℥ss (2 grammes);
	Aque menthae piperita, . . . . .	℥i (4 grammes);
	Aque destillata, q. s. ad. . . . .	℥iii (100 grammes).

M. Sig.: Bathe the eyes thrice daily.

In the intervals the eyes should be bathed with ice cold water, to relieve the burning and itching. One drop of a dilute solution of an organic silver preparation may in addition be instilled three times daily.

The best office application is a twenty-five per cent. solution of boroglyceride. This is used every other day at first, and the interval then increased as the patient improves.

After a week or two of this treatment, the following lotion is employed:

R	Acidi borici, . . . . .	℥ss (2 grammes);
	Epinephrini (1:1000 solution), . . . . .	℥iii (8 grammes);
	Holocaine, . . . . .	gr. v (0.3 gramme);
	Aque camphoræ, . . . . .	℥ss (15 grammes);
	Aque destillata, q. s. ad. . . . .	℥iii (100 grammes).

Fiat solutio. Filtra.

The author also prescribes:

R	Glyceryli boroglycerini, . . . . .	℥xxiv (1.5 grammes);
	Aque destillata, q. s. ad. . . . .	℥i (30 grammes).

M. Sig.: One drop in each eye three times a day.

This preparation causes burning, but a soothing effect follows, and itching is entirely relieved.

To prevent adhesion of the lids, some hydrated wool fat or petrolatum, simple or medicated, should be applied at night time. For photophobia smoked glasses should be advised.

Surgical interference is probably only warranted where there are present large papules with a pedicle; these had best be removed with curved scissors.

To prevent recurrences it is best to continue treatment during the winter season. The patient's general condition must be looked after, as some constitutional dyscrasia is an important predisposing factor. For children the following tonic is useful:

R	Syrupi ferri iodidi, . . . . .	℥ss (15 grammes);
	Liquoris potassii arsenitis, . . . . .	℥i-ii (4-8 grammes);
	Syrupi hypophosphitum compositi, . . . . .	℥iii (60 grammes);

Essentia pepsini (N. F.), q. s. ad, . . . . .  
℥iii (100 grammes).

M. Sig.: One teaspoonful three times daily.

**Treatment of Gonococcal Urethritis.**—S. H. Likes and H. Schoenrich, in the *Urologic and Cutaneous Review* for February, 1913, refer to the fact that while anterior gonorrhea may at times run an obstinate course, it is by no means as troublesome as the complications likely to occur when the posterior urethra has become involved. In anterior cases it should be the aim to avoid the spread of the infection to the posterior urethra.

To this end the authors have devised a simple apparatus, consisting of a moveable upright rod or prop and a platform with an horizontal extension provided with notches, the latter regulating the height of the prop to suit patients of different stature. The patient stands on the platform, with his back turned to the prop and notched extension, and places the prop, which is provided with a V shaped padded crotch above, in such a position that upward pressure is made upon the perineum just anterior to the anus, thus occluding the membranous portion of the urethra and shutting off communication with the posterior canal. With the fingers closing the meatus, any injection fluid introduced is thus in a closed tube and can easily be retained for an indefinite period. The anterior urethra will be distended and penetration of the fluid into the follicles and glands favored, thus affording it a real opportunity to destroy the deep lying gonococci. The authors believe after many years' experience with this device, that it hastens the cure of anterior urethritis and thus in many cases prevents extension of the process to the posterior urethra.

**Relief of Pain in Tuberculous Laryngitis.**—Boulaï, in *Journal de médecine de Paris*, April 19, 1913, is credited with the following formulæ for sprays to be used in relieving dysphagia in laryngeal tuberculosis:

		I.
R	Phenolis, . . . . .	{ .ãã gr. iv (0.25 gramme); Glycerini, . . . . . ℥ss (50 grammes); Aque destillatæ, . . . . . ℥viiss (225 grammes).
	Cocainæ hydrochloridi, . . . . .	

M. ft. solutio.

II.

R	Morphinæ hydrochloridi, . . . . .	gr. iss (0.1 gramme);
	Cocainæ hydrochloridi, . . . . .	gr. iv (0.25 gramme);
	Antipyrinæ, . . . . .	℥i (4 grammes);
	Aque laurocerasi, . . . . .	℥ss (50 grammes);
	Aque destillata, . . . . .	℥iii (100 grammes).

M. ft. solutio.

As an insufflation, the following may be used:

R	Morphinæ hydrochloridi, . . . . .	gr. iii (0.2 gramme);
	Acaciæ, . . . . .	gr. xv (1 gramme);
	Sachari lactis, . . . . .	℥ss (2 grammes).

M. ft. pulvis.

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DO THE KIDNEYS PRODUCE AN IN-  
TERNAL SECRETION?

Gradually, as precise methods of investigation are contributing reliable data, the many internal secretions which were formerly thought to exist as separate entities are now being reduced in number. Indeed, if the glands known positively to produce such a secretion were enumerated, the list would be surprisingly small. Among those organs which are steadily losing ground in this connection are the kidneys.

The belief that the kidneys are the source of an internal secretion dates back to 1869, when Brown-Séquard showed that injections of renal extract postponed the development of uremia in nephrectomized animals and prolonged life. Lépine found in addition that a filtrate of a watery extract of kidney, caused a rise of temperature and dyspnea. Moreover, Oliver and Schäfer ascertained that a cold water extract of fresh kidney, when injected intravenously in rabbits, soon produced a more or less marked rise of the blood pressure. These various observations have been amply confirmed.

In the light of recent data, however, all these phenomena can as readily be attributed to physiological substances which normally form part of the

renal tissues and fluids as to any supposititious internal secretion. As is well known, hypernephromata of the kidney are developed from adrenal rests in the renal substance, while the adrenal active principle is now known to be found in the blood throughout the entire organism, including, therefore, that of the kidneys. That an extract of the latter should contain the adrenal principle is, therefore, self evident. This fact being borne in mind, all the phenomena attributed to the so called renal internal secretion are found to coincide precisely with those awakened by the adrenal product. The elevated blood pressure witnessed is a familiar effect of the latter; the rise of temperature was not only noted as a concomitant effect by Reichert, Lépine, and Morel, but Fuchs and Roth found recently that adrenalin increased markedly the intake of oxygen and the output of carbon dioxide. As to the dyspnea and the ensuing arrest of respiration, obviously due to toxic spasm of the respiratory muscles, it has also been found to be a characteristic effect of adrenal extracts by Oliver and Schäfer, and more recently by Langlois and Garrelon. Even Brown-Séquard's observation that renal extracts postponed the development of uremia in nephrectomized animals and prolonged life falls in presence of the fact, shown long ago by Langlois and developed by others since, that adrenal extracts are endowed with antitoxic activity—an essential feature in combating uremia, itself due to retained poisons. Finally, Lewandowsky has shown that the effects ascribed to a supposed renal secretion could be obtained with venous blood derived from any other structure of the body.

On the whole, the evidence is decidedly against the existence of a renal internal secretion, and it is hoped that the true status of other organs credited with such will soon be established. Then will it be possible to realize how truly important to the organism at large are the *bona fide* internal secretions.

## THE PROLONGATION OF LIFE.

Up to within recent times the search for the longer life has been merely a groping in the dark, and following no definite course. It was largely a search by individuals from most selfish motives and without even an attempt at concert, and it remained for the science of the advanced modern type to place this quest in the category of the material, to be sure, but of value to the community at large as well as to the individual. Civilization has for its greatest achievement, and almost entirely through the medical sciences, the conservation and the prolongation of life. The goal is to breed a race of longest life, of most efficiency, and with the least



possible waste. During the ages when constant warfare and its mate, the ever present epidemic, wiped out whole peoples, life had no value other than as a subject for destruction. Then the average span of life was about twelve years. But with the dawn of enlightenment, promiscuous warfare is gradually ceasing, and the advances in the science of life have progressed so rapidly that we have been able to reach the present high average length of life.

And now, even after these adverse conditions have been overcome, the death rate is yet too high. A high infant mortality still confronts us, though even here there is a large improvement upon previous conditions. Typhoid fever, cancer, and the degenerative diseases form a very large proportion of the death rate. In recent years, however, typhoid fever has been reduced about forty per cent. On the other hand, cancer has risen over 100 per cent., and the public and the profession are now fairly alive to the danger, and are enthusiastically taking up the campaign of education along the lines of prevention.

Industrial diseases form a very large drain on life. In recent years the growth of the industries has been so rapid that the development of safety provisions is unable to keep pace with them. As fast as possible, however, remedial measures are shaping themselves and results are already manifesting themselves in the remarkable decrease in the death and disease incidence in these industries. The health authorities have taken hold, and they have made industrial disease reportable, and as a result legislative enactments are meeting the varying demands as they arise.

Child labor is receiving its quota of attention. Its deleterious influence on the child's health and length of life is under scientific investigation. Many States have already enacted prohibitive legislation, and only within a short time a most radical suggestion has been offered by one of our law makers—Senator Beveridge of Indiana—namely, to have the United States prohibit the transportation of all goods made by child labor in interstate and foreign commerce, on the ground that such articles are not "legitimate articles of commerce"—and thus to wipe out this practice entirely. To offset this, however, David Heron found that in the Yorkshire, England, woolen mills before legislation prohibiting child labor was enacted, the families in that section were large and well kept, because children were assets, while now the size of the family is kept down, and the children neglected, because the mothers are compelled to take their places in the factories. Investigations conducted along the same lines in our Southern States, where child labor is

common, seem to point, though not yet with any degree of certainty, in the same direction. This is a problem requiring the most searching investigation before any conclusions can be drawn.

Intemperate living in all its phases, and the strenuous life, are responsible for a large part of the modern abbreviation of life. Strenuous living is the result largely of a desire, in a short space of time, to accumulate enough to last throughout a long period of contemplated ease. The first part of this endeavor usually succeeds, but the last part of it fails of accomplishment in the greatest number of instances because of the lack of any life to live, after the strenuous period. Temperance in living must be preached.

The work of conserving and prolonging the life is now fairly launched, yet it still lacks the active support of the public at large; and it is here that physicians can and must help by their propaganda—for it seems that the physician's sphere is slowly narrowing itself down to the field of preventive medicine. The value of such work can be brought home to the public only by demonstrating the money value of each life saved to the community and thus to each individual. Prof. Irving Fisher, of Yale, estimates each life at a money value of \$1,700. Civilization means materialization—but in a broader sense.

Little by little life has been prolonged, disease is being overcome, and life is worth living. We have now reached the average grand old age of fifty. Who knows what is to be the limit?

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#### THE MEDICAL ASPECT OF ABDOMINAL PTOSIS.

Of late, and especially during the past two years, the surgery of abdominal ptosis and the various conditions more or less frequently associated with it have attracted widespread attention. This is largely due to the fact that careful researches by numerous investigators have added distinctly to our knowledge, and now terms unknown before, such as "Jackson's membrane" and "Lane's kink," have become familiar as household words in the literature of the subject. Especially has the x ray, with the perfected technic at present available, been employed in abdominal examinations, and this has been of the greatest possible assistance in correcting former errors and elucidating many obscure conditions. Hence, there has resulted a period of the greatest activity among our surgeons, and what may really be designated as a new era in this department of their art has been inaugurated.

In the enthusiasm for operative procedure it

should not, however, be forgotten that the vast majority of the affections in question properly belong to the domain of medicine, rather than to that of surgery; the judicious use of suitable mechanical support, as well as exercises and other physical methods, being, of course, included in the medical treatment. It is not to be denied, naturally, that surgery also has a legitimate field here—that in a certain proportion of instances operative interference is absolutely essential; but it is to be feared that, by many, quite too much stress is at present laid upon the surgical aspect of the matter. At a recent meeting of the Medical Association of the Greater City of New York, in which there was a somewhat extensive discussion upon some of the relations and results of enteroptosis, one of the speakers, himself an abdominal surgeon of large experience, entered a protest against what he considered the unjustifiably surgical trend of the evening's proceedings. He expressed this opinion in most emphatic language, stating that he did not believe that one case in a thousand, or even as many as that, called for operative procedure. He was convinced that the very great majority of these patients could be satisfactorily treated without operation, and especially by means of mechanical support; though it was, of course, essential that such support should be of proper character and intelligently applied. He said he could not but think, however, that the present craze, as he termed it, for surgical interference was only a temporary matter; one which would run its course and pass away, like the promiscuous fixation of prolapsed kidneys which was in vogue a little while ago. It is but just to many of our ablest surgeons to say that (except, of course, in cases of special emergency) they do not advise surgical treatment until medical measures, after a systematic and exhaustive trial, have failed to afford relief.

The medical aspect of abdominal ptosis is well presented by Dr. N. W. Jones, of Portland, Oregon, in the *Interstate Medical Journal* for July. As Doctor Jones says, many different factors enter into the question of the response and outcome of enteroptotic patients to treatment; but when the asthenic child is more universally recognized, and its nutritional and physical needs properly attended to, there will be fewer adults who go through life presenting the varied symptoms of chronic intestinal stasis. He very rightly states that the success of treating general ptosis depends primarily upon the correction of this stasis. Consequently, it is of great importance to differentiate between those cases which can be successfully treated medically, those in which there are local forms of ptosis with irrelievable intestinal stasis, and which are distinctly surgical, and those

cases of the latter character which present distinct complications of a medical character (such as secretory disturbances of the stomach) and after operation must be treated medically with as much care as the cases of the first group. A complete restoration of the prolapsed viscera may not be required in order to obtain good functional results; without this, the patient, under proper conditions, can often be made entirely well and strong. The success of the medical treatment of asthenic patients, and also many of those treated surgically, depends not only upon the relief of the stasis, but upon the patient's active and persistent cooperation; his willingness to learn the principles upon which his cure rests, and his perseverance with it long enough to insure the formation of body habit.

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### VACCINE THERAPY.

There is at present much discussion concerning the theory and the practice of vaccine therapy, or more correctly stated, bacterination. Much is said concerning stock and autogenous vaccines, and such questions as these are asked: Which shall be used? Can any benefit result from the stock variety? Shall the action of vaccines be controlled by the opsonic index, or, having determined that positive and negative phases exist, shall we trust entirely to clinical observation?

There can be no doubt that in many instances the introduction of bacterins has been followed by most favorable results. But now the question arises: Are the manifestations of infections due to the activities of a single organism or are they the result of the interaction of several bacteria? This seems to be the crux of the present controversy. There are those who contend that the use of a mixed bacterin, one composed of the dead bodies of a number of organisms, is equivalent to using a "shotgun" prescription in the hope that some one of the ingredients may hit the mark. The analogy does not seem to hold. We do know that there are many conditions in which the symptoms are the result of combined activities. Then, too, it is a very common occurrence to obtain several varieties of microorganisms when cultures are taken from infectious conditions. Shall autogenous vaccines of each be made and tried separately, waiting several weeks to determine the action or lack of action, or shall minimum doses of all be given at once, with the hope of getting more prompt reactions? If we wait for the individual reactions the patient will have had a splendid opportunity to become much worse. Inasmuch as there do exist mixed infections, it would seem that there is a place for mixed vaccines.

## News Items.

**Changes of Address.**—Dr. M. S. Sakels, to 35 East Fifty-first Street, New York, N. Y.

**Pellagra in Los Angeles.**—Four cases of pellagra were reported in Los Angeles by Senior Surgeon Brooks, of the United States Public Health Service, during the week ending August 2, 1913.

**Sioux Valley Medical Association.**—At the recent annual meeting of this association, the following officers were elected: President, Dr. E. D. Putnam, of Sioux Falls, S. Dak.; first vice-president, Dr. Robert Evans, of Fort Dodge, Iowa; second vice-president, Dr. J. M. O'Connell, of Ponca, Neb.; treasurer, Dr. W. R. Brock, of Sheldon, Iowa.

**American Radium.**—It is announced that a company has been organized in Pittsburgh, Pa., for the purpose of developing the radium output in America. In our issue for June 21, 1913, we published an editorial article on the deposits of radium in the United States, and refer our readers to another item regarding American radium, which appears in this issue in our department of Miscellaneous.

**International Association of Orthopedic Surgery Planned.**—At the meetings of the orthopedic section of the Seventeenth International Medical Congress, a committee was appointed for the establishment of an international association to further the progress of orthopedic surgery and to arrange for international meetings. Dr. Robert W. Lovett, of Boston, and D. Clarence Leslie Starr, of Toronto, were appointed members of the committee.

**New Contagious Disease Hospital to be Erected in Evanston, Ill.**—Announcement is made that the \$100,000 endowment fund for the proposed North Shore Contagious Disease Hospital has been raised, and the Evanston Hospital Association can now take advantage of the offer made by James A. Patten some time ago, to build a hospital for contagious diseases, to cost \$100,000, provided a like sum was raised by the city for an endowment fund. Plans have been prepared for the new building, and the work of construction will be started at once.

**Kentucky State Medical Association.**—Arrangements are completed for the annual meeting of this association, which will be held in Bowling Green on Tuesday, Wednesday, and Thursday, September 2d, 3d, and 4th, under the presidency of Dr. David O. Hancock, of Henderson. Special efforts are being made to make this meeting one of the most successful ever held by the association. In addition to an excellent scientific programme, an elaborate programme of entertainments has been prepared by the Local Committee on Arrangements for the visiting physicians and their friends. Dr. Arthur T. McCormack, of Bowling Green, is secretary of the association.

**St. John's Guild Sea Side Hospital to be Kept Open All the Year Round.**—The board of trustees of St. John's Guild has decided to keep the Sea Side Hospital at New Dorp, Staten Island, open all the year round. Heretofore the work of caring for sick children of the poor has been confined to the summer months, but the new buildings and equipment of the institution now make it possible also to care for convalescent mothers, who have been discharged from city hospitals. The hospital equipment consists of twenty buildings, including eight large wards and four solariums, an annex, the Lewis Memorial Cottage, an isolation building, and quarters for nurses and servants. This season 1,624 patients have been admitted to the hospital, with an average stay of 9.7 days.

**The International Medical Congress.**—The Seventeenth International Medical Congress was brought to a close in London on Tuesday, August 12th, and the delegates from all parts of the world who attended regarded it as one of the most successful ever held. The three great prizes of the congress were awarded as follows: The Moscow Prize, to Professor Charles Richet, of Paris, for work on anaphylaxis; the Paris Prize, to Professor von Wassermann, for work on experimental therapy and immunity; the Hungary Prize, to Professor A. E. Wright, of London, for work on anaphylaxis. Professor Friedrich von Müller, of Munich, was elected president of the Permanent Committee of the congress and also president of the Eighteenth International Congress, which will be held in Munich in 1917.

**Changes in the Medical Department of Tulane University.**—The medical department of Tulane University, hereafter to be called the Tulane College of Medicine, has been divided into four separate schools, with a dean for each, as follows: The School of Medicine and Pharmacy, Dr. Isadore Dyer, dean; the Post Graduate School, Dr. Charles Chassagnac, dean; the School of Hygiene and Tropical Medicine, Dr. Creighton Wellman, dean, and the School of Dentistry, Dr. Andrew Friedrichs, dean. The following appointments have been made on the staff of the Post Graduate School: Dr. Henry Dickson Bruns, emeritus professor of ophthalmology, in the Post Graduate School, has been transferred to the active list; Dr. Creighton Wellman, dean of the School of Hygiene and Tropical Medicine, has been appointed professor of tropical diseases and preventive medicine; Dr. J. T. Halsey, elected professor of clinical therapeutics; Dr. C. C. Bass, elected professor of clinical microscopy; Dr. W. W. Butterworth, elected professor of pediatrics, and Dr. George S. Bel, professor of internal medicine.

**Cerebrospinal Meningitis in New York City during 1912.**—There has been but little cerebrospinal meningitis in New York city during the past two years. During 1912, 268 cases were reported, with a case fatality of 72 per cent, and a death rate in 10,000 of population of 0.36. The corresponding figures for 1911 were 314 cases, case fatality 74 per cent, and death rate 0.47. Outbreaks of this disease are not very frequent, and show remarkable periodicity, occurring about once in every ten years. Thus the last four outbreaks occurred in 1872, 1881, 1893, and 1904, the death rate for those years being 87, 4, 27, and 5.4 in 10,000 of population, respectively. All of these years were characterized by hard winters with much snow. In the year following each outbreak, the death rate was still above the average but was very low during the remaining intervening years. From 1872 until 1904, the interim death rate averaged 1.5 in 10,000 of population. Since the introduction of lumbar puncture, bacteriological diagnosis, and serum treatment the interim average has fallen below 1 in 10,000. This fall has been due as much to the exclusion of cases resulting from tuberculosis and other causes, as to the improvement in the result of treatment. These periodical outbreaks are partly due to the presence in the community of an accumulated number of susceptible individuals, just as occurs in the case of infantile paralysis. Judging by the past, a sharp increase in the prevalence of cerebrospinal meningitis during the next two or three years is to be expected, especially if meteorological conditions favor its development.

**Personal.**—Dr. Harvey Cushing, professor of clinical surgery, Harvard Medical School, Dr. William J. Mayo, of Rochester, Minn., Dr. John B. Murphy, of Chicago, and Dr. George W. Crile, professor of surgery in the Western Reserve University, Cleveland, have been elected honorary fellows of the Royal College of Surgeons, London.

Dr. John A. Ferrell, has been appointed general manager of the hookworm research work of the Rockefeller Institute, with headquarters in Washington, D. C.

Dr. Arthur D. Hirschfelder, associate professor of medicine in the Johns Hopkins Medical School, has been appointed professor of pharmacy and director of the pharmaceutical department of the University of Minnesota.

Dr. Leopold Schumacher, for two years first assistant on the medical staff of the University of Wisconsin, and in charge of the students' health, has resigned his position and gone to Chattanooga, Tenn., where he will engage in private practice.

Dr. Milton J. Rosenau, professor of preventive medicine and hygiene in the Harvard Medical School, has been awarded the *American Medicine* gold medal for 1913, for the most notable service to humanity during the past twelve months.

Dr. J. C. Price, of Scranton, Pa., has been appointed chief medical inspector in the newly organized Department of Labor and Industry. Dr. W. H. Blakesley, of Philadelphia, has been appointed temporarily to the work of medical inspection, pending further organization of the department.

Dr. M. C. Stone, of Kansas City, Mo., has resigned as State bacteriologist.

Dr. Anna Dwyer, of Chicago, has been appointed a member of the Illinois State Charities Commission, to fill the vacancy caused by the recent resignation of Dr. John F. McAnnally, of Carbondale.



## Pith of Progressive Literature.

LYON MÉDICAL

## CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE

**A Contribution to the Conservative Surgery of the Heart.**—Max von Arx reports the case of a man of thirty who received a stab wound of the right ventricle. The man had run about a quarter of a mile after receiving the injury before he lost consciousness from loss of blood. An hour later the pulse was only just perceptible, and the apex beat could hardly be felt. Tenderness over the region of the stomach and dullness on percussion to the left suggested a wound of the diaphragm and liver, but a thorough exploratory laparotomy failed to reveal any wound of the abdomen. The pleura was laid bare and found uninjured, and then the pericardium was exposed by the resection of the fifth and sixth costal cartilages, following the course of the knife. As soon as the stab wound in the pericardium was enlarged a large amount of thick, black blood escaped and the pulse grew stronger at once. A wound was seen in the right ventricle far to the right and under the sternum but, as the respiration was not good, no attempt was made to suture it. The pericardium was washed out with saline, a strip of gauze laid over the wound in the heart, the wounds in the pericardium and thorax were loosely tamponed and the skin sutured, leaving a small aperture. An infusion of saline was then given, and for a while the condition of the patient seemed to be desperate, but then he rallied. At the end of thirty-six hours the dressings were changed, after which the patient made a good recovery, the temperature never rising above normal, and the pulse ranging between 80 and 88. A year later it was found that the heart missed the normal counter pressure of the bony wall of the chest and had become dilated in consequence, so that the apex beat was slightly displaced. Such a consequence might have been avoided by an osteoplastic operation, if the condition of the patient had been such as to justify an attempt of this nature. This case shows that it is not the hemorrhage alone that is dangerous in a stab wound of the heart, but that the chief danger is the compression of the heart by the blood poured forth into the pericardium. When this mechanical factor was obviated the direct danger to life was removed. The case also emphasizes the need of drainage of the pericardium, the same as of any other endothelial cavity, like the pleura or the peritoneum.

## ZENTRALBLATT FÜR CHIRURGIE

July 28, 1912

**The Carrying of Germs into the Tissues from the Skin by the Knife.**—Alfred Steinegger states as an undoubted fact that a perfect absence of germs from the skin can be attained by no known method of disinfection, and that therefore it is to be expected that germs will be carried into the tissues by the knife. These germs he finds to be chiefly white staphylococci, with some lymphocytes and sarcinae. He thinks it a good plan to change knives as soon as the incision has been made through the skin.

**Verrucose Tuberculous Lesions of the Foot.**—Nicolas, Moutot, and Gravier report the case of a child in whom, a short time after a slight wound of the left foot had been sustained, there appeared locally lesions to which the authors applied the term "vegetative, sclerotic lupus," followed by enlargement of the crural and inguinal lymphatic glands. A ganglionic mass could also be felt deep in the iliac fossa, clinically tuberculous in nature. No signs of tuberculosis elsewhere could be found, and the condition was clearly a sequel to exogenous tuberculous infection of the foot. The authors protest against the benign prognosis usually attributed to verrucose tuberculosis, and advise complete and free excision of the area primarily involved.

## PRESSE MÉDICALE.

July 12, 1913

**Electrolytic Treatment of Rhinophyma.**—H. Bordier reports excellent results in rhinophyma with electrolysis. Three parallel platinoiridium needles are introduced into one of the masses of redundant tissue—sebaceous adenomata with pachydermia—to be removed, the central needle being connected with the positive pole and the other two with the negative. In sensitive patients the region may be anesthetized with 0.5 c. c. of novocaine and epinephrin solution. The current is then turned on and progressively increased in strength until, if possible, forty milliamperes are reached. It should be continued until the tissues between the needles show a grayish color. The current is then gradually diminished and stopped, the needles withdrawn, and the foam produced carefully wiped off with cotton dipped in hydrogen dioxide or a mercury oxycyanide (one in 2,000) solution. The destroyed tissue blackens, shrivels, and becomes detached about two weeks after the sitting. Two lobes of the rhinophyma can be removed at one séance. Where the growth is large and hangs in front of the nostrils the dependent mass is ablated at one sitting by passing the needles through its base twice, at right angles. Antiseptic local baths should be employed during the period of repair. Small elevations remaining after the electrolytic treatment are readily removed by diathermy, a fine metallic electrode being used. The nasal surface is then practically smooth, the cicatricial tissue flexible, and the color normal.

August 16, 1912

**Differences of Rapidity of Gastric Evacuation as Indicated by Different Methods of Examination.**—A. Martinet and L. Meunier state that they have been repeatedly struck by the contradictory information obtained from x ray examination, clinical observation, and other methods of determining the rapidity of stomach evacuation. Thus in a patient subject to gastralgie attacks at long intervals, a bismuth meal was seen with the x rays to pass immediately into the intestine, indicating pyloric incontinence and excessive motility, whereas, an Ewald test meal was evacuated only with normal rapidity, one third of the fluid administered remaining in the stomach one hour after

the meal, together with twice this amount of secreted gastric juice. The amount of the meal remaining was ascertained by determining the amount of iron in it, ferrous sulphate in definite proportion having been added to the meal before its ingestion. The authors explain the rapid evacuation of the bismuth through the fact that, being devoid of the qualities of a food, it failed to excite the gastric secretory functions in a normal manner as did the appetizing Ewald test meal, and was not dealt with normally by the musculature. In view of these considerations, the author advises that, in testing the gastric motility, a meal be given first and the bismuth afterward, in order that the results may, in so far as possible, represent normal conditions of digestion.

#### SEMAINE MEDICALE

July 16, 1913.

**Pleuropulmonary Fistulas Due to Artificial Pneumothorax.**—L. Bard asserts that pleuropulmonary fistulas are caused far more frequently than is generally supposed in the production of artificial pneumothorax. They may be expected to occur in the majority of cases in which there are well marked adhesions. The danger attending such a complication is not sufficiently marked, however, to contraindicate artificial pneumothorax, especially in cases of tuberculosis running a rapid course and resisting ordinary methods of treatment. In fact, the immediate results of the formation of a fistula are rather more favorable than otherwise, the pneumothorax being more quickly completed and a more regular compression being insured. The ultimate consequences, however, are far from negligible and demand circumspection in the use of Forlanini's method in cases of medium severity, and even in fibrocascous cases not of a very acute nature. Where a fistula does develop, an attempt should be made to keep the intrapleural pressure constantly high enough to overcome the pulmonary elasticity, in order that the fistula shall remain closed and heal as soon as possible. A fistula is present whenever the pressure of the gases in the pleural cavity is found, upon puncture, to be positive, i. e., greater than the atmospheric pressure, during both phases of quiet respirations. Such a positive pressure can be detected by dipping a glass tube connected with the needle into a vessel of water before the puncture and observing the changes in the level of the fluid in the tube when the needle enters the pleural cavity.

#### BRITISH MEDICAL JOURNAL.

July 12, 1913.

**Acute Endocarditis Following Gonorrhea.**—A. Wilson Gill's patient, a healthy man of forty-four years, was attacked with a fatal endocarditis which appeared within two months after the onset of an acute gonorrhea. The acute gonorrhea responded to local treatment so well that a cure had been effected in a month. The gonorrheal endocarditis presented a picture quite typical of that of a very severe infectious endocarditis of any other etiology. Gill is inclined to agree with the recently expressed view that gonorrhea is a more common cause of endocarditis than is usually supposed.

#### Spontaneous Reduction of a Dislocation of the

**Cervical Vertebrae.**—William C. Bentall acted upon Horsley's dictum, "If the lesion is acute and in the cervical region, then certainly wait," and was rewarded by his patient's spontaneous return to health. The patient, a man sixty-five years old, received a direct injury which produced immediate paralysis from the neck down. X ray plates and careful examination, both physical and neurological, located the lesion at or just below the fifth cervical segment of the cord. The plate showed an increased interval between the third and fourth cervical vertebrae, and the lower edge of the body of the third was seen to have been pushed forward over the upper edge of the body of the fourth.

#### Dilatation of the Fallopian Tubes for Sterility.

—T. Hope Lewis, while performing an interval operation for appendicitis on a married woman who had been sterile, though married about six years, found the Fallopian tubes to be stenosed. These he dilated by means of probes and sounds clear up to the cornua of the uterus. Eighteen months later she was delivered of a healthy child. Lewis's second patient had remained sterile after having had all of the usual operations performed for dilating the cervix and straightening the uterine canal. He suggested the dilatation of her tubes, which was readily agreed to, and on operation, found them strictured at three or four points in each tube. Dilatation was very difficult, but was accomplished, and she was pregnant within a year. This patient was also the victim of severe pain during the middle of her intermenstrual period. This "middle pain" was absent after the dilatation of her Fallopian tubes. Lewis expresses the belief that there are many cases of obstinate sterility which might be relieved by this procedure of dilatation of the Fallopian tubes.

July 10, 1913.

**Pellagra in Great Britain.**—Louis W. Sambon's recent discovery of several cases of pellagra in Great Britain, and his recent papers concerning its etiology, have led to his receiving information concerning three new indigenous British cases. In one of these he has personally confirmed the diagnosis and has visited the district in which the child had been brought up. There he found rapidly flowing streams in which he observed larvæ and pupæ of *Simuliidæ*. Swarms of these flies were also encountered in the region. The second case is typical, but Sambon has not yet seen it personally. The third he has. With regard to the British cases thus far reported, it may be noted that the symptoms are typical, but the disease seems highly fatal, and a relatively large proportion of children is attacked. Sambon regards the disease as endemic in Great Britain and believes that there are hundreds of unrecognized cases. The reported British cases absolutely disprove, according to the author, the maize theory of the etiology of pellagra.

**Nodular Leucemia.**—Gordon R. Ward discusses what he terms the four "associated syndromes" of leucemia, namely: Chloroma, or the presence of symmetrical skull tumors, often, but not always, of a green color, leads to blindness, deafness, etc. There may also be similar lesions of the periosteum in other situations. That known as the "mycosis fungoides" syndrome is the sec-

ond, and is marked by the occurrence of a number of cutaneous or subcutaneous nodules. Mikulicz's disease is the name often given to the third syndrome, the features of which are chiefly the presence of symmetrical glandular enlargement, involving the lacrimal, parotid, and submaxillary glands, and, often, also the mammae and ovaries, or testes. Persistent priapism constitutes the fourth syndrome, and is due to the formation of nodular collections of cells which occlude the penile veins. The one common feature of all these leucemic syndromes is the presence of nodules, and, as Ward suggests a common origin for the nodules he likewise suggests that all be grouped under the common name of nodular leucemia. These nodules are thought by Ward to be collections of proliferating endothelial cells, growing either at the sites of their origin, or in distant structures after transit of the blood stream. It is this endothelial cell proliferation, which with increasing activity yields more and more recessive forms of cells, that Ward believes gives rise to all the abnormal cells in the blood of leucemia. The etiology of leucemia still remains a mystery.

#### LANCET.

July 12, 1913.

**The Blood and the Cerebrospinal Fluid in Mumps.**—Anthony Feiling's conclusions regarding the blood in mumps are based on personal examinations in forty consecutive cases. He feels justified in stating: 1. That in mumps the blood shows definite changes in its corpuscular content, consisting in (a) a slight increase in the total number of leucocytes; and (b) in a lymphocytosis which is both relative and absolute. 2. This lymphocytosis is present on the first day of the disease and persists for at least fourteen days. 3. The occurrence of orchitis does not invariably alter the blood picture. 4. The changes in the blood are of distinct diagnostic value in differentiating mumps from other inflammatory swellings of the parotid or submaxillary glands, and from cases of lymphadenitis. From a case of his own, and several cases reported in the literature, in which there have been meningeal symptoms associated with the mumps, and in which the cerebrospinal fluid has been examined cytologically, it is evident that in this fluid also there is a considerable or very marked lymphocytosis. Further, in some cases of mumps not associated with meningeal symptoms, there is a distinct lymphocytosis in the cerebrospinal fluid. From a consideration of the cytological changes present in the blood and cerebrospinal fluid, Feiling concludes that the virus of mumps excites an inflammatory reaction in the body which is characterized by a great aggregation of lymphocytes.

July 10, 1913.

**Paratyphoid Fever Associated with an Epidemic of Typhoid Fever.**—James Watt found no less than twelve cases out of 112 reported as typhoid fever, which were paratyphoid due to the *Bacillus paratyphosus B*. In all twelve cases the course of the disease was mild, though the symptoms were typical of true typhoid. The diagnosis of paratyphoid seems impossible by clinical methods

and must rest solely upon careful cultural and serological examinations. All of his cases were thus diagnosed. All of the patients were treated as typhoid cases and were cared for with that disease in the same wards. Two had mild attacks of paratyphoid and after an interval a moderately severe attack of typhoid developed in each. Two others who had paratyphoid subsequently became healthy or transitory "typhoid carriers" during their stay in hospital, both showing *Bacillus typhosus* in their urine. A fifth especially interesting patient apparently had an almost simultaneous double infection with both typhoid and paratyphoid. Some interesting epidemiological points are brought out in this series. First the epidemic of paratyphoid was due to the paratyphoid bacillus B. The epidemic of paratyphoid occurred in the middle of an epidemic of typhoid—apparently an epidemic within an epidemic. Of the paratyphoid patients seven lived in the same quarter of the town, and eight of the total number got milk from a common dairy. It seems that all twelve paratyphoid patients were infected from a common source.

**The Black (Pigmented) Appendix.**—William H. Battle records three cases in which the appendix, when removed for appendicitis, was deeply pigmented. The color was "brown bluish" and was usually so scattered as to give a mottled appearance, being less intense in some areas than in others, though not absent. Microscopical examination showed the pigment deposited in the mucous membrane, lying both in and between the cells. Chemical analysis showed the pigment to be a compound of iron, the precise nature of which could not be determined owing to the scarcity of material. The presence of iron in these three cases agrees with the findings of Simon in other cases of similar pigmentation. A feature common to all three of Battle's cases was the previous chronicity of appendicular symptoms.

**An Analysis of Thirty-five Consecutive Cases of Bradycardia.**—C. E. Lea finds the relative incidence of the several types of bradycardia, as encountered in his series of consecutive cases, to be as follows: True bradycardia, in which the whole heart is concerned, not the ventricles alone, was present in seven cases, or twenty per cent. Missed beat caused the condition in nine cases, or nearly twenty-six per cent. Heart block gave rise to three cases, or 8.5 per cent. Lastly, the bradycardia resulting from the digitalis treatment of cases of auricular fibrillation is by far the most frequently encountered form, being present in sixteen cases, or almost forty-six per cent. of the whole. It is worthy of mention that all forms of bradycardia except the first are in some way causally related to an alteration in the function of the auriculoventricular conducting mechanism.

July 26, 1913.

**Arsenic Cancer.**—R. J. Pye-Smith reports a case of this rare condition seen under the care of W. H. Nutt and examined pathologically by J. M. Beattie. The patient was twenty-nine years old, female, and married. When first seen in February, 1910, she was complaining of an ulcer under her wedding ring. This had begun eight months previously as a slight thickening of the skin. After



breaking down into an ulcer it had resisted all forms of treatment. The finger was amputated in August of the same year and the ulcerated part was found to be epitheliomatous. The wound failed to heal completely and soon ulcerated again, presenting an appearance similar to the original ulcer. She then called attention to a small ulcer of about seven months' duration, located in the hair of the pubes. Ulceration was also found on the labia. No improvement took place under anti-syphilitic treatment, and examination of a piece taken from the pubic ulcer showed it to be epitheliomatous. The past history of the patient brought out the fact that she had always had a dry skin; that from seven to fourteen years of age she had been under treatment for that condition and for a few scaly spots. Amputation of the hand and subsequent wide excision of the pubic ulcer gave much relief and freedom from local recurrence of the epitheliomata. Her scalp and various parts of her body showed a few dry, slightly raised red patches, covered with scales or crusts suggestive of seborrhea sicca. On the upper extremities there were several spots like psoriasis. Scattered over the hands, forearms, and feet, and sparsely on the trunk, were small lumps with thick, hard epidermis, like warts or corns, some being red at their bases. For six months after her third operation—removal of the pubic ulcer—she remained well, but there began to develop pleuritic symptoms and she died ultimately from what seems to have been widespread visceral metastasis. No local recurrence occurred. Autopsy was not permitted. The cause of such an epitheliomatous state was almost certainly the arsenic which she is believed to have taken continuously for over three years when a girl. There follows a summary of the thirty undoubted cases of arsenic cancer to be found in medical literature and a discussion of the disease as an entity will be taken up in the continuation of the article.

**Contamination of the Thoracic Cavity and Its Contained Glands.**—C. C. Twort experimented on a wide range of animals, but chiefly rats, mice, and rabbits, to determine the spread of living and dead, virulent and avirulent bacilli after their introduction into the peritoneal cavity. His findings are, in his own words:

The experiments that have been performed demonstrate that, although the peritoneal cavity is provided with an extensive protective mechanism, inoculated bacilli escape from this cavity and can be found living and virulent in the thoracic glands shortly after inoculation. The rapidity with which this transmission takes place is remarkable, the bacilli being found from two to five minutes later in the glands, and from these cultures may be easily obtained. The bacilli found at the end of five minutes are mostly free, but a few may be already within the cells, and as the interval of time between the inoculation and the death of the animal is extended the number of bacilli not only becomes progressively greater, but the proportion of intracellular to extracellular is relatively much higher than in the animals killed earlier. It is interesting to note that as early as five minutes after the inoculation of the animal cultures can also be obtained from the pleural fluid, but the possibility of contaminating the fluid during the manipulations by the severing of the lymphatic channels is evident. On examination soon after inoculation, of the cervical, submaxillary, axillary, and groin glands no bacilli can be found. No bacilli were found microscopically in specimens made from the thoracic glands and pleural fluid

of animals that were killed before reaching the intraperitoneal inoculation and an examination made five minutes later.

There does not appear to be much difference in the number of bacilli found in the mesenteric and thoracic glands in animals killed about two to five days after inoculation, although usually bacilli are found more often in the thoracic than in the mesenteric glands. Living tubercle bacilli gradually become less in the mesenteric glands, while they remain numerous for months in the thoracic glands. Cultural experiments parallel the microscopic ones and are even more satisfactory. It is seen, from these and other experiments, that the place of predilection for the development of a bacillus often has little or no relation to the site of primary inoculation. By experiment Twort has also found that injection of oil into the peritoneal cavity does not prevent the escape of bacteria from the peritoneal cavity and their absorption by the thoracic glands. It is, therefore, doubtful whether this procedure, as practised by some surgeons to prevent infection during operation, has any value whatever. Twort concludes with the following practical deductions from his experiments:

The time necessary for the escape of infectious material from the peritoneal cavity is thus often only a question of minutes, and it is obvious that even during an operation if the general peritoneal cavity is accidentally contaminated from the rupture of a localized abscess, etc., ample time is given before the end of the operation for the thoracic glands to become infected, and if these glands are penetrated there is a danger of the infection becoming generalized. These facts may explain the beneficial effect of Fowler's position after abdominal operations.

**The Decalcifying Action of Oxalic Acid.**—H. J. B. Fry reports three cases of oxalic acid poisoning and suggests that many of the symptoms seen may be due to the reduction in the calcium content of the tissues by the precipitating action of the oxalic acid. Such symptoms are: Convulsions, twitchings, muscular weakness, fall of blood pressure, loss of tone of cardiac muscle, and disturbance of its functional capacity; changes in strength of the pulse due to an increased susceptibility of the vasomotor nerve endings to epinephrin, cerebral excitement, neurasthenic states, skin eruptions, vomiting, and constipation. Fry supports his contention with evidence drawn from various sources to show the rôle of calcium and the effects of its reduction or increase. The natural corollary from his hypothesis is the necessity for the use of calcium salts in the treatment of oxalic acid poisoning.

JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

**Contribution to the Surgery of the Hypophysis.**—Jules Broeckaert states that the surgery of the hypophysis cerebri is commanding the attention of the rhinologist because of the more easy approach to the pituitary body through the nose, entailing less mutilating operations than by the intracranial methods. Considerable difficulty may be encountered, however, because of the inconstancy of the anatomical relationship of the sella turcica and the sphenoidal sinuses. The fact that the septum dividing the two sinuses is seldom in the median line may be a source of considerable trouble. The sphen-

noid cavities may be approached by the palatine route, as proposed by König; or the endonasal route as suggested by Hirsch. West and Citelli have each suggested a method, somewhat similar in approach to that proposed by Hirsch, but entering at the side. Any deviation from the median line increases the danger of these operations because of the important structures in the neighborhood. The palatine route necessitates a central incision through the velum, the removal of the horizontal plate of the palate bones and posterior part of the septum. The sphenoidal sinus is then opened in the median line by destroying the bifurcated edge of the vomer and the crest of the sphenoid. The septum of the sinus is removed and the floor of the sella turcica attacked with a small chisel and an opening made to the extent of one centimetre. Hirsch advocates opening the superior osseous part of the nose like a double door by a "Y" shaped incision, of which the vertical part follows the dorsal line and the two oblique branches divide the nose below the nasal bones. A submucous resection of the whole nasal skeleton is then performed and the sphenoidal sinus and sella turcica opened with a gouge between the two blades of a strong speculum, which separates the two layers of the mucous membrane and crushes the lateral masses of the ethmoid. The author thinks that the submucous resection of Hirsch is long, tedious, and unnecessary, and thereby sacrifices the entire septum, except the columnar cartilage. This method leaves the turbinates and ethmoids intact as far as possible. Radiography should always determine if the anatomical dispositions will permit access to the hypophysis by the route proposed.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

(August 2, 1915.)

**Clinical Effects of "Natural" and "Synthetic" Sodium Salicylate.**—A. W. Hewlett reports the results of a cooperative investigation undertaken by the Council on Pharmacy and Chemistry of the American Medical Association, which was participated in by twenty-seven clinicians of recognized standing; the reports from these embodying approximately 230 separate observations on the effect of the salicylate powders used. Allowing for statistical error (and it is stated that the statistical variations in the figures presented were surprisingly small), it must be concluded from this investigation that the natural and the synthetic sodium salicylates are indistinguishable so far as their therapeutic and toxic effects on patients are concerned.

**Intracranial Division of the Auditory Nerve for Persistent Tinnitus,** by C. H. Frazer.—See this JOURNAL for July 5, p. 47.

**Mycosis Fungoides Following Psoriasis,** by Howard Fox.—See this JOURNAL for July 5, p. 43.

**The Technic of Röntgen Ray Examinations of the Gastrointestinal Tract, and the Interpretation of Screen and Plate Findings,** by R. D. Carman.—See this JOURNAL for July 5, p. 39.

**A Case of Lymphangioma Circumscriptum.**—P. E. Bechet reports a case of this comparatively rare dermatosis, occurring in the service of Dr. J. Kingsbury at the New York Skin and Cancer Hospital. The patient is a girl of thirteen, and the disease began when she was three years old, first ap-

pearing as a reddish inflamed patch, on which vesicles shortly developed. The lesion slowly increased in size until four or five years ago, but since then has remained stationary. The patch is about four by five inches in diameter, of ovoid contour, and consists for the most part of pearly vesicles, though, in consequence of the rupture of capillaries and the admixture of blood with the lymph contents, some are of a deep red, purplish, or blackish color.

**The Conception of Homosexuality,** by A. A. Brill.—See this JOURNAL for July 5, p. 47.

**Diuretics in Cardiac Disease,** by A. D. Hirschfelder.—See this JOURNAL for July 5, p. 49.

**The Significance of Plasma Cells in the Tonsil. A Preliminary Report.**—J. G. Wilson, having mentioned that in an article published last year he emphasized the significance of what he called the overfunctionating tonsil in childhood, states that the views expressed by Dr. D. J. Davis, in a recent article on *The Tonsils in Childhood*, appear to be somewhat at variance with what he had written. If, he says, Dr. Davis's conclusions are correct, and the opinion he expresses of the significance of plasma cells in the tonsil is true, we seem driven to the conclusion that the supporters of complete enucleation of the tonsil under all conditions have proved their contention that the tonsil is from the earliest stages of life a diseased organ, which it is our duty to remove. Furthermore, we must apparently admit that the tonsils are vestigial structures, and the author reiterates what he has frequently declared, that neither embryology nor comparative anatomy, nor yet physiology, gives any support to such a hypothesis. The opinion that they are vestigial in man, and even worse than useless, has done considerable damage and created prejudice against much endeavor to discover their nature and function. Dr. Wilson sums up his position thus: Plasma cells are derived from lymphocytes and are engaged in removing and utilizing cell material which has broken down. If it be pathological to destroy albuminous bodies and toxins arising from katabolic processes (and possibly also of bacterial origin), then plasma cells are pathological. They are not degenerated cells, but cells actively engaged in combating the toxins which pass through adenoid tissue. Their presence, instead of showing that the tonsil is diseased, indicates that it is functionally active. Their presence in excess shows that we have some focus of disease, but not necessarily a local one.

#### MEDICAL RECORD

(August 2, 1915.)

**Differentiation of the Erythema of Scarlet Fever and that of German Measles. Diagnosis.**

—S. D. Hubbard points out that while scarlet fever, with all of its classical cardinal symptoms following in fairly regular sequence and prominence, is not ordinarily difficult to recognize, this regularity is the exception, rather than the rule. The distinctive characteristics of the two diseases he gives as follows:

**SCARLET FEVER.**  
More or less severe constitutional symptoms.  
Severity and intensity of

**GERMAN MEASLES.**  
Very slight constitutional symptoms.  
Severity and intensity of

rash in direct proportion to constitutional manifestations.

Enlarged glands, usually following onset, and evidence of sepsis.

Glands swollen and tender.

Confluent scarlet (pink) rash.

Rash punctate.

Onset sudden and more or less severe.

Tongue, milk coated; later (about third day) "strawberry."

Pulse, high tension and increased.

Circumoral pallor.

Vomiting.

Rash appears quickly, spreads rapidly, and disappears gradually.

Rash appears first on neck and about clavicular spaces.

Rash fades with yellowish shading; leaving skin more or less injected.

Desquamation in twelve to fourteen days.

Desquamation in sheets.

Squamous scales.

Has more or less severe sequelae.

Itching more or less prominent.

rash in inverse proportion to constitutional symptoms.

Enlarged postcervical chain of glands early in onset.

Glands enlarged, soft, and not tender.

Nonconfluent, dark red (violaceous) rash.

Rash macular.

Onset sudden, but not severe.

Not affected.

Not materially affected.

Rash starts about nose and lips.

No vomiting.

Rash appears in one part at a time, appears gradually in other parts, fading at place of onset. Covers body in about twenty-four hours.

Rash first appears about nose and lips.

Fades with a brownish red and later to a light brown, and then disappears; leaving no mottling of skin.

Desquamation in about three days.

Desquamation furfuraceous.

Has none

Not present.

abdominal symptoms appear. 3. Include in his diet sufficient quantities of the salts needed by the body, especially the calcium salts. 4. Do not delay too long the stimulation of the heart; regulate the amount of this by the capacity of the heart muscle to respond, as well as by the requirements of his circulation. 5. Do not move his bowels unnecessarily, and let the means used to move them be gentle.

**Obsessions in Medicine.**—It is the belief of Beverley Robinson that these exist to a greater extent to-day than heretofore, and two reasons which he assigns are, first, exaggerated specialism, and, second, an undue estimate of science, evanescent though it be, as opposed to empiricism, i. e., the experience of decades, not to say centuries. The obsessions which he especially deplors are the following: 1. The exaggerated and widespread notion of the marked contagiousness of pulmonary tuberculosis. 2. The neglect, in this disease, of such drugs as creosote, the hypophosphites, and codliver oil in connection with hygienic methods of treatment. 3. Immediate operation for appendicitis. 4. The idea that little can be done to reduce the mortality of pneumonia. If, the author states, the tuberculous patient is put to bed as soon as threatened, and creosote inhalations started and other judicious medical treatment employed, he will recover, provided he is not already too much handicapped by previous disease, or by reason of great weakness or old age, or because the poison is very virulent.

**Tumor of Omentum with Twist of Pedicle, Giving Symptoms of Appendicitis.**—C. Legiard-Laura, who reports this case, says that in the literature of omental tumors he had not been able to find a single one recorded with twist of its pedicle. The patient was operated upon for appendicitis, as acute symptoms suggesting that affection developed after a friendly tussle with another man, in which his body was briskly rotated and strong contraction of the abdominal muscles occurred. The tumor, the only source of the blood supply of which apparently was its pedicle, was removed, and it proved to be a lipoma with a well developed fibrous capsule.

#### AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

July, 1913.

**The Occurrence of Ankle Clonus without Gross Disease of the Central Nervous System.**—Wilder Tileston, having referred to the fact that for a long time ankle clonus passed as one of the most certain signs of organic disease of the central nervous system, points out what conditions may be accompanied by ankle clonus without other evidence suggestive of disease of the nervous system, presents some illustrative cases, including one in which the autopsy revealed slight microscopic changes in the medulla oblongata, and discusses the importance of clonus in diagnosis and prognosis. By ankle clonus he wishes to be understood the true ankle clonus in which, on continuous upward pressure being made on the sole of the foot, there is a series of rhythmical oscillations in plantar flexion and extension, occurring with a frequency of from five to

**Observations and Suggestions Regarding Lobar Pneumonia.**—E. E. Cornwall states that the toxins which most commonly make trouble in pneumonia can be divided into three classes: The specific toxine, autotoxins, and pharmaceutical toxins. The specific toxine, derived from the pneumococcus in the blood, does not seem to be regularly a factor of grave pathological importance, though occasionally it may be so. The autotoxins, and particularly those of intestinal origin, constitute a very important element in the mixed toxemia of pneumonia. The pharmaceutical toxins are, of course, drugs given to the patient. The official alkaloids, drugs belonging to the coal tar, phenol, and salicylic acid groups, mercury, and magnesium sulphate, all of which are widely used in pneumonia, are familiar poisons, and even dangerous ones unless given with caution. When we put a drug with toxic possibilities into a patient with such a grave disease, in which a very small thing may suffice to turn the scale, we should be reasonably sure that the advantage will be greater than the injury. For pain, restlessness, and sleeplessness, especially early in the disease, no drugs are so efficacious, as well as safe, as the alkaloids of opium; later, they should be used with very great caution. The author makes the following suggestions regarding treatment: 1. Give the patient plenty of fresh, cold air, but after defervescence protect him carefully from being chilled. 2. Keep down the production of toxins in his intestines by means of a fluid antiputrefactive diet supplying daily not more than forty grammes of protein, with a food value of not more than 1,250 calories—much less, should



seven in the second and continuing for a considerable period. In summing up, he gives the following conclusions: 1. Ankle clonus indistinguishable from the genuine may be found more or less frequently in a variety of conditions, without accompanying organic nervous disease. 2. These conditions are: (a) Acute infectious diseases, especially typhoid fever; (b) chronic infections associated with marked toxemia, especially advanced pulmonary tuberculosis; (c) uremia, before and during the acute seizure; (d) epilepsy, immediately after the convulsion; (e) intoxication from certain drugs, e. g., hyoscine, ether, and chloroform; (f) excessive fatigue; (g) exceptional instances of certain neuroses, viz., neurasthenia, hysteria, paralysis agitans; (h) psychoses in the stage of excitement; (i) chronic articular rheumatism. 3. With the exception of joint disease, a toxic action on the nervous system may be assumed in all these states as the underlying factor in the production of clonus. 4. In the case of articular rheumatism a constant spinal irritation from the inflamed joint tissues is the probable cause. 5. In two autopsies on cases of phthisis, with clonus, no change was found in the central nervous system. In the author's case, however, inflammatory exudate was demonstrated about the posterior septum of the bulb. 6. Clonus due to toxic states may usually be distinguished from that of organic nervous disease by the absence of spasticity and of other signs pointing to such disease, and particularly by the absence of the Babinski and Oppenheim toe signs. 7. An exception to this rule is encountered upon the use of hyoscine in medicinal doses and immediately after the epileptic attack; in both of which instances the Babinski and Oppenheim signs may be positive. 8. The occurrence of ankle clonus is of prognostic value in uremia, preceding at times the acute seizure. It usually disappears a few days before death; otherwise its disappearance generally indicates an improvement in the patient's condition. The author states that in the infectious diseases the appearance of ankle clonus certainly adds to the gravity of the prognosis, as it indicates a high degree of toxemia; though it does not preclude the possibility of recovery.

**Myocardial Hydrothorax.**—Anders states that of twenty-seven cases of hydrothorax due to heart lesions coming under his observation, no less than sixteen were apparently caused by myocardial disease. In thirteen of the sixteen the hydrothorax was wholly on the right side throughout. In speaking of the diagnosis of this condition he says that cases are often characterized by extreme latency, particularly during the earlier portion of their course. In all his cases, however, the signs and symptoms of chronic myocarditis, and in five those of chronic interstitial nephritis, were present. A careful physical examination of the entire thorax would enlighten the clinician, but this is often neglected because the hydrothorax which gives rise, in a measure at least, to the dyspnea and cough is unsuspected. The principal error in diagnosis, it seems to the author, is in the assumption that hydrothorax is not to be expected in cases of cardiac disease in which the signs of chronic valvulitis and external edema are absent. It is not

uncommon, indeed, to meet with cases of myocardial insufficiency which closely simulate those of valvular disease, particularly mitral incompetency with evidence of a mild grade of stenosis. In chronic myocarditis, however, there is not obtainable a clear history of acute articular rheumatism, but commonly of one of the exciting factors that may produce secondary cardiac dilatation, such as physical or mental strain, an intercurrent febrile affection, and the like. The treatment of this form of hydrothorax must have the same objects in view as in the other varieties, and has reference to the removal of the exudate by tapping the chest and, so far as possible, of the causative condition by hygienic and medicinal means. It is futile, as a rule, to attempt to get rid of the exudate by the exhibition of digitalis and other cardiac stimulants without first withdrawing the fluid by aspiration, if it be considerable in amount. Rest, absolute and long continued, is a most valuable adjunct. The use of saline laxatives, to the point of rather active catharsis, proved of decided service in a few of his cases. In five instances a salt poor diet was employed with favorable effect. Reports of the sixteen cases are appended. While death is inevitable in by far the majority of instances, one of the patients had shown persistent good health for fifteen years, following repeated aspirations and the use of cardiac tonics and stimulants, and other measures; another, for a period of twenty months, and still others for shorter periods of time.

**Congenital Atresia of the Duodenum.**—A. L. McDonald reports a case of complete atresia, with loss of continuity, of the duodenum. At birth the child was apparently normal, but it vomited incessantly, became emaciated, and died in about four days. The day before its death a diagnosis of pyloric stenosis, with probable complete obstruction, was made, and a hopeless prognosis given. The number of recorded cases of this kind is by no means large, though no doubt, the author says, some are not reported, and many pass unrecognized in the absence of a post mortem examination. Such malformations are of interest: (1) As a clinical entity difficult of recognition and, as to prognosis, practically hopeless; (2) in their clinical and etiological relationship to spasm and conditions of partial obstruction; (3) the theoretic interest of the possible embryological factors. Defects may be found at any point in the gastrointestinal tract, but are more common (in the order of frequency) at the following sites: (1) Pylorus and duodenum; (2) rectum and anus; (3) ileocecal region; (4) attachment of Meckel's diverticulum; (5) flexures of the large intestine. The prognosis is bad in all cases of even relative obstruction, because of the difficulty of nourishing the infant, and is practically hopeless in complete atresia. Hypertrophic pyloric stenosis is well recognized, and there are several reports of its successful surgical treatment and a few of medical treatment; though in the latter the diagnosis must remain in doubt. Cases of complete obstruction or atresia are absolutely hopeless unless the continuity of the intestinal tract can be reestablished by surgical procedure. So far as the author knows, no such successful operation has been reported, though many have been attempted.

## AMERICAN JOURNAL OF SURGERY

**The Antitoxine Treatment of Tetanus.**—E. E.

W. Given urges that treatment be begun at the earliest possible moment by elimination from the body as much of the toxine as possible by free venesection and lumbar puncture, and the injection of huge doses of antitoxine by subcutaneous, intravenous, and intraspinal methods to neutralize the unabsorbed toxine circulating in the body, together with intraneural injections to reach and neutralize the toxine contained within the nerves. No limit should be placed on the amount of antitoxine to be injected, if obtainable, for it will surely neutralize all the unabsorbed toxine, and if this is neutralized and the bacilli have been removed by the surgeon so that no more toxine is formed to be thrown into the system for absorption, the body will be able to successfully combat the amount already combined with the nervous tissues. Supporting systemic treatment is indicated, together with highly nourishing food in liquid form given, if necessary, through a stomach tube, and sedative drugs are to be administered as indicated, the patient being treated in a darkened and quiet room.

**Treatment of Fracture of the Olecranon and Compound Fracture of the Patella.**—George deTarnowsky emphasizes the following points in treatment of the fractured olecranon: 1. Fractures of the olecranon are best treated by the open method. In simple fractures immediate intervention is indicated; in compound fractures it is preferable to wait until primary reaction has subsided. 2. It is not necessary to wire or suture through bone. The periosteum and tendon of the triceps are sufficiently strong to maintain the fragments in apposition, provided the triceps is not allowed to contract. Anteroposterior angle splints absolutely prevent contraction of the triceps. 3. The most religious asepsis must be observed during the operation. Mr. W. Arbuthnot Lane's technic for bone plating being used as a standard. No antiseptic irritants must be used for irrigation or swabbing. 4. Immobilization must be maintained for four weeks before passive motions are allowed. As to fracture of the patella excellent results are obtained by him by observing the following routine: 1. An interval of five days is allowed to elapse between the day of the accident and the operative treatment. In all compound fractures in or near joints he believes the best interests of the patient are conserved by primary inactivity. Recently traumatized tissues offer much less resistance to infection than the normal, and by waiting for the primary reaction to subside we get better results. If infection of the wound occurs, one should wait even longer. 2. No wiring of fragments is allowed. As in fracture of the olecranon, sutures are amply sufficient, provided muscle contraction is overcome by immobilization. 3. No active or passive motions are allowed for five weeks after suturing of the fragments.

## ANNALS OF SURGERY.

J. H. HARRIS.

**Lymphangioplasty: Handley's Method.**—Park-er Syms finds that Handley's operation, according to the literature, has been performed in twenty cases

for brawny arm, in seventeen cases for elephantiasis, in three cases of chronic edema of the leg, in three cases of solid edema of the face and eyelids, and in ten cases of ascites. The writer reports two failures by this method, one in a case of edema following cancer of the breast, and the other in ascites due to cirrhosis of the liver. The findings of the reported cases of lymphangioplasty in various conditions has been as follows: Brawny arm, twenty cases, with nine successes and nine failures, and two cases with no report as to swelling; seventeen cases of elephantiasis, all failures; three cases of chronic edema of the leg (not elephantiasis), all failures; chronic edema of the face and eyelids, three successful cases; ten cases of ascites in which half were partial successes, and half total failures.

**Gas Cysts of the Intestine.**—Percy R. Turnure concludes from reported cases and from the examination of his own pathological specimen in which obliteration of the cysts can be seen in many areas, that the condition is self limiting with a tendency to spontaneous cure. Therefore, if the predisposing cause is treated, there is no indication for resection of the affected bowel or even an attempt at removal of the cysts. The chief characteristics of the lesions are: 1. Extensive gas cyst formation, for the most part situated outside of the longitudinal muscular coat; 2. characteristic appearances of the gas cysts and the cyst walls, in which the presence of an endotheliallike lining and giant cells is a feature; 3. occurrence of spaces or channels, some of which may be lymphatics, partly lined by endothelium and partly filled with giant cells, endothelial cells, and leucocytes; 4. evidences of dilatation of lymphatics and of the intercommunication of large lymphatic spaces, possibly cyst spaces with undoubted lymph channels; 5. absence of communication between cysts; 6. inflammatory and productive processes between the cysts and under the peritoneum, resulting in the formation of a connective tissue and fibromatous masses, leading to the obliteration of certain cysts and therefore to a kind of healing process; 7. absence of bacteria in most of the cysts (the bacteria present in some places are probably post mortem invaders); 8. the deposition of highly refractive needles in the interior of many of the cysts, causing a peculiar flattening of the cells belonging to the lining membrane, and the possible rôle of such crystalline matter in the production of some of the giant cells.

**Suturing of the Kidney.**—J. E. Moore and J. F. Corbett summarize their experiments as follows: Mattress sutures cause extensive destruction of the kidney substance. Silver wire with mattress sutures causes a variable amount of damage. Simple incision with over and over sutures does not produce serious lesion. The Serrefine method produces slight lesion. While this is not free from infarction, the only legacy left is a slight loss of parenchyma without other complication.

**"Dumb-Bell" Kidney.**—J. L. Herman and George Fetterolf describe a specimen which was found while attempting to remove a kidney through a lumbar incision, which they were unable to do. After complete exposure of the kidney through the left loin, the cause of the impossibility of delivery was found due to a congenital abnormality, the main feature of which was a continuity of the renal tissue

of one side with that of the other across the spinal column. This could be determined readily by means of a finger passed along the dorsal surface of the renal tissue. In freeing the kidney a large renal artery from the left common iliac to the left lower pole was torn away, under the supposition that they were dealing with the perirenal adhesion, an unlikely mistake in the living, in the presence of pulsation.

#### ARCHIVES OF INTERNAL MEDICINE

July, 1911.

**Effect of Temporary Occlusion of the Renal Circulation on Renal Function.**—R. Fitz and L. G. Rowntree found that in rabbits and dogs with one kidney removed, the circulation of the other kidney may be clamped for as long as forty minutes with recovery; clamping for a longer time, however, causes death with signs of renal insufficiency. In the animals ultimately recovering, temporary disturbance in renal function is produced as shown by the presence of albumin and casts in the urine, a diminished phthalein output and a delayed lactose and iodide excretion. Acute or healed pathological changes are found in kidneys so treated. Except in extreme cases, no definite relation between the pathological and the functional disturbances produced is demonstrable by the functional tests used.

**Pathological Changes in the Thyroid Gland in a Cretinistic Variety of Chondrodystrophia Fœtalis.**—Douglas Symmers and G. H. Wallace assert that there is a form of chondrodystrophia fœtalis (achondroplasia) in which, in addition to changes in the osseous system, there occur modifications in the soft tissues, attributable to pathological defects in the thyroid gland, and consisting of thickening of the lips, cheeks, eyelids, the wings of the nostrils and the lobes of the ears, macroglossia, hypertrophic vulvæ, and myxomatous transformation of the subcutaneous and certain deep connective tissues. All of these, when combined with the large head and froglike expression, the protuberant abdomen, prominent skin folds, and pugy extremities, fulfil the essential requirements for the diagnosis of cretinism. The thyroid gland in such cases shows an extensive chronic productive inflammatory process eventuating in replacement of the colloid vesicles by an overgrowth of alveolar epithelium, or by an invasion and substitution in the alveoli of connective tissue from the interstitium, aided, in both instances, by compression from the outside by the contracting fibrous trabeculae.

**Experimental Chronic Nephritis.**—J. P. O'Hare was able to produce in rabbits chronic renal lesions closely simulating those of chronic interstitial nephritis in man, by means of combined injections of uranium nitrate and the colon bacillus.

**Paratyphoid Fever.**—C. J. Hunt states that paratyphoid fever occurs in four general types, viz.: That closely resembling typhoid fever; that closely resembling influenza of the abdominal type; that suggesting a general gastroenteric inflammation with nausea and vomiting, and often diagnosed as ptomaine poisoning; and that closely resembling dysentery, likewise often diagnosed as

ptomaine poisoning and also as frequently as "cholera morbus." During the course of four epidemics of typhoid fever studied by the author, including 509 cases, 117, or 22.9 per cent., presented atypical features. The agglutination reactions of the serums in these 117 cases gave the following results: *Bacillus typhosus* only, 46.15 per cent.; *Bacillus paratyphosus A* only, 7.7 per cent.; *Bacillus paratyphosus B* only, 40.2 per cent. The remaining six per cent. showed mixtures of the organisms already mentioned, sometimes with *Bacillus paracoli* in addition. That in fifty-nine of 509 cases, or 11.5 per cent., there should have been a negative Widal reaction, notwithstanding the presence of typhoidlike organisms, shows plainly the importance to the general practitioner of determining the reaction in negative cases with organisms of the paratyphoid group. The suggestion is also made by the author that a mixed vaccine may be of greater utility than one of *Bacillus typhosus* only.

**Reticulated Erythrocytes.**—O. H. P. Pepper and M. M. Peet state that of the intraerythrocytic phenomena demonstrated by "vital staining," reticulation is most important. This condition is an evidence of youth of the cell. Study of the literature leads to the belief that reticulated red cells show greater resistance to hemolytic agents than others. The experiments of the authors in rabbits, however, failed to demonstrate any constant difference in this respect.

**Quantitative Estimation of Chlorides in the Urine.**—Stanhope Bayne-Jones presents a comparative study of simplified methods available for this purpose, and concludes that the Strauss method is simple, rapid, and gives results sufficiently accurate for clinical purposes. It is directly applicable to both normal and albuminous urine. When modified by performance of the test in a graduated fifty c. c. cylinder, instead of the Strauss tube, it gives results more accurate than in its original form. The method is based on the precipitation of chlorides by silver nitrate and the titration of the excess of the latter by ammonium thiocyanate, an iron salt being used as an indicator.

#### NEW ORLEANS MEDICAL AND SURGICAL JOURNAL.

July, 1911.

**Eugenics in Its Relationship to the Welfare of the Public.**—T. B. Fletcher states that the study of eugenics in this country has been stimulated by a gradual realization of the enormous number of insane and other dependents who have become a public charge and by the enormous expense to which the people are put to provide for their maintenance. It is a well known fact that the birth rate among the feeble minded is very much higher than among normal persons. If we accept the view of the eugenists that mental defects, in their various types, are largely dependent upon inheritance of these defects from progenitors, what are the remedies they propose to lessen insanity, feeble-mindedness, epilepsy, etc.? It is recommended that reproduction be prevented by a surgical operation which unsexes or sterilizes the male or female. These revolutionary procedures have met with much opposition from the standpoint of prejudice, but the



eugenists believe that, with the education of physicians and the public, this prejudice will be gradually overcome. Already eight States have passed laws which provide some form of sterilization of the feeble-minded and certain other defective or criminal types, and it is more than probable that other States will do so. The second method is the segregation, throughout the reproductive period, of the feeble-minded below a certain grade. One of the difficulties encountered would be that of taking care of such persons when they were known, and another, that of determining when the reproductive period ends in men. The expense of segregation would be enormous at first, as it is estimated that at present only about one tenth of the defectives are being cared for. It is for this reason that sterilization is more likely to appeal to the legislator than segregation. A third factor advocated for the lessening of feeble-mindedness, as well as for the prevention of the spread of venereal disease, is that marriage shall not be permitted without the license being accompanied by a certificate from one or more physicians to the effect that the contracting parties are healthy in every respect. The only possible way in which a method of this kind could be made really effective would seem to be to have a special board of examiners, appointed by the health authorities, before whom all applicants for marriage should appear for examination; and such a regulation is not likely to be endorsed in the near future. Fourth, more thorough control of immigrants allowed entrance is also advocated; and undoubtedly there lies in this direction a potent means of lessening feeble-mindedness in this country. The author maintains an open mind as to what measures should be adopted, but he is convinced that the investigations being made by the eugenic societies will prove of great value in the uplift of the human race. There is no question, he says, but that best results are going to be obtained by a judicious combination of both eugenics and eugenics. Those who are active in spreading the knowledge of eugenics recognize the importance of improving the environment of the feeble-minded; but while this will help these individuals, it will not prevent them from reproducing their kind. The subject therefore becomes one of vital public interest, not only from the public health standpoint, but also from the financial one, since the taxpayer has to pay for the support of these unfortunate defectives and criminals in institutions for the feeble-minded and in jails.

NEW YORK STATE JOURNAL OF MEDICINE.

July, 1913.

#### The Problem of Caring for the Defectives.—

William T. Shanahan's paper presents a concise outline of the several varieties of defectiveness, together with a brief discussion of their more important etiological factors, so far as these are known. He speaks in some detail on the subject of sterilization of adult defectives, holding a strong brief in opposition to the generalization of such a practice. Such a treatment of the male defective tends to develop such tendencies as the abuse of alcohol, stealing, making assaults, ordinary and sexual, de-

stroying property, etc. The female is prone to become a prostitute, or to increase such a practice. Both are almost certain to harbor and spread venereal disease in a community. The only good accomplished by the measure is the prevention of the occurrence of defective offspring, and this can be equally well accomplished by segregation and proper community care, which have the further advantages of preventing all of the previously mentioned dire results of simple sterilization with subsequent release of the individual. The ideal method of segregation is the colony plan on the lines of a large village, with its self-contained amusements and occupations. The author does not believe that health certificates before marriage will accomplish much from a eugenic point of view. In many instances they may prevent the union of those venereally infected, but from the standpoint of heredity such health certificates cannot be of much value to the vast majority of mankind, for the reason that the facts concerning heredity are not generally available. Shanahan says of another much mooted question of the present day, "It is my opinion that proper control of the sexual instinct is not to be obtained by constant detailed harping on the subject in schools, which often results in developing in children morbid ideas regarding the subject, for intimate knowledge alone of such matters has never proved a means of preventing man from permitting his sexual instinct to control him, instead of his being its master." He believes that the inculcation of habits of self control, together with the understanding that continence is compatible with health, and the stimulation of interest in diverse matters, are the most potent factors in proper sex education.

#### SURGERY, GYNECOLOGY, AND OBSTETRICS.

June, 1913.

**Anesthesia and Anoci Association.**—George W. Crile employs the following technic in abdominal operations: 1, Excluding infancy, old age, and depressed vitality, he first administers, as an average, 1/6 grain of morphine, and 1/150 grain of scopolamine one hour before operation; 2, if local anesthesia is employed, novocaine in 1/400 solution is used by progressive local infiltration; 3, if inhalation anesthesia is employed, nitrous oxide, alone or with ether added as required, is administered; 4, as soon as the patient is unconscious, infiltration, first of the skin and then of the subcutaneous tissue, with 1/400 solution of novocaine is made. In order to spread the novocaine, immediate local pressure with the hand is applied. Anesthesia is immediate. Incision through this anesthetized zone exposes the fascia. The fascia is then novocainized, subjected to pressure, and divided. This brings us to the remaining muscle or posterior sheath and to the peritoneum. These structures are then infiltrated with novocaine, subjected to pressure, and divided within the blocked zone. If blocking has been complete, upon opening the abdomen no increased intraabdominal pressure will be found, no tendency to expulsion of the intestines, and no muscular rigidity; 5, the peritoneum is everted and infiltrated with a one half per cent. solution of qui-

nine and urea hydrochloride, completely surrounding the line of proposed sutures, and momentary pressure is applied. This infiltration serves as a block, and as it lasts several days it should prevent or at least minimize the postoperative wound pain and the postoperative gas pains, and by so much minimize postoperative shock; 6, if there is no cancer or acute infection in the field of operation, the following regions may be blocked as completely and in the same manner as the abdominal wall, viz., the mesoappendix, the base of the gallbladder, the uterus, the broad and round ligaments, and any portion of the parietal peritoneum.

**Inversion of the Uterus.**—W. C. Jones reports a case and summarizes the treatment of the condition as follows: In all acute and in most chronic cases, manual reposition should be tried. In most of the former, if undertaken early, and in many of the latter, this procedure is successful. If it fail, repositors, etc., may be used, but only for a short time. If these are unsuccessful, one should resort at once to some operative method, the one of choice being colpohysterectomy. This operation stands preeminent in the treatment of difficult cases of uterine inversion, on account of the facility of its performance, and its success in accomplishing the reduction of the inversion, and also because of the practically complete absence of mortality. The uterine incision should be made at first through the cervix only, and later be extended as far down into the corpus as necessary to accomplish reposition. In inversion due to tumor, the treatment is mostly that of the causative fibroid. After this is removed, if the uterus still remains, in about one third of the cases spontaneous replacement occurs, while in the other instances reduction is accomplished usually without difficulty by nonoperative methods.

**Acute Dilatation of the Stomach and Its Treatment.**—O. J. Borchgrevink emphasizes the marked relief the prone position gives the patient. The patient is laid prone in bed with one pillow under the pelvis and one under the chest and throat. He believes an energetic and continual evacuation by the stomach tube has become the principal resource of acute dilatation of the stomach, as nothing is more rational than to unload the overcharged and strongly oversecreting stomach, and it is obvious that the sooner and oftener this is done the more satisfactory is the result. Often, however, this is accomplished with difficulty. The greatly distended stomach is full of gas and fluid, and the latter will, when the patient is lying in bed, mould the thin and yielding stomach to the excavations of the posterior abdominal wall. To bring the tube under the surface of the fluid is, under these circumstances, not always easy. One has to try tubing with the patient lying in different positions. Elevation of the pelvis, for instance, is often necessary to drive the fluid higher up in the abdominal cavity. That one must also insert the tube much deeper than usual is evident. A correct and consistent tube treatment must, however, be supported in different ways. To this belong reasonable stimulation of the heart, and a compensation for the patient's enormous loss of fluid by giving intravenous, subcutaneous, or rectal infusions.

## Proceedings of Societies.

### THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

*Stated Meeting, Held April 21, 1913.*

The President, DR. REYNOLD WEBB WILCOX, in the Chair.

**Intestinal Adhesions: Bacteriologically Experimentally and Surgically Considered.**—DR. ROBERT T. MORRIS, in this paper, said that from time to time it was his intention to bring before the association new points which were developed in the course of study of the subject of intestinal adhesions of insidious toxic origin, which promised to become one of the most important subjects ever taken up by the medical profession. In former years he had considered that a patient either had a good deal of peritonitis or none at all. The midway position we were now coming to understand was much more important, and it was found that patients who had insidious peritonitis, without symptoms leading to its classification as such, were far more common than the ones who had suffered from the more clearly recognized forms. The adhesions of the attic of the abdomen interfered with gastric and duodenal motility, and also caused at times obstruction of the bile ducts. They frequently gave rise to pain in the epigastrium, and were to be found to some degree in almost every adult who was examined with reference to this point. We had to distinguish between attic adhesions and peritoneal defects which were common in the upper part of the abdomen, and we also had to distinguish between such adhesions and the more recently described Lane's kink and Jackson's membrane, which apparently belonged in the same toxic category. The latter conditions, however, seemed to represent a hyperplasia of connective tissue, like that found in Dupuytren's contraction of the palmar fascia, and specimens of the connective tissue from Lane's kink, Jackson's membrane, attic adhesions, and Dupuytren's contraction could hardly be distinguished from each other on microscopical examinations. In Dupuytren's contraction of the palmar fascia the hyperplastic connective tissue was more dense, because of the density of the parent tissue, while with the Lane kink, Jackson's membrane, or attic adhesions it was more loosely arranged, on account of the character of the parent tissue in these regions. Adventitious connective tissue was found also at the hepatic and splenic flexures of the colon. Examination of adhesion tissues for bacteria sometimes resulted in finding the colon bacillus, but in many instances no bacteria of any sort at all were found. It was probable that the toxins alone made their way through the bowel wall, and that these caused toxic injury to cell protoplasm, with the resulting changes. The anaerobic bacteria were particularly prone to make their way through the bowel wall when there was intestinal stasis. These toxins which thus made their way through the bowel wall were probably like those which made their way through the walls of the bile ducts and the gall bladder, excepting that in the latter case they represented a supply which was beyond the metabolizing ability of the individual for disposing of them. Unmetabolized toxins poured out of the liver upon the duodenum and probably excited at that point the secretion of hormones abnormal in character, and these stimulated abnormal secretion from the mucous glands of stomach and bowel. We had then a vicious circle established. The patients who were most subject to peritoneal adhesions of insidious toxic origin belonged to the neurasthenic group, to the one class of persons who seemed to have originally defective ductless glands, and who were otherwise deficient in the factors of protection which guard against toxic injury in more perfectly developed individuals.

DR. ANTHONY BASSLER said that while the surgical standards of drainage and extirpation of pathological tissue served to good purpose generally throughout surgery, in the subject at hand more than these should be given consideration, because we were dealing with biology. It was not simply a matter of intestinal stasis. We must remember that the bowel might be matted into one mass

by chronic peritonitis, so that great interference with peristalsis must exist, and still intestinal toxemia not be present. Not a few cases of acute intestinal obstruction, and many of these of a chronic type, were not accompanied by toxemia. The matter of intestinal stasis, an important one in this connection, was far from being proved, and it should always be remembered in medicine that the co-existence of two phenomena did not prove that they stood in the relation of cause and effect. Adhesions took place in the pia mater, pleura, pericardium, and joint cavities only because of infection with bacteria, and the same was true of the peritoneal cavity. We did not have to go as far back as congenital conditions or deep into the theory of toxemia to account for them, and in his opinion, all adhesions of the peritoneal cavity were directly bacterial in nature. In this connection, it was not necessary to have ulceration or other pathological conditions of the gut to permit bacteria to pass outside of its lumen. It had been proved conclusively that bacteria could pass through a normal mucous membrane of the intestine, and, practically, they often did so. The subject was bound up in the bacteriology of the intestines, and this was further shown by the fact that the upper part of the small intestine, where there were but few bacteria, was practically free from adhesions. Then, most of the adhesions were found in those parts of the intestines where the veins and lymphatics emerged, as, for instance, the anterior band of the colon. Lastly, his studies had suggested that the bacteriology of the intestinal canal in adhesion cases was never normal. There were some ten forms of anaerobes of the bacilli class alone responsible for adhesions, not to mention the coccal and aerobic forms. Recently, he had isolated a new bacterium which was commonly present in the stools of cases where there were marked adhesions and which, when grown in culture and thrown into the intestinal canal of dogs, would produce pericolic adhesions after a few injections. As to splachnitis being responsible for adhesions, he would take different ground and say that splachnitis was due to intestinal toxemia, because in his studies of four autopsy cases of splachnitis he had been able to prove that distinct degeneration of the sympathetic plexuses of the abdomen existed, this being about the same type of degeneration noted in some cases of myoma uteri. Thus he felt that a toxemia affected the neuromuscular structures of the stomach and intestines, and then the extrinsic nerves; making possible the production of dilatation of localized or generalized character. The splachnitis, as was known, were the inhibitory influences of the hollow viscera of the abdomen. Thus, with the toxemia persisting, degeneration took place in the sympathetic system of the abdomen, and then pro-lapse ensued by reason of the disturbing effects on the nutrition of the abdomen as a whole. Adhesions might ensue, as the final result of the toxemia, plus bacterial extravasation.

Dr. WARD J. MACNEAL said that peritoneal adhesions were either fibrinous or fibrous. The former were very temporary, and either disappeared or became organized into fibrous adhesions. The fibrous adhesion was produced by a general peritonitis or by a localized injury to the peritoneum. It was difficult to conceive of such localized injury occurring as a result of the penetration of soluble bacterial toxins through an intact intestinal wall, and it would seem that the local injury was most frequently caused by a localized infection of the subserous tissues or by bacterial invasion of the serosa itself. The injury to the serous coat brought about a precipitation of fibrin which served as a weak bond of union to some contiguous structure. If this fibrous union organized into fibrous tissue, a typical firm adhesion was the result. It was the latter type with which the physician and the surgeon had to deal. Such a fibrous adhesion was of the same order as a scar, and it might be impossible to arrive at any reliable conclusion as to the original etiological factors by the examination of such a scar. In order to study the etiology of peritoneal adhesions resort might best be had to experimental surgery, to ascertain the exact conditions which determined the production of adhesions and to distinguish them from the circumstances under which the formation of adhesions did not occur. A series of careful observations along this line had recently been reported by Adams in his Hunterian lecture before the Royal College of Surgeons (*Lancet*, March 8, 1913). He

had been able to produce both infected and bacteria free adhesions in the peritoneal cavities of guinea-pigs and rabbits. Noninfective adhesions were induced by destructive injury to the peritoneum, but with greater certainty by the introduction of foreign bodies (such as cotton sponges and drainage tubes) into the peritoneal cavity. Often these adhesions would subsequently become infected by the penetration of bacteria from the lumen of the intestine. Extravasated blood in the peritoneal cavity rarely caused adhesions unless it had become infected. Infection of the peritoneum, and especially the introduction of infected foreign bodies, proved to be a ready method of causing adhesions. The omentum, Doctor MacNeal said, was one of the structures which most readily became adherent to an area of injured peritoneum. This was in part due to its wide range of excursion, and in part to the rapidity of absorption of foreign material by the lymphatics of the omentum. The movements of the omentum were wholly passive, and depended upon the active movements of other structures, the most important of such movements being intestinal peristalsis.

Dr. ROBERT COLEMAN KEMP said that the so called attic of the abdomen he believed to be of great importance from a pathological standpoint, and it was Doctor Morris who first called our attention to the fact that the "spider web" adhesions emanating from the diseased gallbladder, and involving the pylorus or upper duodenum, produced dilatation of the stomach, and at times even hemorrhage from that organ; a condition simulating gastric ulcer with commencing pyloric stenosis. Briscoe, in the *Lancet* of October 30, 1909, had reported several instances of the matting together of the pelvic viscera by an exudate, resembling tumor, which, on microscopical examination and culture, was proved to be caused by the colon bacillus. These bacilli were also found to be abundant in the urine. Schotmuller had observed in fifty cases, mostly in women suffering from pyelitis, the presence of herpes of the face and mouth due to toxins of the colon bacillus, although none of the bacilli were found locally. All were familiar with the fact that herpes occurred with pneumonia, and this was doubtless due to analogous toxins. Türk, as would be remembered, had fed colon bacilli to dogs, and produced gastric ulcer. It was extremely significant that gastric and duodenal ulcer were found with considerable frequency in association with gallbladder infection and chronic appendicitis, as such ulcers were undoubtedly the result of some embolic process of toxic origin.

**The Relations of Adhesions and Intestinal Angulations Resulting from Enteropneptosis to Chronic Constipation; Personal Observations.**—Doctor KEMP read a paper with this title. (See the *JOURNAL* for July 5, 1913, page 5.) It was illustrated with numerous large radiographs taken by Doctor Tousey.

**Some Radiographs of Obscure Stomach and Intestinal Cases: Caution regarding Dangerous Tendencies in Recent Radiography of the Gastrointestinal Tract.**—Dr. SINCLAIR TOUSEY read this paper. (See the *JOURNAL* for July 5, 1913, page 10.)

In the discussion, Dr. PARKER SYMS said that this subject was still in its infancy so far as our actual knowledge went. He was, however, a firm believer in infection as a causative factor. The peritoneum was able to take care of a good deal of infectious material, but, nevertheless, in doing so it was exposed to considerable danger. The so called Jackson's membrane was a condition more or less puzzling, and, as a matter of fact, we found the appendix not included. There were some cases in which the adhesions were progressive. Radiography was an aid to diagnosis, and in the case referred to by Doctor Kemp in which the speaker had operated the x ray did exactly locate the angulation of the colon at the splenic flexure. This was a well formed adhesion angulation, and when the adhesions were done away with immediate relief followed, the patient becoming free from all distressing symptoms. After some months, however, there was recurrence of the trouble. The adhesions formed again, and were particularly dense about the ascending colon. He had then operated a second time, and with favorable results, and he now hoped that the relief would be permanent; but whether this would be the case it was impossible to say. Still, there were some cases in which permanent relief was afforded by operating on the adhesions; but after one or two failures we now resorted to



short circuiting the colon. As to the x ray, he thought it would be a great advantage if all the radiographs of a case were taken by one man, so that we might have a single, uniform method to depend upon.

Doctor MORRIS said that his experience had been like that of Doctor SYMS. There was recurrence of adhesions because the original cause to which they were due remained, a chronic toxic infection. For this reason he had given up operating for adhesions, excepting for the relief of urgent symptoms. Worse adhesions sometimes formed than those previously existing. The logical conclusion was that it was better to remove the colon. This, however, was a pretty severe measure, and at present surgeons were adopting a procedure which, while of little severity, was at the same time effective. The latter was a short circuiting of the colon, an operation which had been so simplified that it took but little time and gave the patient a minimum of inconvenience. Now, if we were able to prevent the reversal of peristalsis this would prove all that could be desired in quite a large number of cases. Methods were at present being tried out by surgeons, with the intention of preventing this reversal of peristalsis which had a tendency to carry the bowel content back into the colon above the short circuit gate.

Dr. A. ERNEST GALLANT said it seemed to him most unfortunate that the trend of the papers and discussion this evening should have been so strongly surgical, and that an impression of such a character should emanate from the meeting. He was convinced that the vast majority of these patients could be satisfactorily treated by means of mechanical support, though it was, of course, essential that such support should be of proper character and intelligently applied. He did not believe that one case in a thousand, if even as many as that, called for operation. This craze for surgical interference in such cases, he thought, however, was only a temporary one, which would run its course and pass away like the promiscuous fixation of loose kidneys in vogue a little while ago. In the doing away with that he was happy to say he had been a pioneer.

Dr. G. REESE SATTERLEE agreed with Doctor SYMS as to the need of greater uniformity in bismuth radiography of the gastrointestinal tract. The use of different amounts and kinds of foods and metals in a series of cases was misleading. In quite a large number of series of cases during the past two and a half years he had studied the intestinal tract by means of the bismuth x ray, in regard to the matter of motility. Two leading points of interest were constipation and ptosis, with or without adhesions. For the ptosis the treatment might be either medical or surgical. Abdominal support would often suffice, but operation was sometimes necessary. Of the operative procedures, colopexy had been attended with success in his hands. In twelve cases it had been done with some good results as to constipation, and three of the patients had been followed long enough to show that relief had been accomplished. This might be slow, as in one patient with an eight day constipation, in whose case, after eight months' unsuccessful medical treatment, colopexy eventually relieved the situation. He thought this operation might also be effective in the case of adhesions, by drawing the bowel out of the pelvis, where infective processes were apt to spread over a crowded bowel. He was now trying another method of overcoming adhesions, namely, by immunizing by means of autogenous vaccines made from bacteria isolated from the feces. This had proved successful in one case of obstinate ulcerative colitis of ten years' standing, relieving the toxemia. It seemed as if this method ought to have a promising future for the peritoneal infections.

## MEETING OF THE AMERICAN THERAPEUTIC SOCIETY.

*Held at Washington, D. C., May 5 and 6, 1917.*

*(Continued from page 302.)*

### Newer Notes on the Subject of Peritoneal Adhesions.

—Dr. ROBERT T. MORRIS, of New York, remarked that cobweb adhesions in the attic of the abdomen were insidious in character. Their formation was usually accompanied by no more marked symptoms than an occasional stomachache. They were capable, however, of causing more or less serious consequences, torsion, chronic con-

stipation, etc. Several theories had been advanced to account for their origin. In many cases they were undoubtedly due to toxic influences. Bacteria penetrated the wall of the bowel; as a result of irritation, the endo-thelium was shed, and the lymph that exuded gave rise to permanent adhesions. They were found most commonly at the hepatic and splenic flexures and in the regions of the cecum and sigmoid flexure. The question arose, if this explanation were correct, why the adhesions were found chiefly in these localities and not everywhere. It was because active peristalsis tended to prevent the organization of the lymph and to favor its absorption. In the localities mentioned, peristalsis was not as active as elsewhere along the course of the bowel. In some cases there was also hyperplasia of connective tissue which might result in the formation of Jackson's membrane or of Lane's kink. It was like the formation of Dupuytren's contraction, which he also believed to be of toxic origin. At first he thought that he was dealing with a distinct entity in these adhesions. When they were broken up, the patients were apparently better. But later, he realized that in many cases the more he did surgically the more adhesions there were. Surgery has undoubtedly had a place in the treatment of some cases, but as a rule the insidious cases were best treated by the physician.

Doctor BARCOCK said that the theory advanced by Doctor MORRIS was certainly very plausible. Personally he was unable to understand or explain the formation of these adhesions and he would appreciate light on the subject. Sometimes he wondered whether there were not two kinds of them, one due to ordinary causes and the other to toxic causes. Doctor MORRIS had confined his remarks to cobweb adhesions; we were gradually getting away from the old type of postsurgical adhesions, and they were now but rarely seen. This indicated the great advance that had been made in surgical methods.

Doctor MORRIS agreed as to the passing of postsurgical adhesions. Less attention was now given to the toilet of the peritoneum and as a result there were fewer adhesions. In many cases harm had come from excessive zeal in this direction.

### The Dangers and Disadvantages of Spinal Anesthesia.

—Dr. W. WAYNE BARCOCK, of Philadelphia, compared the results of ether anesthesia with those of spinal anesthesia based upon between 4,000 and 5,000 injections. The accidents and untoward effects occasionally observed during or after spinal anesthesia were discussed in detail. The conclusions reached were as follow: Ether for general use remained the standard anesthetic in spite of its many disadvantages; the newer methods of anesthesia had a use restricted to those who had particularly qualified themselves; spinal anesthesia was dangerous in myocardial degeneration, especially when associated with obesity, and it should be used with care and avoided in grave shock and hypotonicity of the vasomotor system; severe headache and abducens palsy might follow the use of improperly prepared solutions or a faulty method; excessive dosage, high point of injection, or improper positions or handling of the patient might be followed by respiratory or circulatory arrest, especially if the patient were weak. If the patient could not be watched constantly for an hour after the injection, or if the operator did not know the dosage and mode of diffusion of the drug, or if the operator was unprepared to meet emergencies, then spinal anesthesia should not be used.

Doctor RILEY said that the subject was interesting to the physician as well as to the surgeon. All patients should be carefully watched, and in every case a careful physical examination should be made before the anesthetic was given. Fibroid patients in particular were poor subjects for operation. They had already lost much blood and succumbed readily to shock. They looked well but were in reality bad risks. When pneumonia occurred it was his custom to look for a possible source of infection, and he not infrequently found that the anesthetist or an assistant had had an attack of gripe. It should not be forgotten that pneumonia and bronchitis might occur irrespective of the anesthetic. In a number of the cases reported by Doctor Barcock the ill effects might not have been primarily due to the anesthetic at all. In operations upon the lung, for instance, particularly for empyema, where the lungs were handled a great deal, death might be due to interference with the vagus.

Doctor BARCOCK said that the intraspinal method could

be employed when other anesthetics were contraindicated. It was comparatively safe, but it should not be forgotten that untoward results might follow the use of any anesthetic. It caused a marked lowering of the pulse rate and blood pressure. This was due to the blocking out of the vegetative nervous system so beautifully described by Doctor Hemmeter. The higher vagus, however, was active and sent stimuli to the stomach and intestines and this explained the increased peristalsis and spontaneous evacuation of the bowel often noted in intraspinal anesthesia. Thus the condition was the reverse of that obtaining in the early stages of anesthesia by other methods, and patients with low blood pressure, and particularly those suffering from shock, were not good subjects for the intraspinal method. The cases should be selected with such considerations in mind. If, however, the patient had no shock the intraspinal method tended to prevent its occurrence.

**Prolonged-Precipitate Parturition Due to Disengagement of the Disproportionate Head.**—Dr. A. ERNEST GALLANT, of New York, related a case to illustrate the condition in point. The delay was due to the disproportion between the size of the head and the inlet, so that the head did not fit snugly. The remedy was to press the head down either by pressure on the fundus or otherwise. One maneuver was to stand behind the woman with your arms around her and your hands upon the fundus and let her throw the weight of her body forward upon your hands. Another way was to introduce one blade of the forceps and use it to press and guide the head downward. He exhibited a forceps that he had devised, with a combination English and French lock, designed to prevent undue pressure upon the fetal head. The precipitancy in cases such as he described was due to the small size of the head. He referred to babies weighing seven pounds or less.

Doctor GOMPertz discussed the efficiency of various kinds of forceps. The maneuver described by Doctor Gallant for affording assistance in delayed labor appeared to have its counterpart among the lower animals. It had been noted that when toads were spawning, the males would encircle the females about the lower abdomen with their legs and exert pressure, apparently with the object of aiding the expulsion of the spawn.

The following officers were chosen for the year 1913-14: President, Dr. Howard Van Rensselaer, of Albany; first vice-president, Dr. Robert T. Morris, of New York; second vice-president, Dr. Francis M. Pottenger, of Los Angeles; third vice-president, Dr. J. Madison Taylor, of Philadelphia; secretary, Dr. Lewis H. Taylor, of Washington, D. C.; treasurer, Dr. A. Ernest Gallant, of New York.

Council: Dr. Frederic H. Gerrish, of Portland, Me.; Dr. John Blake White, of New York; Dr. Thomas E. Satterthwaite, of New York; Dr. Clarence John Blake, of Boston; Dr. Francis P. Morgan, of Washington, D. C.; Dr. D. Olin Leech, of Washington, D. C.; Dr. Noble P. Barnes, of Washington, D. C.; Dr. Edward D. Fisher, of New York; Dr. A. Ernest Gallant, of New York; Dr. J. Madison Taylor, of Philadelphia; Dr. James C. Wilson, of Philadelphia; Dr. Alexander D. Blackader, of Montreal; Dr. Reynold Webb Wilcox, of New York; Dr. Spencer L. Dawes, of Albany; Dr. Lewis H. Taylor, of Washington, D. C.

## Letters to the Editor.

### TREATMENT OF ERYSIPELAS.

708 WALDBEIM BUILDING.  
KANSAS CITY, MO., July 28, 1913.

To the Editor:

I have read with much interest the editorial on the treatment of erysipelas in your issue of July 26th. For the past fourteen years I have used nothing, locally, save resorcinol, one ounce to the pint of distilled water, or filtered rain water, using it as a cold compress. Internally I use saline laxatives and any of the peptonate of iron preparations, unless there are severe complications of exalted temperature and pain; in such conditions I use aconite for the fever and codeine sulphate for the pain.

A. M. WILSON, M. D.

## THE BED BUG IN A NEW RÔLE.

173 LEXINGTON AVENUE,  
NEW YORK CITY, August 4, 1913.

To the Editor:

Having read the editorial on this subject in your esteemed JOURNAL of July 26th, I desire to call your attention to a letter of mine published in your JOURNAL of November 5, 1910, in which correspondence I spoke of the bed bug in a much more important rôle than the one you describe.

Permit me to quote from that communication of mine: "In a European city there lived a widow who supported herself by letting lodgings. A young mechanic rented a room from her, lived in it for a time, became sick with phymatiasis (tuberculosis), and died from this disease. A second young man then occupied the same room, and he likewise contracted phymatiasis and died from it. And so it happened with a third occupant of the fatal room. A physician who attended the last of these three persons, on hearing of the preceding cases, examined the room and found it infested with bedbugs. He made a microscopical examination of these vermin and found they were carriers of the bacillus of phymatiasis.

"We read much about the fly as a carrier of disease germs, but very little is heard of the bedbug as a dangerous insect. For the presence of this synthropos, as well as of another companion, the louse, there must be a *raison d'être*. It indicates unsanitary conditions, and the extermination of these insects is a most important matter, especially in houses that are being disinfected on account of contagious or infectious diseases. The ordinary general disinfection will not reach these foes."

Studying the history of the oldest popular disease, consumption, which the ancient East Indians called the king of diseases, I found that the danger of the bedbugs as carriers of the infection has been well understood by the Italian physicians of the eighteenth century, as we learn from an ordination of the board of health of Naples dated July 19, 1782. I shall give the translation of this ordination in a paper on the history of phthisis which will appear within a few weeks. But even in Spain a similar edict had been given out under Ferdinand VI in the year 1751, of which latter edict, however, I cannot give the full text until I have completed my researches.

I may be permitted to close this correspondence with the same words with which I closed my letter of November 5, 1910:

"All these things, which I have brought before the profession from time to time through medical journals, as well as by means of a special circular addressed to the great Phymatiasis Congress at Washington, have been overlooked, and for this reason I beg to present my ideas before the board of health, the great, the noble institution of which the medical profession has a right to be proud.

A. ROSE, M. D.

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*A Compend of Histology.* By HENRY FRDMANN RADASCH, M. Sc., M. D., Assistant Professor of Histology and Embryology in the Jefferson Medical College. Third Edition, Revised and Enlarged. With 111 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1912. Pp. xii+363. (Price, \$1.25.)

Radasch's compend is an exceptionally valuable one of its kind. Clear, concise, and practical, it is an excellent book for any worker in histology, be he student or practitioner. The most important additions introduced in the present edition—besides a thorough revision and rearrangement—have been: A new chapter on the development of the placenta and the latest findings in the development of the embryo, considerable amplification of the subjects of bone development and connective tissues, of the description of the ovum *per se*, of the uteroovarian changes in menstruation, and also a rearrangement of the various parts of the nervous system.

*The Narcotic Drug Diseases and Allied Ailments. Pathology, Pathogenesis, and Treatment.* By GEORGE F. PETTEY, M. D., Memphis, Tenn. Illustrated Philadelphia: F. A. Davis Company, 1913. Pp. viii+516. (Price, \$5.)

Doctor Pettey has produced an excellent book, dealing in a practical, thorough fashion with a most difficult group of phenomena. Obviously he has had a large experience and dealt successfully with the disorders induced and their complications, somatic and psychic. His views on the concrete problems are clearly defined, based on a multitude of observations and a shrewd common sense. In his interpretation of the causal factors of narcotism he rejects the idea of neurosis, and emphasizes his opinion that the condition is essentially a toxemia belonging to the field of internal medicine; that "every symptom attendant upon the use or disuse of a narcotic drug is the direct outcome of drug, auto and intestinal toxemia." Just in proportion as the toxic conditions of the system are overcome, all these nervous and physical manifestations disappear. It is the belief of the author that "if a drug patient could be made *cell clean*, that is, if every cell and structure of the body could be entirely freed from toxic matter, there would be no nervous manifestations or suffering incident to or following the withdrawal of narcotics from an habitué." His method consists in a thorough elimination of all the sundry poisons, selfmade or swallowed; the organs of secretion and excretion must be roused from the lethargy induced by narcotism, and forced to work overtime till the surcharged system is freed from toxins. Much attention is given to the "physiologically balanced purge"; various agencies are described, and a selected group recommended. Along with this is an ample consideration of tonic measures, activities, and other collateral rational agencies, including physical training as well as mind control. "The evidence clearly indicates a condition of intense intoxication, with profound anemia, attended by derangement of the nervous system and impaired mentality."

"The powers of perception are materially blunted, and actions based on perception may not represent the real intention of the individual, because erroneous conclusions are likely to be drawn from these impressions; actions based upon such conclusions would be correspondingly erroneous or untrue to the real intent of the individual." Again, "The engorged condition of the portal system is the chief factor in bringing about a labored and deficient heart action, and this deficient heart action is an essential factor upon which collapse, the principle dangerous symptom, depends. If this engorged condition is remedied, then the other conditions developing out of it do not occur and the patient can weather the remainder of the storm without great danger." Doctor Pettey offers good ground for his opinion that only in the atmosphere of a well regulated sanatorium can a cure be satisfactorily effected. He gives a series of twenty-one "propositions as to the pathology and treatment of narcotic addictions, none of which had prior (to his presentation) been advanced." This book can be commended to the careful perusal of clinicians, who will learn from it much that is both original and useful.

*The Prognosis and Treatment of Diseases of the Heart.* By R. O. MOON, M. A., M. D., F.R.C.P., Physician to the National Hospital for Diseases of the Heart, etc. London, New York, Bombay, and Calcutta: Longmans, Green, & Co., 1912. Pp. ix+111.

This little book, while presenting nothing new, is an attempt to interpret the results of the various cardiographers, MacKenzie, Wenckebach, Lewis, and others, coupled with careful bedside study, so that, as far as this is possible, a rational prognosis may be given in cases of diseased heart. The author admits the difficulty, indeed, distinctly states his agreement with those who look upon prognosis as an art and not a science. In the arrangement of the book, under mitral disease, mitral stenosis is taken up, on page 32, in a rather abrupt manner, under the heading of, *The Treatment for Mitral Regurgitation*. This is doubtless merely a little oversight. In the section on the prognosis of mitral stenosis he speaks first of the possibility of confounding functional and organic mitral regurgitations. Then he says, "Whereas in the case of mitral stenosis with the possible exception of Flint's murmur, there is never any doubt as to the structural char-

acter of the lesion." This might have been qualified, with advantage, with the further statement that in the case of the Flint murmur of aortic regurgitation the left ventricle is always greatly hypertrophied and the apex correspondingly displaced, while in uncomplicated mitral stenosis this is almost never the case. Rarely, as Sir Isambard Owen has shown, in paralytic distention of the right auricle in mitral stenotic cases, the longitudinal axis may assume a transverse position. Again, in speaking of tricuspid stenosis and the difficulty of diagnosing this lesion, he fails to mention MacKenzie's diagnostic sign, namely auricular venous pulse. He mentions, too, the obstruction of the vena azygos as the cause of hydrothorax, overlooking the more recent view of Dr. George Fetterolf, that the hydrothorax is induced by pressure of the dilated auricle against the pulmonary veins. The book is a very practical one, however, thoroughly repays perusal, and can be especially recommended for its wise counsel along therapeutic lines. The writer places due importance upon rest and nondrug measures, relegating drugs to their proper position, that is as aids only when other and rational measures fail. Though recognizing the value of digitalis, he is inclined to prescribe it only when indubitable evidence of failing compensation is present. Unfortunately, with many, digitalis is used almost as part of the diet.

*Hygiene and Sanitation. A Textbook for Nurses.* By GEORGE M. PRICE, M. D., Director of Investigation, New York State Factory Commission, etc. Philadelphia and New York: Lea & Febiger, 1913. Pp. viii+236.

The author has succeeded admirably in this volume in presenting clearly the salient points. It is not an extensive discussion of these large and important subjects, but the ground has been well covered; the various chapters taking up the hygiene of habitations, foods, and food supplies, of schools and school children, occupations, municipalities, and of the person. The book can be recommended very highly.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service, for the seven days ending August 6, 1913:*

**Carter, H. R.**, Senior Surgeon. Detailed to make a survey of the prevalence of malaria in the State of North Carolina, after conference with the State Board of Health. **Chapin, C. W.**, Passed Assistant Surgeon. Upon the departure of Passed Assistant Surgeon Creel from Porto Rico, directed to assume charge of measures for the suppression and eradication of plague in the island. **Guthrie, M. C.**, Passed Assistant Surgeon. Directed to proceed to Tampa Bay Quarantine Station and assume temporary charge. **Kearny, R. A.**, Assistant Surgeon. Granted one month and nineteen days' leave of absence, from July 21 to September 8, 1913, on account of sickness. **Moore, G. P.**, Acting Assistant Surgeon. Granted one month's leave of absence from August 25, 1913, and two months' leave of absence, without pay, from September 25, 1913. **Mullan, E. H.**, Passed Assistant Surgeon. Directed to report at the Bureau of Medicine and Surgery, Washington, D. C., for special duty on the board of examiners. **Parcher, George**, Assistant Surgeon. Granted thirty days' leave of absence from August 14, 1913. **Schereschewsky, J. W.**, Surgeon. Directed to proceed to Greenwich, Conn., and vicinity to conduct an investigation into the sanitary condition of that town and borough, in compliance with the request of State and local health officers. **Scott, E. W.**, Assistant Surgeon. Directed to report to the commanding officers of the revenue cutter *Itasca* for summer cruise. **Warren, B. S.**, Surgeon. Directed to proceed to Southport, N. C., and assume temporary charge of the Cape Fear Quarantine. **Whillans, H. A.**, Acting Assistant Surgeon. Granted two months' leave of absence, without pay, from June 18, 1913.

### Board Convened.

Board of Medical officers convened for the physical examination of an employee of an executive department



in Washington, D. C. Detail for the board: Surgeon Joseph Goldberger, chairman; Passed Assistant Surgeon J. P. Leake, recorder.

### Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending August 9, 1913:*

**Anderson, J. B.**, First Lieutenant, Medical Reserve Corps. Ordered to active duty and will proceed to Fort Monroe, Va., for duty. **Bevans, James L.**, Major, Medical Corps. Relinquished unexpired portion of leave of absence and reported for duty at Headquarters, Western Depart., on July 28th. **Bingham, Ernest G.**, Captain, Medical Corps. Leave of absence extended one month. **Boyer, P. L.**, Major, Medical Corps. Left Madison Barracks, N. Y., on August 1st, for Glens Falls, N. Y. **Bruns, E. H.**, Captain, Medical Corps. Granted leave of absence for one month about August 2, 1913, with permission to apply for an extension of two months. **Carswell, R. L.**, Captain, Medical Corps. Granted four months' leave of absence upon relief from duty in the Philippines, with permission to return home via Europe. **Craig, Charles F.**, Captain, Medical Corps. Relieved from duty as assistant to the curator of the Army Medical Museum, and assistant instructor in clinical microscopy and bacteriology, Army Medical School, effective on or about October 1, 1913, and will proceed to Fort Leavenworth, Kansas, for duty. **Edger, B. J.**, Major, Medical Corps. Ordered to Boise, Idaho, August 17 to 26, 1913, on militia duty. **Gregory, J. C.**, Captain, Medical Corps. Granted leave of absence for three months, effective on relief from duty in the Transport Service. **Hull, Howard L.**, First Lieutenant, Medical Corps. Relieved from duty at Fort Terry, N. Y., effective on arrival of Horace M. Roberson, First Lieutenant, at that post, and will proceed to Texas City, Texas, for duty with station at Fort Mackenzie, Wyo. **Jones, George B.**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Camp E. S. Otis, Canal Zone, Panama, and will proceed to his home, and on arrival will report by telegraph to the Adjutant General of the Army; is relieved from duty in the Medical Reserve Corps, effective on the expiration of four months' leave of absence, granted in orders of August 8th. **Kilbourne, E. D.**, Captain, Medical Corps. Leave heretofore granted extended one month. **Maus, L. M.**, Colonel, Medical Corps. Granted six days' leave of absence, about August 11th. **Michie, H. C.**, First Lieutenant, Medical Corps. Left Texas City, Texas, on July 20th, en route to Walter Reed General Hospital for observation and treatment. **Miller, R. B.**, Major, Medical Corps. Left Texas City, Texas, on July 21st, en route to Fort Wayne. **Phalen, J. M.**, Major, Medical Corps. Assigned to duty as sanitary inspector, Southern Department, relieving Major R. B. Miller. **Reno, W. W.**, Major, Medical Corps. Left Gettysburg, Pa., on August 1st, with Field Hospital No. 1, en route to Camp Perry, Ohio. **Richard, Charles**, Colonel, Medical Corps. Left Army Medical School on August 6th, on fifteen days' leave of absence. **Sparrenberger, F. H.**, First Lieutenant, Medical Reserve Corps. Left Lettermann General Hospital, July 29th, en route to Fort Bayard General Hospital for observation and treatment. **Thode, E. F.**, First Lieutenant, Medical Reserve Corps. Ordered to Fort Greble, R. I., August 4th, for duty until the arrival of another medical officer at that post. **Turnbull, S. J.**, First Lieutenant, Medical Corps. Ordered to temporary duty with the Second Battalion of Engineers, Texas City. **Waring, J. B. H.**, First Lieutenant, Medical Corps. From sick leave on August 2, to Walter Reed General Hospital for observation and treatment. **Woodward, Julius H.**, First Lieutenant, Medical Reserve Corps. Resignation of his commission in the Medical Reserve Corps has been accepted by the President, to take effect August 2, 1913.

### Navy Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy, for the week ending August 9, 1913:*

**Davis, R. G.**, Assistant Surgeon. Ordered to the

Naval Hospital, Olongapo, P. I. **Hough, F. W. P.**, Passed Assistant Surgeon. Detached from the Canacao Hospital, and ordered to the Bureau of Navigation, Philippine Islands, Philippine Government, Manila, P. I. **Jenness, B. F.**, Passed Assistant Surgeon. Detached from the *Washington* and ordered to the *Hancock*. **Reed, E. U.**, Passed Assistant Surgeon. Ordered to the Naval Hospital, Las Animas, Col. **Stuart, M. A.**, Passed Assistant Surgeon. Detached from Las Animas, Col., and ordered to the *Galveston*.

### Births, Marriages, and Deaths.

#### Born

**Walkes.**—In Philadelphia, on Monday, August 4th, to Dr. and Mrs. Le Roy Augustus Wilkes, a son.

#### Married

**Kauffmann—Keenan.**—In Philadelphia, on Wednesday, August 6th, Dr. Louis I. Kauffmann and Miss Maria G. Keenan. **McNally—Sanaman.**—In Louisville, Ky., on Saturday, August 2d, Dr. Allan McNally and Miss Ida L. Sanaman.

#### Died

**Allen.**—In Brooklyn, N. Y., on Sunday, August 10th. Dr. Emma F. P. Allen, aged sixty-eight years. **Bailey.**—In Philadelphia, on Friday, August 1st, Dr. Thomas W. Bailey, aged thirty-four years. **Bigger.**—In Los Angeles, Cal., on Sunday, July 27th, Dr. R. H. Bigger. **Boyer.**—In Washington, D. C., on Thursday, July 31st, Dr. Samuel S. Boyer. **Carter.**—In Gerrardstown, Md., on Saturday, August 2d, Dr. J. Pendleton Carter, aged eighty-seven years. **Darby.**—In New York, on Friday, July 25th, Dr. William J. Darby. **Dennis.**—In Oil City, Pa., on Friday, August 1st, Dr. Bernard Francis Dennis, of Buffalo, N. Y., aged thirty-six years. **Hodson.**—In Evansville, Ind., on Wednesday, July 30th, Dr. George P. Hodson, aged sixty years. **Hyde.**—In New York, on Tuesday, August 5th, Dr. O. A. Hyde, aged sixty-one years. **Ingles.**—In Larned, Kans., on Sunday, July 27th, Dr. J. B. Ingles, aged sixty-five years. **Jones.**—In Oswego, N. Y., on Wednesday, July 30th, Dr. Ira L. Jones, aged eighty-one years. **Klostermann.**—In Okawville, Ill., on Sunday, July 13th, Dr. Julius E. Klostermann, aged sixty-nine years. **Lane.**—In Pawtucket, R. I., on Thursday, July 31st, Dr. Edward Monroe Lane, aged forty-six years. **Leusman.**—In Chicago, on Sunday, August 3d, Dr. Frederick August Leusman, aged sixty years. **Mackie.**—In Boston, on Friday, August 8th, Dr. William B. Mackie. **Manaton.**—In Greenport, N. Y., on Wednesday, August 6th, Dr. William P. Manaton, aged forty-eight years. **Maynard.**—In Frederick, Md., on Monday, August 4th, Dr. Sillers S. Maynard, aged seventy-eight years. **Moeller.**—In Alhambra, Cal., on Sunday, July 27th, Dr. Adolph Moeller, of Milwaukee. **Morrison.**—In Martinsburg, W. Va., on Saturday, July 26th, Dr. George Porterfield Morrison, aged fifty-nine years. **Nevers.**—In Houlton, Me., on Monday, August 4th, Dr. Frank A. Nevers. **Noble.**—In Groton, Conn., on Sunday, August 3d, Dr. E. H. Noble, aged seventy-four years. **Peiser.**—In Carlsbad, Germany, on Tuesday, August 5th, Dr. Louis Peiser, of New York, aged fifty-four years. **Richards.**—In Wyomissing, Pa., on Saturday, August 2d, Dr. Emma Richards, aged sixty-three years. **Saulsbury.**—In Farnhurst, Del., on Thursday, July 31st, Dr. Theodore Saulsbury, aged sixty-three years. **Schoolz.**—In St. Louis, Mo., on Thursday, July 31st, Dr. Philip Schoolz, aged seventy-one years. **Todd.**—In Chicago, on Wednesday, August 6th, Dr. Frank M. Todd, aged ninety-two years. **Van Derveer.**—In Whitehouse, N. J., on Tuesday, July 29th, Dr. James D. Van Derveer, aged seventy-five years. **Whiteford.**—In Pikesville, Md., on Saturday, August 2d, Dr. Lingard I. Whiteford, of Fullerton, aged thirty-five years. **Willis.**—In Shelburne Falls, Mass., on Tuesday, August 5th, Dr. Andrew E. Willis, aged eighty-one years. **Wunder.**—In Sabillasville, Md., on Sunday, July 20th, Dr. Joseph C. Wunder, of Baltimore.

# New York Medical Journal

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### Original Communications.

#### TOPOGRAPHY OF THE BLADDER, WITH SPECIAL REFERENCE TO CYSTOSCOPY.

(Illustrated With Case Reports),

By VICTOR COX PEDERSEN, A. M., M. D.,  
New York.

At the annual meeting of the American Urological Association, held in Boston, April 15, 16, and 17, 1913, Dr. Bransford Lewis read a paper entitled, "Where Is the Fundus of the Bladder?" In this he pointed out by direct quotations the fact that many observers and operators are loose, indefinite, and inaccurate in their use of this term. Thus it is that some case reports refer to the apical zone of the bladder as the fundus, others to the posterior part of the floor, fundus, or base, and so on, with more or less confusion, unless the reader is very careful to realize that a given writer has departed from the anatomical subdivision of the viscus into fundus, apex, and sides.

This exposition caused the writer to think that it might be well for urologists to adopt a nomenclature for the portions of the bladder of importance in cystoscopy. It is well known that the most important portion of the bladder includes the ureters, trigonum, and neck; consequently, any system of apportioning the organ should make one part include as much of these three anatomical features as possible. Another desideratum is to include the urethra, for the reason that in modern urology a full diagnosis cannot be reached without exploration with the urethroscope in both men and women.

A scheme of diagrams for the bladder and urethra is set forth in Figure 1, and the writer would add that he has found it of great service in his own work and would recommend it to his colleagues for adoption. The parts are obtained by the following procedure: The body is in the anatomical position, and a transverse horizontal plane is imagined as passing through the bladder just posterior to the point at which the ureteric folds disappear into the bladder wall. Such an imaginary plane will divide the bladder into superior and inferior halves. An imaginary vertical plane is passed through the bladder and the urethra throughout its entire length, thus dividing the bladder and the urethra into anterior and posterior halves. The two planes thus set off four quadrants or segments of the organ.

Let us now consider the appropriate names of these portions thus outlined and their contents. Each of the subdivisions is broadly speaking a

quadrant of the bladder. They might be conveniently denoted as follows:

First, the posterior lower quadrant, or, better, the ureterotrigoanal quadrant, containing the right ureter and its fold, the interureteric fold, the left ureter and its fold, the trigonum, and the posterior half of the neck.

Second, the posterior upper quadrant, or by choice the subperitoneal quadrant, which lies beyond the ureteric and interureteric folds, and is not infrequently called the deep base or deep fundus of the bladder.

Third, the anterior upper quadrant, or preferably the urachal quadrant, inasmuch as this contains the true apex of the bladder with the remnants of the implantation of the fetal structure, the urachus. This quadrant might also be well known as the apical zone.

Fourth, the anterior lower quadrant, which might suitably be noted as the retropubic, inasmuch as it lies immediately behind the symphysis pubis and contains the anterior half of the neck of the bladder.

The importance of the neck of the bladder, and the fact that it is best explored with the retrovision telescope, or with the urethroscope, might be regarded by many as reasons for making it a fifth subdivision for office records and the like.

It will be noted that this classification groups the important anatomical parts of the bladder, and the chief zones in which pathological processes are common, in such a way as to be agreeable to, and consonant with, both these departments of medicine. It will be observed that Figure 1 displays these four sections of the bladder very successfully for diagrammatic record and reference, viz., the left hand figure shows the ureterotrigoanal and the subperitoneal quadrants, while the right hand figure shows the urachal and the retropubic zones, and the neck is equally divided between the left and the right hand pictures.

For urethroscopy the transverse vertical plane of the bladder is made to pass vertically through the urethra, dividing it into anterior and posterior halves, which respectively correspond with the dorsal and ventral surfaces of this passage. If we enumerate the anatomical features in each of these portions in the male, the ventral will show from behind forward the vesical neck with the sphincter muscle; the prostatic urethra, one and a quarter inches long, containing the crest, colliculus, right and left prostatic sinuses, right, left, and middle prostatic ducts, sinus pocularis, right and left ejaculatory ducts; the membranous urethra, a quar-

ter inch long, showing chiefly the folds of the mucosa over the compressor urethrae muscle; the penile urethra, six inches long, containing the bulb, with Cowper's ducts, mucous glands, and the fossa navicularis. The dorsal portion of the urethra shows the prostatic ducts, folds of the membranous urethra over the compressor muscle, numerous mucous glands, the lacuna magna, and the fossa navicularis. Thus, it is relatively sparse in anatomical features, but very frequently the reverse in pathological conditions.

In the female the same plane of the bladder divides the urethra in much the same way, but the anatomical features are usually those of folds and glands only.

Another advantage of this system of dividing the bladder and urethra is exemplified in a plan of doing a cystoscopy which the writer always follows, and has found it to be at once thorough, orderly, and satisfactory. Inasmuch as the floor of the bladder, including the ureters and the trigonum, viz., the ureterotrigonal quadrant, is in a certain sense the most important part, it should receive first attention before the medium changes or perhaps the eye of the operator tires. The steps of the procedure are as follows:

1. The air bubble at the apex of the bladder is at once located and regarded as in most cases marking the highest point and the middle line.

2. The instrument is then rotated to the patient's right, through 180 degrees to the base of the bladder in the middle line. It is then slowly withdrawn until the posterior border of the red trigonum is recognized distinctly set off from the paler portion of the base behind it.

3. The interureteric bar (*plica interureterica*) is next distinguished.

4. The instrument is now rotated to the patient's right along the plica, if present, or, if absent, along the red border of the trigonum until the right ureteric mouth is reached. The arc of rotation varies from 30 to 60 degrees from the middle point, according to the proximity of the ureters to each other.

5. The left ureteric mouth is located in the same way by rotation in the opposite direction, 30 to 60 degrees from the middle line, or 60 to 120 degrees from the right ureter.

6. After both ureteric mouths have been studied, the instrument is withdrawn about three cm., or the diameter of a focal field, and swept through an arc of 180 degrees from left to right, thus covering a "field zone" of the trigonum immediately in front of the ureters.

7. From this position at the right it is again withdrawn three cm., or until the neck of the bladder begins to interfere with the field, and then swept 180 degrees to the left. Usually one field zone will cover the trigonum, but exceptionally this plan of zone by zone procedure is necessary. These several manipulations serve to study the ureters, the trigonum, and the lower posterior quadrant of the bladder in a very complete manner, if the bladder is regarded as subdivided into anterior and posterior halves by the transverse plane passing through the neck and urethral outlet, as the patient stands in the anatomical position.

8. The instrument is now advanced to the interureteric bar again in the middle line as the chief landmark, and next three cm. (the diameter of a focal field) beyond it. From this point it is rotated 90 degrees to the patient's right, and next 180 degrees to the left; thus covering a field zone just above the ureters.

9. At this moment it is advanced another three cm., and rotated 180 degrees toward the patient's right. If more of the floor remains to be inspected, the same manner of procedure is followed, by advancing the instrument into the bladder about three cm., and sweeping it slowly through 180 degrees from side to side, step by step.

10. When the upper posterior quadrant has been in this manner completely studied, the instrument is rotated upward through 180 degrees from the patient's right to left, thus covering the most posterior field zone of the upper posterior quadrant. At the left point it is withdrawn the diameter of a field, and rotated to the right over 180 degrees. These three field zones commonly serve to cover completely every square centimetre of the upper posterior quadrant, otherwise called the apical or urachal quadrant.

11. By exactly the same procedure the lower anterior or retropubic quadrant is studied, one field zone at a time, each having a width of one cystoscopic field and extending from side to side through an arc of 180 degrees. As a rule, from two to four such zones complete the inspection of this and all other quadrants.

12. When the neck has been reached, as much as possible thereof is inspected in the same manner in a single field zone in both the ureterotrigonal and the retropubic quadrants.

If further study of the neck of the bladder is necessary, the retrovision telescope is substituted for the laterovision, and if this is not final in its findings, the urethrocystoscope is employed. No matter what instrument is in use, however, the same plan is followed, of passing through an arc of 180 degrees from right to left, and then withdrawing the instrument the width of its own field, rotating back again from left to right, and so on, until the entire neck has been thoroughly inspected. It takes longer to describe and read the details of this method than it does to follow it after a little practice. When this experience has been had, no one will ever think of giving up the plan. It will be noted that this method divides the bladder into anatomical divisions, viz., the fundus, floor or base, which are covered by the ureterotrigonal and subperitoneal quadrants and examined in accordance with paragraphs one to nine as just stated, and the apex and sides, which are included in the apical or urachal and retropubic quadrants, as laid down in paragraphs ten to twelve inclusive; which also embrace the neck of the bladder as perhaps properly an integral zone.

The following three case reports will serve to illustrate the facility with which these principles may be applied:

CASE I. Mr. B. O., Russian, white, aged fifty-five years, married, peddler, first seen December 6, 1912 (case 12,693), referred by Dr. Benjamin T. Tilton and Dr. M. M. Apfel, of Williamsburg. Diagnosis, enlarged prostate; two cal-



culi in the bladder. History negative as to family, former personal, and former sexual facts; all venereal disease and sexual disorder denied. Present history began one year ago with frequency of urination; from ten to fifteen times by day, one or two times by night, with urgency fol-

Urgency is distinct, control incomplete, and shutting off of the stream is slow and interrupted. No catheterism. Pain is present in the testicle, rectum, and right loin, so that family physician suspected stone in that kidney. No change in sexual function. Physical examination shows

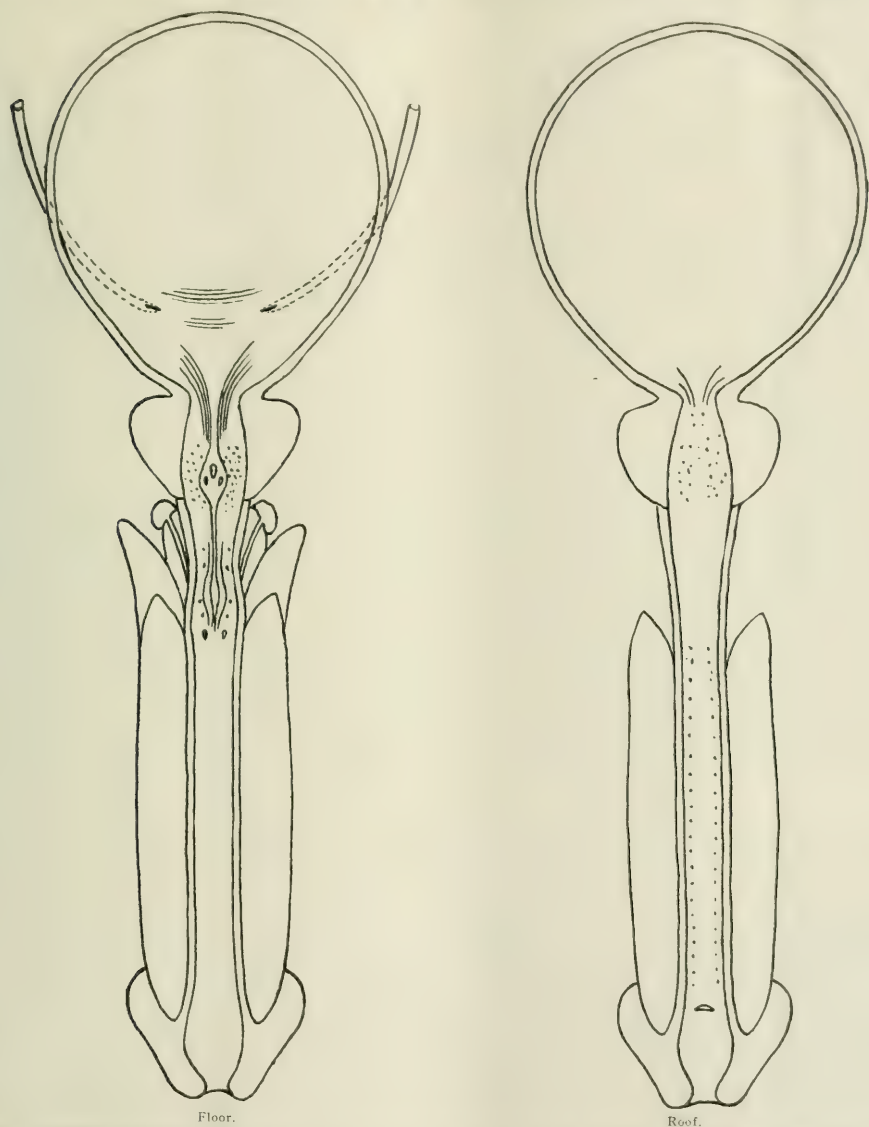


FIG. 1.—Anatomical diagrams for office histories for noting diagnosis of cystoscopy and urethroscopy, and recording results of treatment

lowed by comfort after evacuation. Blood noticed in the urine first on August 12, 1912, in rather large amount for a few hours. Urination has increased in frequency to every half hour by day and every four hours by night; almost doubling in the past few months. Stream has decreased in size and force, and is now forked and dribbling.

a man of very good health for his years. Soft, general, insensitive hypertrophy of the prostate. First urine fifty c. cm., clear; second urine without straining, fifty-five c. cm., clear; no residual urine. Calibre of urethra 24 F., admitting the Buerger cystoscope rather easily. Cystoscopy, December 6th, showed two stones in the bladder, behind a

moderately enlarged prostate. They were placed in the upper posterior quadrant, just beyond the equator of the bladder, about 20 degrees to the left of the middle line behind the left ureter. Urinalysis of this patient's urine was done before operation, December 9th, and after operation, December 10th. Each was, age considered, normal; the phenolsulphonphthalein test showed high efficiency of the kidneys. Consequently, the operation of crushing the stones was undertaken and successfully carried out under ether at St. Mark's Hospital. Uneventful recovery followed.

The foregoing case report presents the application of these principles to foreign body in the bladder. The following notes show what they accomplish with respect to neoplasms and similar lesions of the bladder.

CASE II. Mr. H. C. U., United States, white, aged forty years, married, salesman (case No. 12,754), April 21, 1913, referred by Dr. Browne Morgan, of Bloomfield, N. J. Diagnosis, multiple papilloma of the bladder. History negative as to family, former personal, former venereal, and habitual history. Present history began about four

the importance of early cystoscopy in every case of blood in the urine.

CASE III. F. H. L., German, white, aged forty-seven years, married, barkeeper (case 12,769), May 15th, referred by Dr. R. W. Gelbach, of Hoboken, N. J. Diagnosis, papilloma of the bladder in the retropubic quadrant. Former general history negative; family history negative. Wife and two children well; no cancer, tuberculosis, nor syphilis. Past personal history negative. Former venereal history: Had urethritis once twenty years ago; treated by a physician for about a month by internal means; no complications or bladder trouble. Has always been in perfectly good health and without bladder symptoms until about three months ago, when he noticed for the first time a few drops of terminal bleeding. This returned a couple of weeks later, when he consulted Dr. Gelbach, who referred him to me. Urinalysis showed slight turbidity; specific gravity 1.021, small excess of indican; decided trace of albumin; no sugar; normal urea; one tenth of one per cent. albumin, chiefly as constituent of pus; numerous pus cells; otherwise microscopically negative. Cystoscopy showed a bladder easily cleansed by irrigation, and painlessly distensible to 250 c. cm. In the retropubic

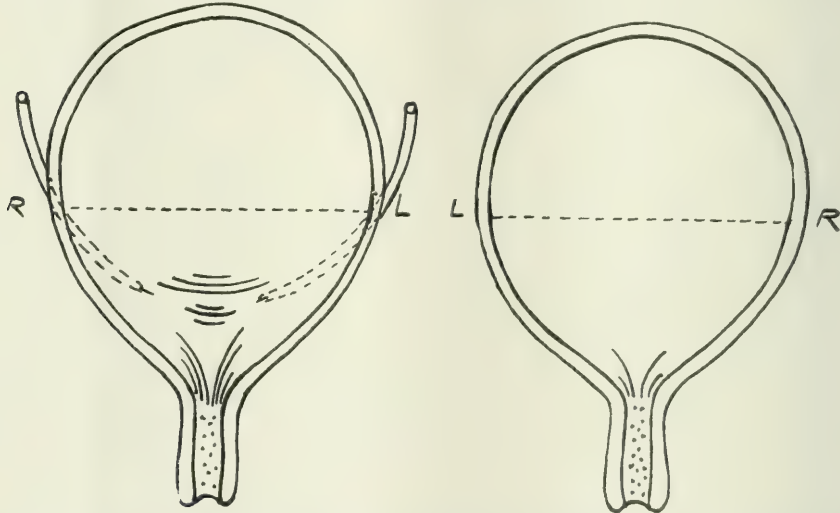


FIG. 2.—Shows the same plan of topography applied to the female bladder. Without necessity of a separate cut, the female urethra may be drawn in over the male in Fig. 1 and the same plan of procedure followed as with Fig. 1. There may, however, be some physician who sees only female cases, to whom Fig. 2 will be of value.

years ago with blood in the urine, more or less recurrent in type, from week to week and month to month, so that he had some blood for about one fourth of the time, always in small quantities and usually for part of the day only. Anything that disturbed the bladder increased the blood. Cystoscopy was performed on April 23d, and two papillomata were discovered, each requiring about three cystoscopic fields to cover. Their location would in the foregoing nomenclature be described as follows: The first tumor is located in the subperitoneal quadrant on or near the equator, just behind the left ureter, about 25 degrees to the left and extending almost to the left meridian. The second tumor is in the right meridian near the neck, so that it lies in part in the ureterotrigonal quadrant and in part in the retropubic quadrant, midway between the equator and the neck.

The foregoing record indicates how ready was the diagnosis and how accurate was the localization of the two papillomata from which symptoms seemingly trifling, though persistent, had for several years been proceeding. The case is an example of

quadrant to the left of the middle line, half way between the neck and the equator of the bladder, is a papilloma requiring one and a half cystoscopic fields for study.

This is another case showing the convenience of this method of recording cystoscopic findings, and also illustrating the importance of the earliest possible investigation of even small symptoms.

Each of these individuals is being benefited by fulguration. The second patient may do better than the first, inasmuch as the diagnosis was made so much earlier, while the growth is still small and perhaps not yet possessed of malign tendencies.

The value of this chart in the matter of urethroscopy is sufficiently set forth in the author's paper on Chronic Gonorrhea in the Male,<sup>1</sup> to which the reader is respectfully referred. It would be

<sup>1</sup>See NEW YORK MEDICAL JOURNAL, October 9, 1912

superfluous to give examples of urethroscopic records, or to quote others for cystoscopy than the three outlined above. There seems to be little doubt, however, that these details of case observation and record are worth the time they take.

45 WEST NINTH STREET.

## THE MODERN DIAGNOSIS AND TREATMENT OF GYNECOLOGICAL AND OBSTETRICAL PATIENTS WITH SYPHILIS.\*

By J. BENTLEY SQUIER, M. D.,

New York,

Professor of Genito-urinary Surgery, New York Post Graduate Medical School

To essay in detail an exposition of the abstract matter of this paper, as outlined in the programme, would, I fear, owing to its comprehensiveness, jeopardize my position in relation to your society, toward which I entertain a profound sense of gratitude, and might perhaps, in view of the time necessitated in communicating the same, preclude the possibility of ever receiving a second invitation to address you.

Therefore, I shall more or less arbitrarily emphasize or minimize such topics which appeal to me as possessing points of greater or lesser practical importance, since, after all, this is the barometric gauge militating for or against a paper of this character. It is my purpose freely to quote the findings of a number of the more recent publications, a list of whose authors will be given at the conclusion of the paper.

*The value of the complement fixation reaction and its interpretation.*—Here at once enters a number of factors, vital to the success of this exceedingly valuable test; but, with little fear of contradiction, I will venture the opinion that the consideration of greatest importance is *the experience and dependability of the biologist conducting the test*, whose report, in such cases as are clinically doubtful, should be supplemented by that of another equally experienced biologist.

*In indeterminate reactions*, should the patient's condition not indicate immediate intervention, a period of several weeks may be allowed to elapse without treatment, before taking another Wassermann test.

*Determinate reactions* in the absence of framboesia tropica and leprosy, according to Carl Bruck, one of the authors of this test, are (in the absence of faulty technic) positively pathognomonic of syphilis. Hence the importance of the requisite first mentioned, namely, checking up the reaction by a second biologist.

*Countervailing influences.* Little or no importance should be accorded a negative reaction in the presence of recent mercurial administration or a recent marked alcoholic indulgence.

*Provocative salvarsan administration*, so called, may be borne in mind, as it is a well known fact that in a number of cases where an indeterminate or negative reaction has been recorded, salvarsan ad-

ministration has been followed by an evanescent positive reaction. The field of usefulness of such a procedure would be largely limited to obtaining data as to a probable cure.

*Doubtful cases.* A few cases have come under the author's observation in which a positive Wassermann reaction was reported by different biologists, yet the subsequent history of which, as well as later tests, tended to prove that the patients had never been luetic.

Finally, one should not lose sight of the value of clinical evidence, as well as the worth of diagnostic treatment, where such evidence conflicts with laboratory tests.

*The luetin skin reaction.* This may be regarded as the analogue of the von Pirquet test for tuberculosis. It consists in the application of a preparation of dead *Spirochæta pallida* to the scarified skin. According to its author, it is practically always positive in tertiary syphilis, while secondary cases rarely give the reaction. In other words, it is strongest where the Wassermann test is apt to prove weakest, and while certain syphilographers would seem to diagnosticate tertiary lesions with it in preference to the Wassermann reaction, the consensus is, that this test has as yet failed to find a place of very much importance in the routine diagnosis of lues, the chief objection on the behalf of other authorities being, that while in administering the Wassermann test no complication may be anticipated, faulty technic in the preparation of luetin might constitute a veritable menace to the subject.

*Differential diagnosis of skin disease in relation to the organs of generation.* Many of us here are but too well aware of the almost insurmountable difficulties heretofore encountered in diagnosing differentially, even in the face of laboratory aids then at hand, such lesions as lupus, carcinoma, rodent ulcer, and syphilis of the vulva, and the none too easy solution of lesions of the nipples and breast, such as malignancies, gummata, syphilides, and psoriasislike eruptions. In the light of the first chapter and the diagnostic aids therein mentioned, to err in these cases and times should indeed prove exceptional.

*The hereditary stigmata of lues.* It was the writer's original intention to consider this topic somewhat at length, but later the conclusion forced itself upon him that to take up this inexhaustible subject briefly before a society of this character would appear inadvisable, inasmuch as to constrict it to the confines of a few paragraphs in a paper where brevity constitutes so important an element would automatically prove fatally defective. The interested reader on this subject, however, cannot fail to be rewarded by a close study of Dr. Edmond Fournier's observations, as translated by Dr. Leon Joseph Roth (1), as well as the compact but comprehensive work of Marshall (2).

*Advances in the administration of salvarsan and neosalvarsan.* In my own practice the use of neosalvarsan has almost entirely supplanted that of salvarsan for the following reasons:

First, simplicity of preparation.

Second, minimizing the number of preparation ingredients, and thereby reducing by that much the possibility of faulty technic.

\*Written as a part of a symposium on Syphilis for the American Gynecological Society, by invitation.



Third, the possibility of the employment of a smaller volume of fluid for injection.

Fourth, diminished toxicity, with less reaction.

*Mode of employment.* The intravenous method is employed by me in practically all cases, inasmuch as no method of preparation of the drug has thus far been advanced which assures the patient a painless intramuscular injection of a sufficient amount of the drug; and the additional reason that there are many factors quite beyond our control affecting the rate of absorption of the remedy when thus administered.

*Importance of freshly distilled water.* The employment of water distilled on the day of administration cannot be overestimated. Inasmuch as it has been conclusively proved that, for the most part, excepting in florid cases, the violent reactions following the employment of neosalvarsan are due chiefly to the absorption of proteid products of dead bacteria contained in the water of dilution when any length of time has elapsed between distillation and use; whereas with faultless technic these reactions will rarely be encountered. Freshly distilled water should be used not only for the solutions, but also in the sterilization and cleansing of glassware, tubing, etc.

*Time of administration.* One should not, as heretofore, await the onset of secondary symptoms. This because it is of the utmost importance to society to render these patients innocuous at the earliest possible moment, and in the light of recent advances in laboratory technic (dark field illumination for *spirochæta*) one need not await the time necessary for the appearance of a positive Wassermann reaction. If we hope for an early cure of the patient, treatment must be instituted at the earliest manifestation of the disease.

*Dosage.* No fixed rule may be followed as to dose; each case being treated according to the particular indications. It is my custom in robust patients showing no contraindication to give the neosalvarsan equivalent of 0.6 gramme of salvarsan as soon as the diagnosis is confirmed; from three to five such doses being administered at weekly intervals. At the end of the series no delay is made in ascertaining the blood reaction, to determine the efficacy of the treatment, as that has already been amply demonstrated, and my chief concern is not one of scientific interest, but to cure the patient. The much heralded cures by a dose or so of salvarsan which we were led to believe possible from the early reports of the drug and its actions, have failed to materialize with any sufficient degree of regularity to justify our discontinuing all treatments at this early period on account of the negative complement fixation reaction. It is my practice, therefore, to at once institute a vigorous and, with few intermissions, a persistent mercurial course. In women patients the doses will generally be smaller. An average maximum will be found to be the equivalent of 0.4 gramme of salvarsan.

*As to hospital and office treatments.* While many men of known conservatism regard this remedy as within the realm of office treatments, I have as yet been unable to bring myself to their viewpoint, and still conduct this procedure under the strictest aseptic precautions in a hospital, and advise rest in bed

or in the reclining position for five or ten hours following the treatment. I will admit, however, that this may be due to a surgical training which has impressed me that even the operation of intravenous injection is one which carries with it some risk.

*Contraindications—Neurorecidives, etc.* The preliminary routine examination of eyes, heart, kidneys, and nervous system should, of course, be instituted, though it must be admitted that a decision as to where the indications end and the contraindications begin requires a pretty fine discriminating ability. Undoubtedly, I should not hesitate to employ the drug in a progressive luetic eye invasion, nor may a nephritis coexisting with a strongly positive Wassermann reaction in an otherwise robust patient be considered a deterring factor, as these complications have on numerous occasions been greatly improved after its use.

*Blindness.* A rare but none the less terrifying eventuality after salvarsan medication has by some been attributed to the toxicity of the drug, but this, it would appear, has been amply disproved by succeeding with additional injections of the drug in clearing up a number of these cases. At any rate, it must be by this time clear to all who have used it that neosalvarsan is by all odds the most innocuous form of arsenic.

*Conditions necessitating caution in the administration of neosalvarsan.* In chronic alcoholics, cases giving evidence of myocarditis, arteriosclerosis, and lesions of the cerebrospinal system the administration of these drugs should be conducted with the utmost caution, and at first in minimum dose, with a view to ascertaining the patient's degree of tolerance.

*Mercurial medications.* A broad conception of our present position as regards the subject of treatment of syphilis would appear to indicate: First—An early and intensive salvarsan or neosalvarsan medication, with a view, if possible, to curing the disease at once, or, failing in this, to remove the patient from the category of infective menaces at the earliest moment. Second—To supplement this with a vigorous and intensive mercurial treatment in earlier cases of from six months to a year, and in later cases of a somewhat longer period; the patient's condition to be checked up clinically during this period, and following the treatment, by means of Wassermann and luetin reaction tests, if the latter be proved accurate, and finally, by means of a provocative salvarsan administration, as before outlined, to establish the fact of a cure.

*The mercurials and iodides.* Just a word concerning the older remedies and their administration.

First, *mouth medication.* While cases have undoubtedly occurred in the practice of many of my auditors of cured syphilis, as proved clinically and by laboratory tests, it is none the less a fact that day by day new cases are being recorded of patients who have set up, probably, as the result of such treatment, a marked antagonism to all forms of medication. This statement applies with special force to yellow mercurous iodide, which drug is more entitled to place in the history of medication rather than in its present day practice. It too often produces an immunity in the *spirochæta* to the germicidal action of the mercury.

Second, *mixed treatment*, so called, still constitutes a fair tideover; in other words, an interval treatment, or adapted perhaps to particular cases. It should not, however, be regarded as a routine measure.

Third, *inunctions*. The value of mercurial inunctions may not be gainsaid, and when it can be properly carried out as to purity of product, thorough disintegration of its globules, and the proper frictional application, this method still constitutes a most potent remedial agent in the treatment of this disease, and particularly so with children, as its administration carries with it no terrors.

Fourth, *intramuscular mercurialization*. Here we have two types of preparations to deal with, the soluble and the insoluble. Of the soluble preparations, there are many; most of which I have tried only to return to the bichloride. It suffices to state that two points may well be borne in mind in the preparation of a solution for hypodermatic use: First—Dissolve the mercuric chloride in the proportion of grain  $\frac{1}{4}$  to two c. c. of an isotonic normal salt solution, as in this event a practically painless injection is assured. Second—To massage the parts gently but firmly for from five to ten minutes, thus reducing to a minimum the possible formation of indurated nodes. The advantages of soluble drugs are: First—relative painlessness; second—intensity. The disadvantage is too rapid elimination, necessitating too short intervals between treatments.

*Insoluble injections*. Included under this category may be briefly mentioned in the order of their intensity: Calomel in oily suspension; gray oil (*huile grise* of the French); salicylate of mercury in oily suspension, preferably in oil of sesame. Calomel in suspension constitutes undoubtedly the most powerfully intensive of all the mercurials. It should not be used as a routine measure, as it is quite painful and not unattended with danger. Rather reserve it for the urgent type. Of the others, salicylate of mercury suspended in oil of sesame will be found a most effective routine measure. In a ten per cent. suspension, one c. cm. will be the equivalent of  $1\frac{1}{2}$  grains. The advantages in the employment of this type will be found in the fact that treatments are, as a rule, needed only at intervals of once in four to seven days as the case may be; that a more or less constant absorption is going on during this time; and that it is perhaps the least painful of the insoluble preparations.

#### CONCLUSION.

To summarize the foregoing, one might connote the following, as points of importance:

First. Treatment should be begun at the moment diagnosis is certain.

Second. To assure success it must be as intensive, both from an arsenical and mercurial standpoint, as the history of the case and the patient's physical condition warrant.

Third. The time heretofore wasted in discontinuing treatment and the Wassermann test during the early months of the disease may be very well employed, and to the patient's benefit, in endeavoring to eradicate the disease.

Finally, and this point cannot be too strongly emphasized, that in the treatment of this disease, not only from the standpoint of the physician's own in-

tegrity and his bounden duty to society, but also of the welfare of his patient, he should under no circumstances attempt to treat a disease of such widespread effect and sinister influence without having given much study to the present conception of the management of the disease.

In my own city a widespread hospital movement is on foot in an endeavor to have all luetic patients referred to a special department for the treatment of syphilis. Such a department is not to be attached to some other special department, but to have a distinct entity. It is to be in charge of men who have given special study to the disease as a whole—not merely of some special phase, such as skin syphilis, eye syphilis, or genitourinary disease, etc. Only in this way can patients be given the scientific care which modern medicine demands, and a successful concerted attack be made to rid our social life of this greatest of scourges. The century just opened has already given us a knowledge of the cause of syphilis, a blood test of intense diagnostic value and a therapeutic agent of almost supreme effect. It remains with us all to so utilize this triumvirate, that long before the history of our present century is written, the death knell of those succumbing to the ravages of syphilis shall cease to toll.

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49 EAST FORTY-NINTH STREET.

## SURGICAL INDICATIONS OF CERTAIN GASTROINTESTINAL SYMPTOMS.\*

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The busy general practitioner always has a considerable number of patients with gastrointestinal symptoms under his care. Frequently the symptoms are not apparently very serious and are easily amenable to treatment; but there will always be a certain number of patients, however carefully and judiciously treated by medical means, who remain uncured and present great difficulties of diagnosis. For if a correct diagnosis be made, the indications for treatment are apparent.

Usually no one symptom is a positive index of the condition present. Vomiting may be present in almost any abnormal gastrointestinal condition. Epigastric pain is a symptom of acute gastritis, ulcer, carcinoma, adhesions, gallstones, cholecystitis, pancreatitis, gastropnoia, etc. Hematemesis, or coffee ground vomitus, occurs in ulcer, carcinoma, anemia, cirrhosis of the liver. Melena is a symptom in ulcer of the duodenum, but tarry stools or occult blood may be found in the feces from other causes, occult blood being even demonstrable by the

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inner laboratory tests after the rough use of a tooth brush. Diminished acidity, or absence of free hydrochloric acid, while usually occurring with carcinoma, may be present in an atrophic stomach, chronic pancreatitis, or pernicious anemia, and certainly frequently occurs when no carcinoma is present; while we know that carcinoma frequently, if not usually, develops in an old ulcer, and here free hydrochloric acid is often present and the total acidity may not be decreased. General abdominal pain may be due to a simple enteritis or colitis, or it may be the first symptom of a beginning appendicular inflammation, volvulus, mesenteric thrombosis, or intestinal obstruction. Obstinate constipation, while most frequently functional in its etiology, may be caused by some mechanical condition or be a symptom of unrecognized carcinoma of the large intestine.

The functional derangements of the stomach and intestines, acute and chronic gastritis, enteritis, and colitis, are wholly within the province of the internist. Carcinoma of the gastrointestinal tract, perforation of a gastric or duodenal ulcer, acute gangrenous appendicitis, general peritonitis, intestinal obstruction from any cause, can only be treated by surgical procedure, and then only treated successfully after early diagnosis. Therefore, the success of the surgeon depends mainly on the general practitioner who first sees the case. Between these two classes of cases, those obviously medical and those obviously surgical, are those cases of ptosis of the stomach and transverse colon, dilatation of the stomach due to pyloric obstruction caused by an old healed ulcer or adhesions from a cholecystitis, and chronic appendicitis without distinct severe attacks, but attended with irregular pains and tenderness in the right inguinal region and a variety of gastric symptoms. It is the means of early diagnosis in those cases obviously requiring surgical treatment, and the recognition of the indications for surgical intervention in the latter class of cases when medical means have failed to effect a cure, that will be dealt with in this paper.

First, to consider carcinoma of the stomach. In the beginning, gastric carcinoma is a local condition curable by operation, not presenting great technical difficulties when the lesion is situated in its most common location, the pyloric third of the stomach. With earlier diagnosis and improved technique, the immediate mortality has been reduced from sixty-four per cent. in Billroth's original series of cases, to four per cent. in the last fifty cases reported from the Mayo (1) clinic at Rochester. The same article reports thirty-six per cent. alive after three years and twenty-two per cent. after five years. These results are more favorable than those usually reported. Weil (2) reports on 104 patients who survived the operation of resection for carcinoma of the stomach in Kuttner's clinic during the past five and one half years. Of these, forty patients are still alive; eight for more than three years. Many cases, however, are referred for operation only after extension of the growth, glandular involvement, and metastases have made radical removal with any prospect of permanent cure impossible. Therefore the results of operation are much worse than they would be if

the resection could be done while the carcinoma remained a local condition. In a disease the non-operative mortality of which is 100 per cent. within a short time, surely every effort should be made for early diagnosis.

The textbooks give cachexia as a symptom of carcinoma of the stomach, but if the diagnosis is not made until cachexia appears it is usually too late then to operate with any prospect of a cure, although even then the symptoms may be greatly ameliorated, with great improvement in the general condition of the patient and prolongation of life. If the patient presents gastric symptoms, and examination shows the presence of a mass in the pyloric region, or a retention of food in the stomach for eight or ten hours after eating, indicating an obstruction at the pylorus, the probabilities are so strongly in favor of carcinoma that an operation is indicated, for even though a benign obstruction caused these symptoms, the symptoms could only be relieved by operation. If, furthermore, coffee ground vomiting is present, this also favors the diagnosis of carcinoma. In addition, the laboratory tests should be made to confirm the diagnosis, but always remembering the element of uncertainty in each test. When a tumor and signs of obstruction and coffee ground vomitus are present, the laboratory tests are of less importance than in cases where these signs do not exist, as would be the case in carcinoma upon the lesser curvature, which would not cause obstruction and would not be palpable.

Examination of a test meal showing diminished acidity, absence of free hydrochloric acid, presence of lactic acid and Boas-Oppler bacilli, is the rule in carcinoma of the stomach, but it must be remembered that in the absence of obstruction and dilatation, lactic acid and Boas-Oppler bacilli may be absent, that the total acidity and hydrochloric acid may not be diminished, or may even be increased, when the carcinoma is developing in an old chronic ulcer, or the pyloric end of the stomach is not involved; and also that diminished acidity and absent free hydrochloric acid exist without the presence of cancer. Radiographs of the stomach after a bismuth meal consisting of two ounces of bismuth subcarbonate in some form of fermented non-aerated milk, are also valuable confirmatory tests, but here also careful study and interpretation of the plates are necessary, as adhesions about the pylorus and peristaltic waves may lead to a false interpretation. Figure 1 illustrates a typical radiograph of a carcinoma of the pyloric third of the stomach; Figure 2, radiograph of stomach remaining three weeks after partial gastrectomy; Figure 3, photograph of portion of stomach removed (Figs. 1, 2, and 3). This patient was operated on in April, 1912, and one year after operation had gained twenty-six pounds and had no gastric symptoms.

The glycoltryptophan test depends on the fact that the stomach secretions do not split up the proteids further than to peptones, any further chemical process requiring an additional ferment not normally found in the stomach, although such a ferment is present in cancer cells. Here, also, a great element of uncertainty is present because blood in



the stomach, or regurgitation of some of the duodenal contents into the stomach, would make the test positive; and, furthermore, the test depends on a delicate color reaction, which in doubtful cases makes the final decision uncertain as to whether the color change is sufficient or not to be positive or otherwise. Recently, further doubt has been thrown on the value of this test by the demonstration that saliva, especially from an infected oral cavity, perhaps due to the bacteria contained therein, is capable of splitting glycyltryptophan. The agglutination tests and cobra venom tests, on which some work has been done, have not been sufficiently developed as yet to be of any clinical value. Fuji-nami (3) has suggested an aid to diagnosis by

acute hemorrhage; statistics show a lesser mortality under medical than surgical treatment. But when the hemorrhage persists or recurs, and when the ulcer becomes chronic and the symptoms do not respond to medical means, operation is indicated. The presence of an ulcer requiring surgical treatment is indicated by the persistence of pain, which is burning and aching in character, either immediately or a short time after eating in the case of gastric ulcer, or three or four hours later in duodenal ulcer (hunger pains), the pain being relieved by vomiting, which may or may not be bloody, or by the administration of alkalis or orthoform in the presence of gastric ulcer, or by food in the presence of duodenal ulcer. The continued presence of epigastric

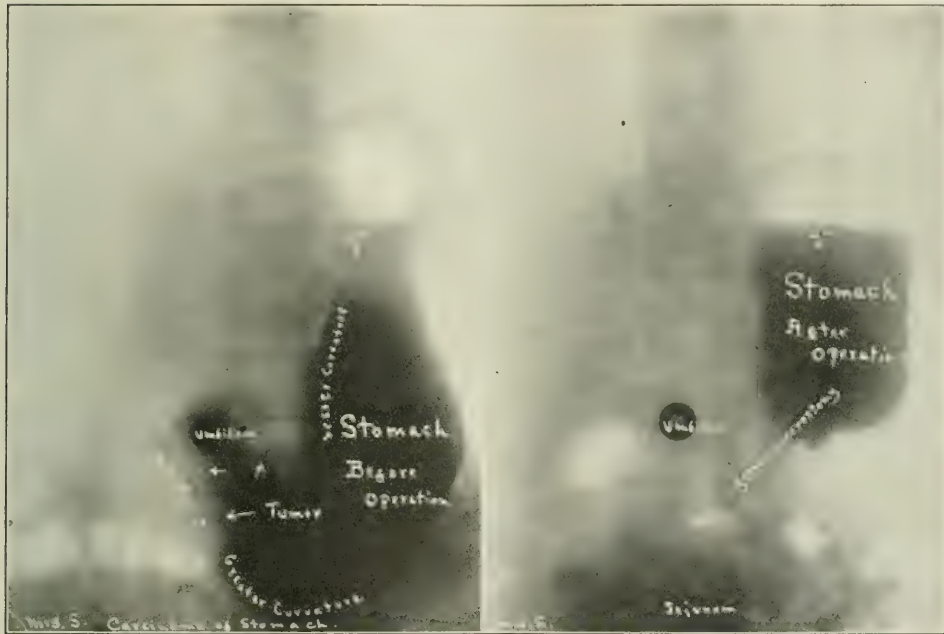


FIG. 1.—Typical radiograph of carcinoma of pylorus.

FIG. 2.—Radiograph three weeks after resection of portion of stomach shown in Figure 1. No signs of recurrence one year after operation.

means of the radiographic study of the relative position of two capsules of bismuth, one sinking and one floating in the fasting stomach, to test the amount of secretion and stagnation in the stomach. When these various chemical and radiographic tests can be made, they are an aid to confirm diagnosis, but the physical signs of an epigastric tumor, or of obstruction with or without a palpable tumor, in the presence of anorexia and other gastric symptoms are, without these tests, a sufficient indication for operation. These tests mentioned are of especial value where the carcinoma is on the lesser curvature and does not cause obstruction or forms a palpable tumor.

The treatment of acute ulcer of the stomach or duodenum is medical. Even in the presence of

tenderness, superacidity, and melena, notwithstanding medical treatment, indicate the presence of an ulcer requiring surgical treatment. This is true not only because the symptoms do not respond to proper diet and medication, but because of the danger of perforation and the prospect of the chronic gastric ulcer undergoing carcinomatous changes, a fact which is becoming more generally recognized. Furthermore, the statistics show that a comparatively small number of cases of chronic ulcer are cured by medical treatment. Bulstrode, in an analysis of five hundred cases in the London Hospital, concludes that gastric ulcer recurs or relapses in at least two fifths of the cases which are apparently cured. Patterson (4) succeeded in tracing seventy-two patients out of a series of 147 that

were discharged from the hospital as cured. Of this series, forty still had signs of gastric ulcer, five had been operated on, one died of carcinoma, twelve had no signs of gastric ulcer, five were apparently not cured, and two others were apparently cured; so that sixty-four per cent. of the cases were uncured by medical means. Mayo Robson reports ninety per cent. of a series of three hundred cases completely relieved of all symptoms by operation, with an immediate mortality, excluding perforation, of three per cent. Moynihan has reported 192 consecutive operations for duodenal ulcer without a death.

It is not alleged that every case of gastric or duodenal ulcer is permanently cured by operation, as it is known that in a considerable proportion of patients on whom gastroenterostomy has been per-

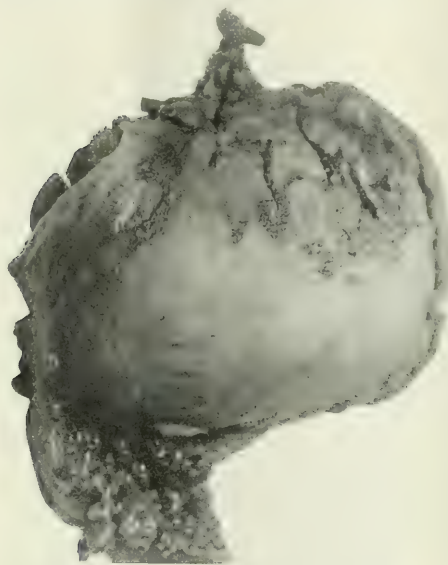


FIG. 3.—Pyloric third of stomach removed at operation.

formed, while the symptoms are improved or disappear, and the ulcer is probably healed, later on there may be a return of the symptoms due to the recurrence of the old ulcer or the formation of a new one. This has been explained by the gradual contraction of the gastroenterostomy opening, the pylorus remaining patent, and a return of the etiological factors which produced the original ulcer. Perhaps with excision of the ulcer when feasible, and occlusion of the pylorus in addition to gastroenterostomy, our statistics of permanent cure will improve. But even at the present time the percentage of cures of chronic ulcer is better under surgical than medical treatment, and the danger of perforation or carcinomatous degeneration far less. (See Figures 4 and 5.)

Perforation of a gastric or duodenal ulcer is recognized by a previous history of gastric dis-

turbance, although often quite indefinite, and the incidence of acute severe epigastric pain, shock, retching, occasional vomiting, elevation of temperature and pulse rate, and an increase in the total and polynuclear leucocyte count. In addition to the symptoms of shock, examination shows marked local tenderness and rigidity in the epigastric region. If the perforation is small and has been gradual, and been preceded by a local peritonitis and the formation of adhesions, the symptoms may remain localized and the symptoms of a local peritoneal abscess develop; but more commonly the symptoms of a general peritonitis rapidly appear, from escape of the contents of the stomach or duodenum into the abdominal cavity. It is especially to be remembered that the leakage from the perforation is apt to run down along the right side of the abdominal cavity, and the symptoms therefore simulate those of acute appendicitis. The mortality of operations for perforation of a gastric or duodenal ulcer increases with each hour that operation is deferred after perforation occurs; hence, the importance of an early recognition of the symptoms.

As a result of chronic ulcer, adhesions may be formed and cause constriction at the pylorus, with resulting obstruction to the passage of food into the duodenum; then stagnation with its symptoms is present. The same symptoms of pyloric obstruction may sometimes result from a cholecystitis or cholangitis, which causes a chronic inflammation in the region of the pylorus and duodenum; and while these symptoms are often vague and indefinite, consisting of pain, dyspepsia, vomiting, and tenderness in the epigastrium and right hypochondrium, they do not improve permanently under medical treatment. If the x ray after a bismuth meal shows definite signs of this obstruction being of a mechanical nature, then surgical procedure only can effect a cure. A word might also be said here in regard to surgical intervention in congenital stenosis of the pylorus. While pyloric spasm in infants occur, there is a true hypertrophic stenosis of the pylorus from which it must be differentiated, and which calls for operation to effect a cure. The symptoms are persistent obstructive vomiting, a palpable small tumor at the pylorus, visible gastric peristalsis, epigastric fullness and lower abdominal retraction, the constipated meconium-like stool, and the absence of curds in the stool. As a test of the patency of the pylorus, carmine or charcoal may be administered and looked for in the stool, and the bismuth radiograph may be employed. Scudder (5) quotes Monier's statement that the mortality of the expectant nonsurgical treatment of these true hypertrophic stenosis cases is from eighty to ninety per cent., while the surgical mortality, which from 1898, when operative treatment was first essayed, to 1905, was 46.5 per cent., between 1905 and 1911 was reduced, in thirty-three cases of his own and from the literature, to nine per cent.

Ptois of the stomach is a condition which, while frequently unrecognized, is usually amenable to mechanical treatment, but sometimes calls for surgical intervention. Gastropnoia may occur alone, or as a part of a general visceropnoia (Glénard's disease). With the advent of the bismuth radio-

graph taken in a standing position, our conception of the position of the normal stomach has been greatly changed, the stomach being found normally suspended in a vertical rather than a horizontal position, but in some cases the stomach is so far down that the pyloric end of the greater curvature extends well down to the level of the pelvis, and the lesser curvature is below the level of the umbilicus. The stomach assumes a fish hook shape, and the musculature is insufficient to raise the food to the level of and expel it through the pylorus. Stagnation ensues, as in the water trap of the plumber, and this type of stomach has been called by Satterlee (6) the "water trap" stomach. Drug treatment for this condition is usually ineffectual, but much may be done by lavage, regulated exer-

cise, and diet. The patient now weighs less than 100 pounds. Bowels very constipated. Insomnia and general neurotic symptoms. Bismuth radiograph (Fig. 6) shows marked ptosis of stomach of water trap type. After careful medical, postural, and mechanical treatment had failed to effect any improvement in the case, a gastropexy was done in July, 1911. That the relief has been permanent is shown by the radiograph (Fig. 7) taken in October, 1911, and by the improved general condition of the patient at the present time. She now has no stomach symptoms, almost two years after operation, and weighs 120 pounds.

Three other patients, operated upon subsequently for a similar condition, show equally good results. In these cases a gastropexy gives better end results than a gastroenterostomy; but no operation should be attempted unless medical treatment has failed to effect a cure.

Of course, in carcinoma the only treatment is



FIG. 4.—Typical radiograph of hour glass stomach due to large callosal ulcer of lesser curvature in patient, thirty years old. Histological examination showed beginning carcinomatous degeneration of wall of ulcer.



FIG. 5.—Radiograph three weeks after partial gastrectomy and resection of part of liver adherent to ulcer. Case illustrated in Fig. 4.

cise, postural treatment, abdominal belts or corsets, and forced feeding to increase the muscular power and correct the relaxed condition of the stomach wall. But when vomiting or pain persists, and there is no improvement under medical treatment, surgery may effect a cure, as is shown by the brief history and radiographs before and after operation of the following patient:

L. E., aged thirty-one years, housewife, referred by Dr. G. R. Satterlee. Has always been troubled by indigestion, especially gas in the stomach, but did not vomit or have severe pain until the present attacks began about one year ago. For the past year has had severe attacks of vomiting, lasting sometimes twelve hours, the vomiting being accompanied by copious eructations of gas. Attacks occur without any known exciting cause. Appetite fair, but has eaten little on account of vomiting. Has lost a great deal of weight. Says she weighed 160 pounds;

now weighs less than 100 pounds. Bowels very constipated. Insomnia and general neurotic symptoms. Bismuth radiograph (Fig. 6) shows marked ptosis of stomach of water trap type. After careful medical, postural, and mechanical treatment had failed to effect any improvement in the case, a gastropexy was done in July, 1911. That the relief has been permanent is shown by the radiograph (Fig. 7) taken in October, 1911, and by the improved general condition of the patient at the present time. She now has no stomach symptoms, almost two years after operation, and weighs 120 pounds.

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Of course, in carcinoma the only treatment is

excision. For benign stenosis of the pylorus a gastroenterostomy or pyloroplasty, after the method of Finney, is the operation of choice. For chronic ulcer a gastrojejunostomy should be done, with or without excision of the ulcer. If the ulcer can be excised the patient's general condition being sufficiently good to stand the longer operation, this will lessen the subsequent danger of the development of carcinoma. For perforation of a gastric or duodenal ulcer, immediate laparotomy with closure of the perforation should be done. Whether or not a posterior gastroenterostomy should be performed at the same time is still a subject about which opinions differ. Eliot (7), in a most complete analysis, quotes the opinion from personal letters of several of the most eminent surgeons both in



this country and abroad. Most of them say not, as it increases the risk; others say that if the rupture had only existed for a short time, and there is little peritonitis, they advise a posterior gastroenterostomy in those cases where the rupture is near the pylorus, and that closure of the perforation will increase or cause stenosis.

The limits of this paper prevent any reference to the acute diseases of the intestine requiring surgical treatment, and only allow of brief reference to some of the chronic conditions which fail to respond to medical treatment. Acute appendicitis is usually not difficult of diagnosis, and the indications for immediate operation are well recognized.

suggested as a possible etiological factor in the development of cholelithiasis, and gastric or duodenal ulcer.

There are, however, a number of patients who have suffered from pain in the right inguinal region that have not been relieved by an appendectomy alone. Our knowledge of these cases as a result of operative experience, post mortem examination, and the study of radiographs, has shown other conditions in the right inguinal region besides the inflammatory lesions of the appendix, and a recognition of these conditions, with the proper diagnosis and suitable operation, will prevent the disappointment resulting from a failure to cure the

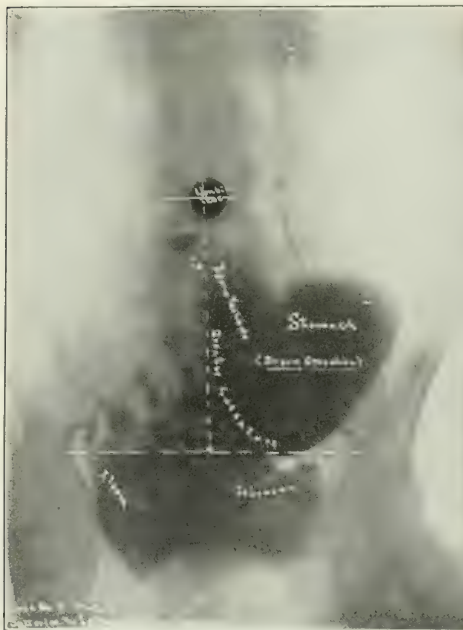


FIG. 6.—Typical radiograph of case of gastroptosis of the water trap type.

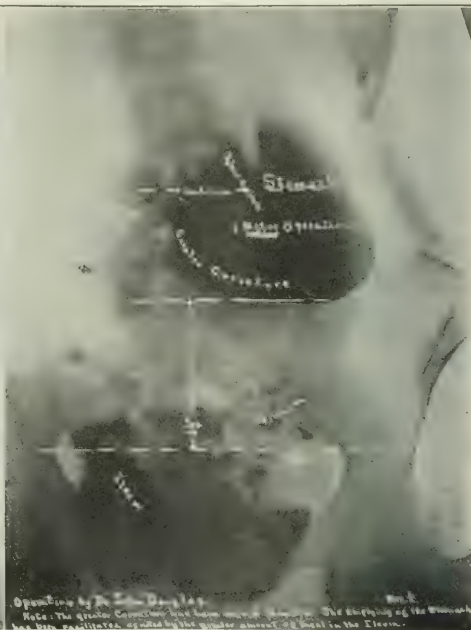


FIG. 7.—Radiograph of stomach shown in Fig. 6, three months after gastroptosis. Patient almost well two years after operation.

Also, if a patient has two or more subacute or mild attacks he is usually advised to have the appendix removed. There is, however, a class of cases in which there is a chronic low grade inflammation in the appendix with dragging pains in the right inguinal region, more severe at times, especially when there is some general abdominal distention with gas, moderate tenderness on pressure over the appendix, and various dyspeptic symptoms, accompanied as a rule by gastric supersecretion. The diagnosis is aided by distending the colon with air by means of a rectal tube and bulb. When the colon is so distended, the pain and tenderness over the appendix, if it is diseased or bound down by adhesions, is increased. Beside relieving the symptoms, an additional reason for the removal of such chronically diseased appendices is, that they are now

patient after the removal of a normal appendix. The symptoms complained of are pain and tenderness in the right inguinal region, sometimes developing into severe attacks, at times accompanied by vomiting, but without as a rule much or any temperature elevation, after indiscretions of diet or when the patient's constipation has not been relieved. Examination shows distention, gurgling, splashing, and tympany in the distended cecum, and a bismuth radiograph demonstrates that the cecum is distended and sometimes posed to such a degree that it occupies a position low down in the pelvis. Frequently the mesocecum is unusually long. This condition has been described in the German literature under the term "cæcum mobile" (Wilms) (8), but in some cases the dilated atonic condition would appear to be of more importance than the mobility

(Fischler) (9). It is frequently associated with a general enteroptosis, and while, perhaps, partly due to a developmental fault, is added to by a general atonic condition and improper diet and care of the bowels. When medical treatment directed to the correction of these conditions fails, it would appear that surgery could give relief, as a number of successful cases have been reported, either by fixation of the posed or by plication of the distended cecum. These operations, however, have yet to stand the test of time before their final efficiency and permanent worth are determined.

In other cases, where pain and gaseous distention occur in the right inguinal region, we may find about the cecum and ascending colon, or at the hepatic flexure, membranous adhesions, the so called Jackson's membrane (10), attached to the parietal peritoneum, constricting the involved intestine, and preventing peristalsis (membranous pericolicitis). This condition is believed by some writers to be due to a chronic inflammatory condition in the appendix, or to a chronic colitis with intestinal putrefaction and a low grade inflammation in the serous coats with connective tissue formation. Other writers believe it to be a congenital condition, due to a developmental fault, and caused by improper or incomplete rotation, migration, and adhesion of the colon in the fetus. Recent literature (Gerster (11), Pilcher (12), Jackson (13), Connell (14), and others) is full of citations of cases and illustrations showing not only these bands between the parietal peritoneum and the intestine, but between the different portions of the large intestine, the ascending colon and first portion of the transverse colon being sometimes found bound together so as to suggest the two barrels of a double barrelled shotgun. Separation of these adhesions and division of the bands where present, remove the mechanical preventives to peristalsis, while removal of the appendix without any interference with these membranous adhesions, is apt to be followed in some cases by recurring pains in the right inguinal region. It is important, however, that every effort be made to prevent the reformation of these adhesions, by carefully covering the denuded surfaces by peritoneum where possible, the use of sterile petrolatum on raw surfaces, postoperative catharsis, and postural treatment. The presence of a Lane (15) kink should also be looked for and corrected if present.

The recognition of these various pathological conditions in the right inguinal region is so recent, that the etiology of each one is not yet exactly known, and while a considerable number of patients have been reported as cured, the proper operative procedure and indications to meet each condition cannot be definitely settled until sufficient time has elapsed to demonstrate the end results. It is recognized that the symptoms of a majority of such patients can be relieved by nonoperative means, and should be so treated, but it is believed that there are always a few patients that the most careful dietetic, mechanical, and medical means will fail to cure, and in these the proper operative procedure will give good results.

Finally, it seems worth while to consider briefly a condition which, while apparently unusual, in the

light of our present knowledge, does not seem to be as rare as previously supposed. Diverticulitis of the sigmoid was occasionally described as a curious post mortem finding, and as recently as 1904, in Nothnagel's *Encyclopedia*, is written: "these lesions are chiefly of anatomical interest and have very little clinical significance." (Figure 8.) In 1907, Mayo reported five cases, and was able to collect only eighteen cases from the literature. Since then a large number of cases has been reported. The symptoms depending on the pathological condition present resemble those of appendicitis on the left side. Thus there may be mild attacks of inflammation about the diverticula, a chronic inflammation with acute exacerbations, resulting in a local peritonitis with or without thickening of the walls of the intestine, or perforation with the formation of a local abscess, or general peritonitis. The local abscess may rupture externally, into the bladder, or into the rectum, and thus a fecal fistula or vesicointestinal fistula may develop. And it has furthermore been shown that the diverticulitis predisposes to the development of carcinoma. It is probable that many of these cases have been previously mistaken for carcinoma with perforation, when a diagnosis has been made at all. When the need of op-

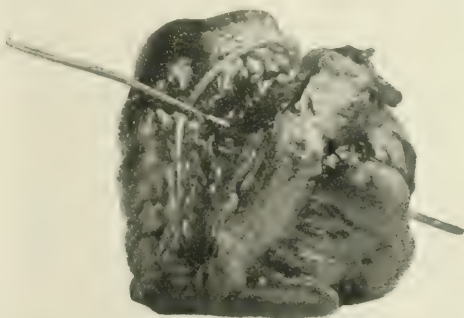


FIG. 8.—Diverticulitis of sigmoid. Intestine has been split open opposite mesenteric border. Probe passes through opening of diverticulum into abscess in greatly thickened mesosigmoid.

eration to prevent the complications mentioned or save life is realized, the importance of the recognition of the condition is readily understood.

In conclusion, so many subjects have been touched upon in this paper that none of them could be treated exhaustively or in detail. Most of the acute abdominal conditions have been omitted. Discussion of surgical technic has been avoided. Its purpose was to review and call attention to certain symptoms or chains of symptoms indicating the need of immediate operation, and to point out the possibilities of surgical relief in the presence of the other chains of symptoms which failed to respond to treatment by medical means.

I wish to thank Dr. L. T. LeWald for the excellent radiographs taken in the Edward N. Gibbs Memorial X Ray Laboratory and in St. Luke's Hospital, and Dr. J. R. Pawling for the photographs of specimens employed as illustrations.

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51 WEST FIFTY-FOURTH STREET.

## THE IMPORTANCE OF SEROLOGICAL ANALYSES IN NEUROLOGY.

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(Concluded from page 312.)

Plaut, in his book on the significance of the Wassermann reaction in psychiatry, placed considerable value on the absence of this reaction in the spinal fluid and its presence in the serum, considering this combination as significant of cerebrospinal syphilis. He has since then (1909) changed his attitude regarding this point. Among 114 cases observed by me, sixty-seven patients showed this form of serological condition. Six patients from this group were considered general paretics, and the three patients spoken of before who improved after treatment were from this group. As the pathological basis of general paresis is originally of a luetic nature, and as there are a few cases of cerebrospinal syphilis with a comparatively low cell count which is not the result of treatment, one may not be entirely wrong in considering those cases with from fifty to eighty cells per c. mm. as transitional stages from cerebrospinal lues to general paresis. This is especially emphasized where the Wassermann reaction is negative in the spinal fluid, thereby conforming to the French conception of the serological state of early or incipient paresis. In Nonne's before mentioned article, on pages 214 and 215, an attempt is made to differentiate serologically general paresis from cerebrospinal syphilis. From a careful analysis of his table it is hardly possible to obtain any differentiating features which would enable the physician, who may be in doubt, to decide either one way or another. Although I fully recognize the existence of borderline cases, I nevertheless consider the serological picture of the full fledged general paretic in its typical form as decidedly different from the typical picture of cerebrospinal lues, provided that in the latter therapy has not been efficient and recent. My differentiation is as shown in the following table.

## SEROLOGICAL DIFFERENTIATION BETWEEN UNTREATED.

General paresis.	Cerebrospinal syphilis.
Serum — Wassermann reaction strongly plus in eighty-nine per cent.	Plus in eighty per cent.
Fluid — Wassermann reaction plus in sixty-seven per cent.	Plus in thirty per cent.
Fluid—Cell count under eighty in ninety-five per cent.	Over 100 in ninety-five per cent
Fluid—Globulin excess in eighty-two per cent.	Excess in fifty per cent.
Fluid—Behring solution always reduced.	At times no reduction.

The findings according to Nonne are as follows:

General paresis or taboparesis.	Lues cerebrospinalis.
Serum Wassermann plus in nearly 100 per cent.	Positive in nearly eighty to ninety per cent.
Pressure increased.	Frequently increased.
Phase I positive (in ca. ninety-five to 100 per cent.).	Only exceptionally negative.
Lymphocytosis (in ca. ninety-five per cent.).	Like phase I, positive.
Spinal fluid Wassermann reaction.	
(a) Using 0.2 c.c. positive in nearly eighty-five to ninety per cent.	Using 0.2 c.c. positive in about ten per cent.
(b) Using larger quantities as in the Auswertungs Methode, 100 per cent.	With the Auswertungs Methode nearly always positive.

This exposition of the serological differences does not take into consideration the possible effects treatment may have on a positive serology in cerebrospinal syphilis, a condition which is known to be markedly influenced by specific therapy. In my experience the chief guide in the serological differentiation between the two diseases is the cell count. It was stated before that tabes may give at times the serological picture of cerebrospinal syphilis, but no matter how recent the development of a general paresis, it will never show the serological picture that is found in untreated typical cerebrospinal syphilis. Another characteristic feature of general paresis is to be found in the intensity of the Wassermann test; this item is marked in the offered table as strongly positive. It is not infrequently possible to foretell in the early stages of hemolytic incubation (last stage of the Wassermann reaction) which serum will remain positive to the end. Theoretically it may be argued that the greater the quantity of reagin units, the stronger the inhibitory power of the antigen reagin combination, and the earlier the manifestation of complete inhibition. In the sera from the majority of patients with general paresis this peculiarity showed itself earlier than in any other paralytic nervous disease. My laboratory associates frequently remark that this or that serum behaves like a general paresis serum; in the majority, these comments prove to be correct. At this juncture it is of interest to note that the few cases of so called tabes which subsequently turned out to be general paresis also showed this early sign of intensity in inhibition. The same is true of the patients with cerebrospinal lues whose candidacy for general paresis was established serologically (cell count globulin) as well as clinically.

The importance of a knowledge of the previous use of specific drugs before a serological verdict is rendered can be seen from a study of the tables on posttherapeutic negativation. It will be shown there, that what may have been a distinct serological type before treatment, becomes so changed after proper therapy, that it no longer presents the typifying characteristics which it showed before. In fact the picture may become absolutely normal.

## SEROLOGICAL "NEGATIVATION" AFTER TREATMENT IN TABES.

	Serum	Liquor cerebrospinalis		
	Wassermann	Wassermann	Globulin	Reduction
1.—Patient O.				
Before therapy	—	—	96 L.	—
3 weeks after	—	Intravenous salvarsan 0.6	70 L.	—
3 weeks later	—	Second dose 4 weeks after first	38 L.	—
2 weeks later	—	Third dose 8 weeks after first.	18 L.	—
	—	W+ —		

L=Lymphocytes. P=Polynuclear cells. W+=Weakly positive.



2—Patient H. S.	+	60 L.	+
Before therapy.....	+	—	—
1 Hg. rubbings (inunctions), 30 doses from 10 to 40	+	—	—
3 weeks later.....	+	53 L.	—
1 Hg. salicyl. intraglutal, 21 doses, 6 weeks later	+	—	—
1 weeks later.....	+	53 L.	—
Salvarsan 0.6 intravenous, 8 months later.	+	—	—
4 weeks after.....	+	50 L.	—
1 week after serological test 0.6 salvarsan, intravenous	+	—	—
3 weeks later.....	+	41 L.	—
3—Patient B.	+	—	—
Before therapy.....	+	41 L.	—
0.6 salvarsan intravenously	+	—	—
4 weeks later.....	+	37 L.	—
Second dose two weeks after serological test	+	—	—
2 weeks later.....	+	26 L.	—
Third dose after one week	+	—	—
5 weeks later.....	+	25 L.	—
4—Patient M.	+	—	—
Before therapy.....	+	43 L.	—
0.6 salvarsan, intravenous	+	—	—
3 weeks later.....	+	3 L.	—
5—Patient E.	+	—	—
Before therapy.....	+	83 L.	—
0.6 salvarsan, intravenous	+	—	—
2 weeks later.....	+	80 L.	—
Second dose after three weeks	+	—	—
4 weeks later.....	+	41 L.	—
Third dose one week after serological test	+	—	—
3 weeks later.....	+	0 L.	—
6—Patient R.	+	—	—
Before therapy.....	+	95 L.	—
0.6 salvarsan, intravenous	+	—	—
3 weeks later.....	+	73 L.	—
Second week three weeks after serological test	+	—	—
2 weeks after.....	+	50 L.	—
Third dose four weeks after serological test	+	—	—
3 weeks later.....	+	10 L.	—
7—Patient M. S.	+	—	—
Before therapy.....	+	32 L.	—
Salvarsan 0.6 intravenously	+	—	—
1 weeks later.....	+	27 L.	—

The hyperlymphocytic type of tabes lends itself most advantageously to the production of a negative serological result after treatment. Very often clinical improvement goes hand in hand with the serological, unless the patient is a candidate for taboparesis. The serological change in most instances resembled that given under Case I. The serological changes in Cases II and III were very insignificant; unquestionable symptoms of taboparesis developed later in these patients. It will be recalled that a case diagnosticated as tabes whose serological condition offers great resistance to the production of the negative picture by treatment, should be looked upon as a beginning general paresis. Besides these two instances there were several other patients not included in the hyperlymphocytic group who retained their initial serological status, regardless of treatment, and who subsequently became affected with general paresis. Case IV illustrates the posttherapeutic serologically negative tabes. The same can be said to a certain extent of Cases V and VI. It is a fact that treatment of hyperlymphocytic tabes is very gratifying both to physician and patient. The specific treatment, as in Case VII and in other similar serological instances, resulted in a most rapid decline in the health of two patients, one dying after three, the other after eight weeks. Tabes with a negative serological reaction is best left alone, the primary pathological condition probably being a degenerative process instead of an exudative one. Obersteiner has shown that tabes may arise upon an inflammatory basis. In this type of cases there is an original meningitis of varying intensity which causes a constriction of the fibres of the posterior roots as they enter the cord and an ascending degeneration of the posterior columns. It is safe to accept a cell count of over sixty as significant of such a condition.

#### SEROLOGICAL "NEGATIFICATION" AFTER TREATMENT IN CEREBROSPINAL FLUID

	Serum	Cerebrospinal fluid	Reduction
	Wassermann	Wassermann	Pleocytosis
1.—Patient H.			
Before therapy.....	—	1080 L.	260 P.
0.6 salvarsan intravenously	+	—	—
2 weeks later.....	—	1240 L.	20 P.
Second dose one week after serological test	+	—	—
1 week later.....	—	460 L.	—
Third dose three days after serological test	+	—	—
2 weeks later.....	—	212 L.	—
2.—Patient McC.			
Before therapy.....	—	148 L.	—
Hg. 2.024 inunctions	+	—	—
3 weeks later.....	—	130 L.	—
Three months later 0.6 salvarsan	+	—	—
1 week later.....	—	92 L.	—
Second dose 0.6 salvarsan, after three weeks	+	—	—
2 weeks later.....	—	19 L.	—
3.—Patient L.			
Before therapy.....	+	268 L.	+
0.6 salvarsan intravenously	+	—	—
2 weeks later.....	+	170 L.	+
Second dose three days after serological test	+	—	—
4 weeks later.....	—	41 L.	—
Third dose one day after serological test	+	—	—
2 weeks later.....	—	4 L.	—
4.—Patient St.			
Before therapy.....	+	192 L.	—
0.6 salvarsan intravenously	+	—	—
4 weeks later.....	—	161 L.	—
Second dose three weeks after serological test	+	—	—
1 week later.....	—	92 L.	—
Third dose one week after serological test	+	—	—
3 weeks later.....	—	71 L.	—
Fourth dose one week later	+	—	—
2 weeks later.....	—	16 L.	—
8 weeks later.....	—	22 L.	—
Fifth dose right after serological test	+	—	—
3 weeks later.....	—	4 L.	—
5.—Patient A.			
Before therapy.....	+	357 L.	8 P.
0.6 salvarsan intravenously	+	—	—
1 week later.....	—	309 L.	—
3 weeks later.....	—	188 L.	—
Second dose salvarsan, after serological test	+	—	—
9 weeks later.....	—	95 L.	—
Third dose two weeks later	+	—	—
3 weeks later.....	—	41 L.	—
6.—Patient D.			
Before therapy.....	+	134 L.	—
0.6 salvarsan	+	—	—
10 days later.....	—	60 L.	—
6 weeks later.....	—	29 L.	—
Second dose immediately after serological test	+	—	—
2 weeks later.....	—	71 L.	—
4 months later.....	—	16 L.	—

This table clearly shows that systematic serological studies during the treatment of a syphilitic meningomyelitis or a gummatous meningitis serve as indicators of the efficiency of treatment and basis for prognosis. There is hardy a clinical sign that more emphatically demands specific medication than a high cell count and a positive Wassermann reaction in the fluid. I consider Case I to be an acute exudative syphilitic meningomyelitis, in view of the serological finding and clinical signs. As serological corroboration for this statement we have the rather large number of polynuclear elements and the absence of the substance which reduces Fehling's solution. The Wassermann reaction in the fluid decides the luetic nature of the nervous disease. Cases like this one give great satisfaction, for it can be safely predicted, in view of the great pleocytosis and absence of copper reduction, that the mental and physical status will be greatly improved by the treatment. The patient under consideration improved marvelously after the course of treatment scheduled. For a short time Case II was considered to be general paresis, regardless of the laboratory diagnosis. For over six months the clinical diagnosis remained as such and the patient received the treatment outlined in the table. It is over a year since the patient received any drugs; he attends to his business and feels quite well. Now his physician believes that the

condition was most likely cerebrospinal syphilis and not general paresis. It is not to be denied that general paresis often shows remissions and intermissions in its clinical course, but the cases are rare indeed where such improvement is as lasting as in the case cited. It is my conviction that the sporadic cures obtained in certain cases of general paresis to be found in the literature of the pre-serological days of neurology, were cases like the one described above, cerebrospinal lues clinically resembling general paresis.

Case III portrays the Plaut type of cerebrospinal lues, with a negative Wassermann reaction in the fluid and a positive one in the serum. This patient was restored to good health, which, after a lapse of two years, he still enjoyed. His serological status became entirely normal, a condition to be obtained but rarely in cerebrospinal syphilis; for the cells, at least, seldom become entirely normal in number. Had this patient presented himself at another institution and given no information as to his previous treatment it would have been rather difficult to corroborate serologically the clinicians' diagnosis of cerebrospinal lues. The fourth patient came to the author to obtain relief from his gastric disturbances. He was treated for two years for gastric catarrh without obtaining any relief. The absence of any abnormalities in his gastric chemistry, together with the presence of exaggerated knee jerks and unequal pupils that reacted sluggishly, suggested to me that the pains were girdle sensations, and a provisional diagnosis of cerebrospinal syphilis was made. The serological study proved that the contention was correct. After treatment with salvarsan his active symptoms disappeared and he was able to attend to his affairs. The fifth patient, regardless of the gradual reduction to negative, did not improve clinically. In Case VI a marked improvement resulted from the treatment and the patient still enjoys good health after eighteen months. As can be observed in the chart, the production of a negative serological reaction was complete a few weeks after the fifth dose of salvarsan. During the process of salvarsanization the patient was asked to report for serological observations, and at one time he showed a beginning return of the pleocytosis. Evidently the process of a luetic nervous affection cannot be curtailed in every instance by a few doses of salvarsan, for as soon as conditions favorable for a return of the exudative process present themselves the serological aspect will tend to assume its previous intensity. Thus it is possible to detect early the return of the pathological process, the serological study again furnishing the index for further therapeutic activity, as was the case in the last patient scheduled.

#### SEROLOGICAL "NEGATIVATION" AFTER TREATMENT IN GENERAL PARESIS.

	Serum Wassermann	Cerebrospinal fluid Wassermann	Pleocytosis	Reduction
1.—Patient O.				
Before therapy	+	+	11 L.	+
5 weeks later	0.6 salvarsan intravenously	+	11 L.	+
2 weeks later	Second dose one week after serological test	+	10 L.	+
1 week later	Third dose right after serological test	W—	7 L.	—
2.—Patient S.				

Before therapy	0.6 salvarsan intravenously	+	30 L.	+
4 weeks later	Second dose 1 week after serological test	+	17 L.	—
3 weeks later	Third dose right after serological test	+	17 L.	+
3 weeks later	Fourth dose 2 days after serological test	+	11 L.	—
3.—Patient M.				
Before therapy	0.6 salvarsan	+	32 L.	—
3 weeks later	Second dose 1 day after serological test	+	21 L.	+
1 week later	Third dose after serological test	+	20 L.	—
1 week later	Fourth dose 1 week later	+	20 L.	+
2 weeks later	Fifth dose 2 days later	+	14 L.	—
1 weeks later	Sixth dose right after serological test	+	13 L.	+
1 week later		+	0 L.	+
4.—Patient P.				
Before therapy	0.6 salvarsan	+	22 L.	+
10 days later	Second dose 1 week later	+	19 L.	+
3 weeks later	W+	+	19 L.	+
5.—Patient K.				
Before therapy	0.6 salvarsan	W+	62 L.	—
4 weeks later	Second dose right after serological test	—	53 L.	—
1 week later	Third dose 4 days after serological test	—	49 L.	+

The treatment of general paresis with the various antiluetic remedies, I believe, is considered by those who have had extensive experience with this disease as being of no avail. It seems to me that where lasting benefit was obtainable in a case diagnosed as general paresis it is safer to set aside for the time being this diagnosis and consider it a cerebrospinal syphilis. The results, as far I have been able to ascertain, are by no means encouraging. The first patient died without any premonitory manifestations twenty-four hours after the last injection of salvarsan. In Case II the same result followed two days after the last injection, the patient dying in stupor following a convulsion. Case III showed not the slightest improvement and is at present in a stage of paretic decline. The same is true of Case IV. The fifth patient died thirty-six hours after the last salvarsan injection. Another patient whose serological status is not presented has had seventeen full doses of salvarsan intravenously. On one occasion his cells in the spinal fluid were normal in number, regardless of the fact that the Wassermann reaction was positive in the fluid. Two months later, having recovered from a convulsion and a stupor that lasted thirty-six hours, his serological examination again showed thirteen cells, together with the other positive constituents. These experiences do not argue against the use of salvarsan in paralyses of the nervous system in general, but rather discourage its use in a disease like general paresis, which when fully developed offers very little hope of checking its progress. These tables of post-therapeutic changes are designed for the clinician, to serve as a gauge for his therapeutic efforts, and also to enable him to foretell the advent of a general paresis in a patient with symptoms of tabes, and to increase his efforts in the treatment of a case with cerebrospinal lues. It also shows that a negative serological reaction is by no means a rarity even in general paresis, and should surprise neither the clinician nor the laboratory worker. In Case III we see the exception to the rule in the behavior of the cell count, as compared with the Wassermann test. We see in this instance that the latter remained positive, regardless of the absence of a pleo-

cytosis. Although this is the only occurrence in general paresis which came under my observation, it nevertheless shows that hard and fast rules do not exist in serology. Regardless of the rendering negative of the serological reaction in this patient, clinical improvement did not take place. I am inclined to consider the appearance of negative serological findings in general paresis as a sign of the approach of unpleasant symptoms. It is to be recalled that Parkinson noted a fall in the cell count during the decline and a rise during lucid intervals. My experience partly corroborates these observations; in the majority of instances those who showed the smallest number of cells or a negative serological character were patients who were bed ridden, with bed sores, or were moribund.

#### THE NEGATIVE TYPES.

Six patients with amyotrophic lateral sclerosis showed no deviation from the serology of healthy individuals, sixteen patients with multiple sclerosis gave three positive Wassermann reactions in the serum, five progressive muscular atrophy were normal, ten paralysis agitans, six syringomyelia, two myasthenia gravis, twelve cerebral arteriosclerosis, five polyneuritis, eight sciatica, one osteoarthritis lumbalis, three erythromelalgia, seven neurasthenia, one hydrophobia, two amaurotic family idiocy, thirty epilepsy, three gave positive Wassermann reaction in the serum, eight thrombotic hemiplegia, two positive in the serum, fifteen hemorrhagic hemiplegia, one positive in the serum, twenty-three compression of the spinal cord, one positive in the spinal fluid, fourteen brain tumor, four chronic hydrocephalus, nine anterior poliomyelitis. Of the psychoses the following were observed: Five toxic, four traumatic, two functional, twelve alcoholic, (one positive in serum), fifteen dementia praecox (two positive in serum), five senile dementia, four manic depressive insanity, two paranoia, two anxiety depression.

The lesson to be learned from a study of the negative serological types is that they should not be confounded with the types showing some of the characteristics of a neurological syphilis. The patients with multiple sclerosis and a positive Wassermann reaction in the serum admitted a syphilitic infection. In two instances this was contracted after the characteristic symptoms of multiple sclerosis had manifested themselves. Of the two positive cases of thrombotic hemiplegia one patient admitted an infection and both improved markedly after salvarsan. Of the thirty epileptics one admitted an infection and showed in his fluid thirty-two lymphocytes; two denied an infection, and the history of the fourth was very suggestive of syphilis. One case of dementia praecox gave a specific history, the other showed no evidence of a lues in the history nor in his physical status. In view of the uniformly negative results in this nonsyphilitic material, I believe I am justified in asserting that at least as far as neurological serology is concerned, it is safer to gauge one's biological reagents so that they will eliminate any chances of stamping an individual with syphilis who has not come in contact with this disease. The harm done by reporting negative on a syphilitic patient is very

slight, and his chances of escaping specific treatment are small indeed.

#### SPINAL CORD COMPRESSION.

The characteristics of the spinal fluid in compression of the spinal cord consist in an excess of protein matter and an absence of a pleocytosis. In eight instances the fluids were yellow. Six of these proved to be endotheliomata, and the color of the other two originated from cysts formed in tumors. Upon exposure of the cord in a few instances no tumor could be demonstrated, but instead very fine connective tissue trabeculae compressing the cord.

#### CONCLUSIONS.

1. The Wassermann reaction is not present in the spinal fluid in all cases of syphilitic and parasyphilitic disease of the central nervous system.
2. The use of increasing amounts of spinal fluid for the Wassermann test ("Auswertungs Methode" of Hauptmann) is a procedure capable of giving rise to nonspecific inhibition in patients who did not come in contact with this disease.
3. Serologically all nervous diseases are divided into two general and easily distinguishable classes, the negative and positive types. The negative type represents the nonluetic nervous diseases, the positive type the syphilitic and the parasyphilitic diseases.
4. In the positive type group further differentiation is possible by serological investigation in cases where physical differentiation is difficult, such as between general paresis and cerebrospinal lues.
5. Active and proper treatment markedly alters serological pictures in many of the positive types. Such alteration may go on to any extent, even to the reduction to a complete negative picture. The greatest change to the negative occurs in cerebrospinal lues and the least in general paresis.
6. In the cell count in tabs may be found an index for or against treatment.
7. Fully developed general paresis is best left untreated.
8. Spinal cord compression from tumors or other causes shows a protein excess and an absence of pleocytosis.

30 BECKMAN PLACE.

#### THE RESPIRATOR: AN APPLIANCE FOR RESUSCITATION BY PRODUCING ENFORCED ARTIFICIAL RESPIRATION; REPORT OF 163 EXPERIMENTS.

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The purpose of the respirator is to produce resuscitation by means of enforced artificial respiration, in the simplest manner possible and by the use of air. Artificial respiration has been produced for centuries by the expansion and contraction of the thoracic cavity by stretching the musculature of that region. The methods accepted as best until recently are the Sylvester, Schafer, and Howard. These methods, while they are and have been generally efficient, have not been uniformly successful. If any rigor of the chest walls is present the methods



are fruitless, but if conditions are right they can and will produce a semblance of respiration which may be productive of good results.

Let us consider for a moment the means by which the movements of the arms or musculature produce respiration. The lungs depend, in the chest cavity, from the trachea much the same as a chandelier hangs from the ceiling. The lung tissue itself is in no way connected with the chest walls except by the pleuræ. When the chest walls are raised by drawing up the arms, the cavity is made larger and allows the lungs to receive air, because of a partial vacuum formed therein. If this vacuum is not created in the lungs themselves, very little, if any, air can enter. Even if a vacuum is produced, only a small amount of air will find its way into the lungs. To remove this air, pressure is applied to the chest, and, after an interval, the movements are repeated a certain number of times per minute.

A consideration of the late method of artificial respiration produced by the pulmotor shows that a true respiration takes place. Oxygen is forced into the lungs under pressure, and is afterward sucked out. This alternate movement is productive of an automatic institution of respiration. The pulmotor, however, has its limitations and objections. First, the apparatus is too heavy and cumbersome for one man to handle or carry with him. Second, none but Dräger cylinders, fitted with Dräger valves, can be used on the apparatus, thus precluding the possibility of using any oxygen in any cylinder that may be handy. Third, when the pressure of oxygen in the cylinder goes below about seventy to seventy-five pounds per square inch, the apparatus will not work, and operations must then be stopped until a new cylinder can be put in place. Fourth, the oxygen cylinders must be returned to the Dräger Company for refilling, or sent to but one other firm of which I know, the Standard Oxygen Company, of New York. Fifth, the initial expense of the machine is great and the cost of operation is excessive; it averages about six to eight dollars an hour to operate. Sixth, and finally, the use of pure oxygen to produce respiration is objectionable.

While oxygen is the life giving substance of the universe, it is at the same time a life destroyer, as I shall point out later. Oxygen, to the extent of eight per cent. is required by the normal being to properly oxygenate the blood, and so sustain life. An amount in excess of that is practically useless, for it produces a slowing of respiration—for the human mechanism automatically takes from the air the necessary amount of oxygen by regulating the number of respirations demanded by the presence or absence of oxygen in the air respired. The slowing of respiration is due not so much to the excess of oxygen, as to the diminished amount of carbon dioxide in the blood, which condition is brought about by the excessive washing and oxygenation which removes by force practically all traces of the carbon dioxide and substitutes oxygen therefor. At first glance the removal of the carbon dioxide may seem beneficial. It may be thought that this is the desired end. If you are of this opinion, permit me to ask, Why do we breathe? Doubtless, many will remember that this question was well argued by the

profession a few years ago. Numberless theories were advanced, of which but one stood the test. The final conclusion was, in substance, respiration is due to the irritation of the respiratory centre in the brain by the carbon dioxide content of the blood.

This conclusion is, indeed, a fact, as can be readily demonstrated by the inhalation of a mixture of carbon dioxide and air. The blood under normal circumstances has a content of from two to four per cent. of carbon dioxide, which is quite enough to carry on normal respiration. To remove that gas and to allow its place to be taken by oxygen, you can readily see, would produce a condition of asphyxia or a cessation of respiration. If this is so, is it proper to administer a full percentage of oxygen for the production of artificial respiration? As I have said, the required amount of oxygen is about eight per cent. The atmospheric air contains about twenty per cent. oxygen. Atmospheric air also contains traces (to the extent of nearly one per cent.) of carbon dioxide; the balance of the mixture being, mainly nitrogen. Would it not be better, then, to substitute for the oxygen just plain air, from which the requisite amount of oxygen may be taken, and if the necessary amount of oxygen cannot be obtained from the air at the normal number of respirations per minute, is it not possible to increase the number of respirations and so wash the blood more frequently, and thus attain the desired end? Is it not better to use the air, the natural medium, if for no other reason than for its content of carbon dioxide, which, by its property of causing respiration, will institute that function with less shock to the organism?

After a consideration of the objections and disadvantages of the pulmotor it occurred to me that an apparatus embodying but few of those disadvantages was possible. The apparatus shown is the result of that idea and many experiments. Its advantages may be enumerated as follows:

It is not cumbersome and heavy; in fact, it can be carried in a small case and weighs less than ten pounds. It does not depend upon any brand of oxygen, nor does its operation depend upon compressed gas. It is operated by hand and foot in the least tiring manner; both hand and foot can be changed without losing time or causing trouble. Its apparent initial cost is low, and it has no cost of upkeep. Finally, it makes use of air.

If it is desired oxygen may be employed, or a combination of oxygen with a definite proportion of carbon dioxide, but my own experiences suggest the use of atmospheric air of which there is always a plentiful supply.

The technic follows: With the patient lying down, the shoulders are raised by means of a pad, so that the head falls well back. The mouth is opened and a prop or gag placed between the jaws. False teeth or other loose articles are removed from the mouth. Grasp the tongue and draw it, even strain it, well forward, pulling it as far as it will go. Pass the finger down the throat and swab out any mucus that may be present, and draw the epiglottis against the base of the tongue. The tongue, being held as well forward as possible, the mask is adapted to the face. With the tongue between the mask

and the chin, and held firmly in place by a piece of gauze, strap the mask to the face; it must be *very* tight, so that no air may leak in or out.

These details having been observed, the mask is connected to the valve mechanism by a piece of rubber tubing from eight to twelve inches long. The valve mechanism is connected by more tubing to a pump or bellows of some description.

The bellows I use is the best I have been able to find thus far. I would, however, prefer a much smaller pump, but up to date I have been unable to find one. All connections being well made and tight, the bellows is pumped and air forced along the tubing through the valves into the lungs. By pressing down on the valve stem, the air in the lungs is forced out into the atmosphere by the elas-

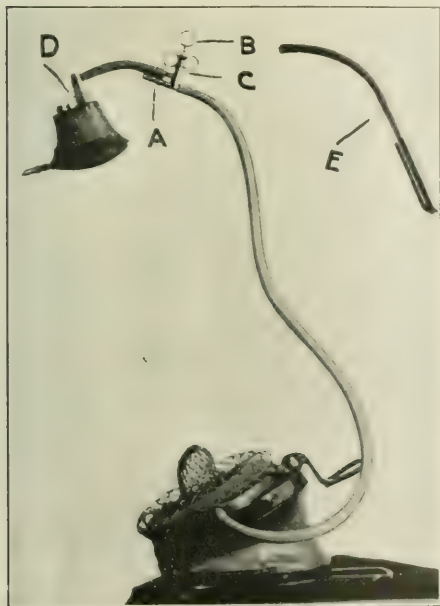


FIG. 1.—The respirator. *A*, The safety valve, on which is an index showing the pressure of air or gas allowed to enter the lungs. *B*, The piston. Moving this up or down allows the air or gas to enter the lungs or to escape from the lungs. *C*, Ports, allowing the air to escape from the apparatus when lungs deflate. *D*, Lugs or bars, to which the straps are attached for fastening the mask to the face. *E*, The pharyngeal tube, to be used when the mask is inoperative or not applicable.

ticity of the lung tissue. The valve stem is allowed to rise, and air is again admitted to the lungs. The raising and lowering of the valve stem controls the number of respirations allowed per minute. On the valve mechanism is found a safety valve which controls the pressure of air. When the pressure of air in the lungs reaches a predetermined point, as set for on the index, this valve allows the excess air to pass into the atmosphere, and thus keep the pressure down to where it can do no harm. This is all there is to the machine.

For demonstration purposes, I use the pharyngeal tubes, which are placed with all the precautions observed in fitting the mask. With the tongue well

forward and the epiglottis raised, a tube that is slightly larger than the pharyngeal opening is passed down so that the beveled end of the tube comes opposite the glottis or laryngeal opening. Held firmly in place, with the tongue well forward, the jaw is brought up against the tube and made fast. The final precaution to be observed is to keep the air from the stomach and intestines. This may be done by either of two methods, both of which are effective. First, by pressure on the upper abdomen by placing a weighted pad thereon or by pressing upon it, or, second, by pressing upon the cricoid cartilage, thus compressing the soft esophagus between the cartilage and the spine.

It is noteworthy that the apparatus is applicable to all cases in which the respiration is impaired. The following merely suggests the cases in which the respirator may be of help.

**Poisoning:** By aconite and its derivatives; alcohol; acetanilide preparations; acids and acid fumes (nitric, muriatic, etc.); amyl nitrite; benzene; belladonna and its derivatives; carbolic acid and similar drugs; chloral; chloroform; cocaine and its analogues; conium (hemlock); chlorates; chlorine; curare; carbon dioxide; carbon monoxide; carbon disulphide; ether; gelsemium; hydrocyanic acid and the cyanides; hyoscynamus; gases—acetylene, coal, marsh, pit, illuminating, etc.; nitrous oxide; nitrobenzene (oil of mirbane); nitrates; opium and its preparations; physostigma; petroleum products; snake bite; staphisagria and larkspur; sulphuretted hydrogen; strychnine and similar drugs; sulfonal, veronal, trional; veratrine, etc.

**Drowning;** electric shock; anesthesia; obstetrics, injuries affecting respiration, and all cases demanding artificial respiration.

With this apparatus I have caused the heart to beat in an animal that had been dead, or to put it differently, whose heart had ceased beating for as long as twenty-three minutes. This occurred in but one case out of 163 experiments. I have, however, instituted the heart's action in several cases in which the heart has not pulsated for periods as long as five minutes. But, that the reader may judge for himself, a report of the experiments I have made is appended.

The total number of experiments was 163; of which seventy-one were on dogs, sixty-eight on cats, one on a rabbit, and twenty-three on guineapigs.

Death was produced in fifty-two cases by chloroform, in forty-seven cases by carbon monoxide (illuminating gas), in thirty-three cases by curare, in sixteen by ether, in five by nitrous oxide (to asphyxiation), in five by drowning, and in one by ammonia.

The action of the respirator was positive in all cases, inflating and deflating the lungs perfectly.

The heart action was instituted in fifty-two cases, of which twenty-one cases did not institute normal respiration, but thirty-one cases responded well.

Of the thirty-one animals, fourteen required to be killed, nine subjects died (eight of these had been killed in the first instance by curare), and eight animals are or were, when heard of last, alive and happy.

The death period ranged from a few seconds to twenty-three minutes, with an average period of 4-23/31 minutes each.

All but thirteen animals had had their chest walls cut away, exposing the heart and lungs (it was because of this cutting that the fourteen mentioned above were killed after the experiment was finished).

Of those alive, three had been killed by gas, three by chloroform, one by ether, and one by nitrous oxide.

Of the thirty-one cases in which life was restored, six had been killed by gas, nine by curare, eight by chloroform, two by drowning, three by ether, and three by nitrous oxide.

Several experiments have been conducted on cadavers, to show the positive action of the apparatus; and this was demonstrated to satisfaction.

I do not wish to be understood as asserting that this apparatus will raise the dead, but it will positively raise the dying to life if respiration can do it. The machine cannot do the impossible. It cannot do more than respiration can accomplish, and that is all I claim for it.

2105 SEVENTH AVENUE.

### CÆSAREAN SECTION WITH HYSTERECTOMY IN CASES OF POSITIVE INFECTION.

By J. F. BALDWIN, A. M., M. D.,  
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At the present time there is among obstetrical surgeons some difference of opinion as to the best treatment of a patient in the presence of undoubted sepsis, with a viable child, and a contracted pelvis. Bumm, who represents the extreme, lays down the rule that the child should be delivered by perforation in all cases of contracted pelvis where fever is present and bacteria can be demonstrated. Peterson (*American Journal of Obstetrics*, lxx, No. 2, 1912) says that in conditions of undoubted sepsis the only course to pursue "is to perforate the child, living or dead, and extract from below. Craniotomy may not save the life of the mother, for in such septic cases it carries with it a mortality of ten or fifteen per cent., but at least it gives the mother an infinitely better chance than can any variety of Cæsarean section." In cases of only probable infection, where there have been repeated vaginal examinations, and some attempts at delivery, but no fever and no foul discharge, Peterson advises the Porro operation, with dropping of the stump covered by peritoneum.

In response to a few personal letters of inquiry as to the proper treatment of a patient with undoubted sepsis and a contracted pelvis, but with a living child, I received replies as follows: Gustav Zinke, Cincinnati: "Vaginal removal of child. Abdominal hysterotomy contraindicated." Asa B. Davis, New York: "Craniotomy. I have been tempted to perform Cæsarean sections upon such patients, but the results are almost invariably bad for mother and child." C. S. Bacon, Chicago: "Cæsarean section no longer possible. Craniotomy." J. Whitridge Williams, Baltimore: "Craniotomy. Cæsarean section only after the great risks associated with it have been explained to the parents and accepted by them. In that event I should re-

move the entire uterus after delivery." Ellice MacDonald, New York: "Would consider no mode of delivery save by the pelvic route." Joseph B. DeLee, Chicago: "Craniotomy. Cæsarean section, even extraperitoneal, not justifiable." Barton C. Hirst, Philadelphia: "Vaginal delivery, or extraperitoneal Cæsarean if the parents are particularly anxious for the life of the child." E. P. Davis, Philadelphia: "Porro operation." J. Clifton Edgar, New York: "Craniotomy." The hypothetical case given to each of the physicians mentioned above was one which will be reported a little later in this paper. Several of them would have attempted the delivery with forceps after correcting the malpresentation, but one only favored any form of Cæsarean section. E. P. Davis, however, has had excellent results with Cæsarean section followed by removal of the uterus (Porro), and he recommended that procedure in this instance.

The problem presented by the case seemed to be a straight surgical proposition. Here was a live child, with no evidence that its vitality was particularly depressed. Delivery alive through the natural passages was impossible, while that delivery would have resulted in extensive lacerations which would have greatly increased the danger to the mother. To remove the child by Cæsarean section would give it every opportunity to survive, while the removal of the infected uterus would greatly increase the mother's chance of overcoming the infection. The added danger to the mother would be chiefly from the possibility of infecting the peritoneum from some escape of uterine contents. It seemed to me that this danger could be reduced to a minimum by opening the uterus only after it was outside the abdomen, surrounded with towels and sponges, and after the free use of the tincture of iodine, in the antiseptic powers of which, from long experience, I have become a firm believer.

The result in the case reported does not necessarily mean anything, as it might be merely the exception which would prove the rule, but the prevailing pessimism of operators in regard to Cæsarean section in septic cases has never impressed me as being surgical, but rather as a confession of inefficiency which should not be permitted to go unchallenged. Every surgeon knows that if we can diminish the amount of infection present in any given case, and remove the source of supply of that infection, we give our patient the best possible chance to recover. A rapid Cæsarean section, therefore, with removal of the infected uterus, would seem to meet all the indications and, if we can prevent septic peritonitis, should give us the best possible results for the mother, while giving the child its only possible chance. By using the tincture of iodine freely in the field of operation, and deluging the interior of the uterus with it as quickly as the fetus is removed, applying it thoroughly to the cervical canal before amputating the uterus, it seems to me that the danger of septic peritonitis is reduced to a surgical minimum.

Some one, about a year ago, suggested that the use of iodine on the surface of the abdomen might result in intestinal adhesions with ileus, if by any accident the intestines came in contact with this



iodinized surface. I have seen only the one report, but that report was widely copied and has perhaps deterred many surgeons from using iodine as freely as they otherwise would. The report seemed to me unreasonable, and indicated that the operator had generalized from a single case. I have used iodine over the abdominal surface in several thousand cases; I have used it freely in the pelvis in cases of pelvic infection, and use it constantly over the field of operation in making intestinal anastomoses and gastroenterostomies. Thus far I have had no case of ileus following its use, nor have I had any cases in which post-operative adhesions were more in evidence than without it. I think, therefore, the danger from its use may be regarded as practically nil.

The second case reported is added merely as corroboratory of the advantages of prompt removal of the source of infection. Many similar cases could have been reported, but this one was added because it occurred in such close juxtaposition to the other, and was so marked an instance.

CASE I. Mrs. B., aged twenty-nine years. She was taken in labor at full term with her first child September 7, 1912. (She had had an early miscarriage some three years before.) The pains were not very efficient, and the waters broke two days later. As it became evident that there was some serious condition preventing delivery, the patient was brought to Columbus on the afternoon of the 13th, where I saw her in consultation two or three hours later. Forceps had been applied, but they would not lock. The pains had entirely ceased. The patient was exhausted. Pulse 130, temperature 104.6° F. Examination showed the soft parts fairly dilatable. The child was large and presenting by the brow, where a large caput succedaneum had formed. The fetal heart sounds were positively differentiated, so that it was determined that the child was alive. I advised an immediate Cæsarean section in the interests of the child, and a hysterectomy in the interests of the mother. This proposal was accepted and at once carried into execution. The operation was made in the usual way, except that, contrary to my usual custom, I made a low incision and brought the uterus entirely out, packing towels around and behind it to protect the peritoneum from any possible infection from the uterine contents. The child was a male and, as previously determined, unusually large. It was delivered without event. A hasty examination of the interior of the uterus showed a large patch which was evidently necrotic, corresponding to the point where the fetal head had been resting upon the pubic bone. The uterine cavity was then flushed with tincture of iodine which ran down through the cervix and out the vagina. A supravaginal panhysterectomy was then completed in the usual manner, except that one ovary was saved. The appendix was removed on general principles. The incision was closed without drainage.

The child was promptly resuscitated, but presented the usual monstrous appearance of a brow presentation. The temperature of the patient quickly fell to normal, and the convalescence of both was absolutely uneventful, and both were alive and well, July, 1913.

As an illustration of the advantages of hysterectomy in some of these cases of infection, I report the following case, particularly as the operation occurred on the day following the Cæsarean section:

CASE II. Miss K., aged fifteen years. Had been delivered of her first child after an entirely normal labor at the Florence Crittenton Home, September 6th. Her convalescence was entirely normal for seven days, and she had abundant breast milk for her baby. On the morning of the 13th, without assignable cause, her temperature was found to be 101° F., with increased rapidity of pulse, and a feeling of discomfort. In the afternoon her temperature was 103° F. On the morning of the 14th it was 104° F., and in the evening 106° F. At that time I saw her in consultation.

The patient looked profoundly septic. The abdomen was not undergoing quite normal involution but was in the shape, though quite tender. There was no fever at discharge. I advised hysterectomy as the treatment which would be most apt to promptly get rid of all infection. This was concurred in, and the patient was brought to Grant Hospital. A supravaginal panhysterectomy was made that evening in the usual way. One ovary was saved because of the youth of the patient. The appendix was removed. The incision was closed without drainage. Iodine had been freely used in the cervical canal before closing the cervical flaps and overcasting the peritonium.

During the operation it was noticed that some of the veins in the right broad ligament were plugged, but there was no evidence of any pus at these points. On opening the uterus, the placental site was found to be the seat of an acute infection, which had resulted in quite deep penetration of the tissues.

The patient's temperature promptly fell to normal, and her convalescence was entirely uneventful.

115 SOUTH GRANT AVENUE.

## THE APPENDIX AND SOME OF ITS DISEASES.

BY HELEN HUGHES HIELSCHER, M. D.,  
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"The beginning of philosophy," says Epictetus, "is the observing how men contradict each other." This spirit of contradiction was remarkably wanting in the early days of medicine, though minor bickerings occurred to a degree that would make one of the ancients feel perfectly at home at a county society or physician's club meeting of the present day. Without laying claim to "contradiction," which is the very spirit of progress, this paper will attempt to follow the fragmentary history of the appendix with a view to find some logical basis for its disease, and the treatment thereof.

In the days of Galen, and before, no such organ as the appendix vermiformis was described, but for that matter the whole intestinal tract was passed over with the simple classification of "intestina crassa" and "intestina tenua"—the thick and the thin intestines. Galen flourished in the second century, and from his day until about the beginning of the sixteenth century very little more was done for the science of medicine than to preserve his teachings; every school and every individual investigator exerting its or his energies to make facts as they found them conform to its or his writings. The shackles which Galen forged about the science of medicine were loosened by Vesalius in the first half of the sixteenth century. This notable scientist rose up and contradicted the hoary teachings of the great master. In his zeal he went as we now know too far, for he asserted that Galen was no great "master" at all, and that his works showed such ignorance as was proof positive that he never dissected a human body, but made his deductions from apes. With Vesalius came a revival of the actual study of anatomy, and although the intestines received very little attention, the appendix vermiformis was described and classified as a part of the "intestina crassa."

It is curious that so little was done toward the study of the intestines in the early days, for their appearance must have been quite familiar to the

priests who offered sacrifices, because their duty was to inspect them for omens, and observe that they were in a healthy condition; for the gods were supposed to abhor disease in any of their victims. War also of the kind that was waged in early days must have often exposed them in the living human subjects, and the custom of embalming afforded the Egyptian priests, who were also the physicians, great opportunity for their study, as the intestines were removed from the body cavity in order that it might be filled with spices. Yet no advances seem to have been made in their study. As a matter of fact, the intestines were looked on merely as tubes for reception of waste matter, and quite beneath the notice of the scientist. Cicero, in his *De Natura Deorum*, informs the reader that "he knows the alimentary canal, but from motives of delicacy omits the details," and Boerhaave, writing in the seventeenth century, prefaces his chapter on the expulsion of the feces in the *Institutes and Comments* with this apology, "now we come to a nasty, but necessary part of the business," though he traced the food through the upper part of the tract apparently without shame. This feeling as to the inferiority of the intestines may account for the neglect that was their portion until they exalted themselves by disease to that "bad eminence" which they occupy at the present time.

Vesalius died in 1564, and a little more than a century afterward, Boerhaave was born (1668). During the period between Vesalius and Boerhaave many independent searchers sprang up, some of them of such transcendent genius that their light shines even to this day. There were Eustachius, the contemporary of Vesalius, whose beautiful anatomical plates are still the delight of the anatomist's heart, and which he was, alas, too poor to have the joy of seeing published in his lifetime; Fallopius, the pupil of Vesalius, and Varolius, the physician of Gregory the Thirteenth, whose name lives in the "pons Varolii." Then, there was the priest Servetus, whose deplorable death at the stake set back the discovery of the circulation of the blood at least half a century; Harvey, who described this in 1600, and Fabricius, his teacher, whose observation of the valves in the veins of the lower extremities must have been such an aid to his brilliant pupil.

It was about this time that an interest began to be manifested in the intestines, delicately at first, "Wie die Katze um den heissen Brei." They began with the mesentery, and the upper or more honorable parts of the tract. It should be remembered that there was already some work done on the mesentery as early as 270 B. C., for Erasistratus and Hierophilus described the white vessels, or lacteals, in the living kid, and the receptaculum chyli and thoracic duct in the horse, named the twelve inch portion of the intestines and noticed the likeness of the convolutions of the jejunum to those of the brain. In 1637 Highmore was able to distinguish between the lacteals and the mesenteric veins. Some time afterward Olaus Rudbeck distinguished the lacteals from the lymphatics, describing for the first time the latter order of vessels. In 1652 this young anatomist traced the lymphatics to the thoracic duct

and hence to the subclavian vein, in a public demonstration before Christina, queen of Sweden. It seems to have been a custom of those times to make public demonstrations of any newly acquired knowledge, as if a victory that concerned everybody had been won over ignorance. This practice did not fail to bring glory to the individual, but was not without its dangers, for Wirsung was enviously assassinated on the evening of the day upon which he demonstrated so beautifully the pancreatic duct. Peyer and Brunner were at work also about this time, and with the aid of the microscope, that Leeuwenhoek was bringing to a high stage of usefulness, they opened up new fields to both the anatomist and the physiologist. Then Ruysch was pursuing his methods of research by injecting the hollow chambers of the body, so that it was said of him that "nothing in the human economy escaped his pipette."

The advent of Boerhaave into the scientific world marks an epoch in the development of knowledge concerning the appendix, for he was the first to give it the dignity of physiological utility. His description is confined to a few lines, and his physiology is incorrect; yet his teachings are of such a nature as to make them highly important. Boerhaave himself is a striking figure in an important era. He was professor in the University of Leyden when that institution was at the height of its glory. His fame drew students from all parts of the world. Peter the Great, of Russia, spent some time in his classes. His contemporaries were Valsalva, Santorini, and Morgagni. Von Haller was for some time his pupil, and he collaborated with the brilliant young Nuck, of whom he writes: "I have seen him more than a hundred times spread out the mesentery on a table, and, with a steel tube inserted into the least of the lymphatics, demonstrate the whole system." Boerhaave's standing, and his place in the scientific world, is gone into here in order that due weight may be given to his teachings, and that an ignorance of his subject may not be suggested as an excuse for the contradiction that appears between his writings and the facts of the present day.

Boerhaave first mentions the appendix to contradict his master, Vesalius. "We cannot agree," he says, "with the modern anatomists, Vesalius and others, that the appendicula vermiformis should be reckoned one of the large intestines." Again, he says: "There is a considerable quantity of feces found in the large intestine of the fetus and in the appendix, which at the time of birth is found full of feces representing the juice of poppies, and which is called meconium." With Boerhaave, anatomy was the handmaid of physiology, as it was with all the older writers up to the time of Winslow, and though he confines himself to a few words on the anatomy of the appendix, he goes at length into a fantastic explanation of its physiology. This is his anatomy of the part: "The reservoir or diverticulum of the cecum is furnished with a small vermicular appendix or little intestine." This meagre account is reinforced by a note which says: "This is a small slender process of the cecum, arising usually from the bottom or sides, and at some distance from the colon, in that

part which is opposite to the ilium. This process, or *membranous bag*, is furnished with glandular tissue, which discharges mucus to the feces." Then follows his physiology: "The appendix is larger in the fetus, which serves to increase the space destined for the reception of the meconium, but when the feces are accumulated in these parts to such a degree that they cannot easily be contained, by distending and irritating the intestines, it occasions pain and causes the infant to struggle; whereby the natural birth is promoted." To go back to his anatomy, the term *membranous bag* is hardly descriptive of the appendix of the present day. As a clue to the changes that have taken place in the appendix, let us follow Boerhaave's description of other parts of the intestine: "Following the Ancients," he writes in *Institutes and Comments*, "we call that glob of the colon the cecum, which is large and globular at its end or beginning, and so capacious as at times to be equal to two span (?), and in it the feces are collected as they slip through the ilium." Now a span is a unit of measurement based on the distance between the tips of the thumb and little finger of the extended hand, and is reckoned at nine inches. A cecum of the present time measuring eighteen inches would be very extraordinary indeed.

Boerhaave's description of the duodenum also affords matter for thought. In his lectures on anatomy, while teaching that science in the University of Leyden, he says, "The duodenum, the first part of the small intestines, has this peculiar to itself, that it is disposed in a *straight direction*." There is a note appended, which reads, "It is remarkable that this is the only part of the intestine with the beginning of the jejunum, that is disposed in a straight course, all the rest being surprisingly convoluted into various turnings and windings." Further, he states, "The duodenum arises at the pylorus and terminates at its incurvation immediately below the *insertion* of the biliary duct; . . . there are few instances of the biliary or pancreatic duct opening into the upper part of the duodenum." Here he cites the cases of ravenous fishes and birds, such as the ostrich, whose bile ducts open directly into the stomach. His deductions are not the result of a cursory examination, for he can describe minutely how the bile duct passes "first a little way between the external and muscular coats, and then for about an inch between the muscular and villous," and it does not escape him how "the fibres of the muscular coat serve for valves to prevent regurgitation from the intestines." In speaking of the muscular coats of the intestines he says: "There are three strong ligaments detached from the appendix on each side throughout the length of the colon, which contract it like so many muscles and terminate in the rectum. These ligaments are six times shorter than the colon itself, so that on separating them from the intestine it becomes much elongated, thinner and narrower."

In comparing these statements with the facts of the present day, we are forced to the conclusion that either Boerhaave and other anatomists of that time were very careless observers, or that the anatomy of the parts has undergone considerable

change even in the past three centuries. The appendix certainly seems to be contracted, since Vesalius classified it with the great intestines, or even since Boerhaave described it as a "membranous bag." The muscular fibres of the appendix are arranged more like those of the stomach than the intestines, and its mucous surface is still supplied with glands. The muscular fibres suggest a capability for emptying itself, which presupposes that it was used as a receptacle of some kind, such as the stomach, while the glands suggest some form of secretion analogous to that of the stomach, where the main use of the mucus glands is to protect the walls of the stomach from the highly irritating product of the oxyntic cells. If the stomach were to become atrophied we would expect such an order in its recession, that is to say, the disappearance of the glands whose secretion assists in digestion *pari passu* with a failure of the supply of material to be digested, with a persistence of the mucous or protective agent.

If the appendix ever was an organ connected with digestion it is quite reasonable to suppose that in some cases secreting glands still persist that under stimulation are capable of producing a substance as irritating, and poisonous, as the hydrochloric acid of the stomach—indeed, in their atrophying, perhaps many times more irritating. The effect of this fluid, poured into the empty and contracted appendix, would be just such as we see in those cases of fulminating appendicitis where the reaction is intense, and no germ has been recovered from the lesion, except those native to the intestines, and to a certain degree harmless. It is a bold, but nevertheless true expression, that the ordinary case of appendicitis, under the present methods of treatment, is a benign disease. Even with rupture and abscess formation there are comparatively few deaths, but in spite of this fact we must acknowledge that every once and a while we are confronted with cases that die before we have really settled down to any plan of treatment. These fulminating cases can be compared with great profit to a condition that gives rise to almost the same set of symptoms, and which in fact is sometimes mistaken for them, that is, perforation of the stomach or duodenum. The sudden onset, the shock, the small, irregular pulse, the pain and rigidity in the hypochondrium, as the acid stomach contents trickle downward, strongly simulate a severe appendicitis. Even when the patient comes to operation, except the perforation has occurred while there is food in the stomach, so that particles of it may be seen free in the abdominal cavity, the error may not be discovered, for the grayish fluid may be mistaken for pus, while the deep suffusion of the intestines and the appendix seems to confirm the diagnosis—so the appendix is removed, and the patient left to his fate.

Now if we look on the appendix as a vanishing organ of digestion, having its utility in some previous age, when the sustenance of the human family was of such a nature that it required a longer time, and a somewhat different apparatus to digest, and that this atrophying organ is still capable of producing under certain stimulation a digestive fluid, we can see immediately the sequence—death



from a strongly irritating chemical poison. If these deductions are correct, there is only one method of treatment for such cases, and that is immediate removal of the appendix. It is a well known fact that extraordinary results have followed in almost moribund cases where slushing with warm saline solution was resorted to, following removal of the appendix, and even large quantities left in the abdominal cavity. This would be a logical treatment where a chemical irritant was the cause of the condition, though contraindicated in the ordinary cases of bacterial infection.

## CARBON, OXYGEN, HYDROGEN GROUP, PLUS NITROGEN OR NONNITROGEN- IZED AND NITROGENIZED FOOD.

By J. C. DENSTEN, Ph. D., M. D.,  
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Food, or aliment, as distinguished from condiment, means, in the scientific sense, any substance that, being taken into the body of animal or plant, serves through organic action to build up normal structure or supply the waste of tissue. Liebig classifies food into (1) nitrogenized elements of nutrition, or those that serve for the nutrition of organized tissue—flesh formers; (2) nonnitrogenized elements, or those that are consumed in respiration—heat givers. Therefore, we have, from the nitrogenized and nonnitrogenized elements, not only tissue building material, but also fat forming elements, each belonging to the carbon, oxygen, hydrogen group; one a carbohydrate; the other a hydrocarbon. These elements exist, in some form of combination, in almost every substance used as food, and, in the process of digestion, become subservient to the function of organic action.

To this carbon, oxygen, hydrogen group belong all substances containing the elements of starch, and it is confined to the vegetable world; potatoes and the cereals being the most active source of production. All foods containing starch we term carbohydrates; but carbohydrate food will not build up or maintain life indefinitely without the combining effort of the added element, nitrogen. We must therefore have, not only carbohydrate food, but nitrogenous food also; and since nitrogen is found largely in meats, eggs, fish, etc., we have learned to partake of mixed foods, containing both starch and nitrogen.

Now, what is the *modus operandi* within the animal economy, as the result of this mixed diet? Let us first inquire into the chemical changes necessary to maintain life and produce tissue. Starch and nitrogen, given *per se*, will mean nothing toward sustenance until the animal economy has converted these elements into tissue building material. Metabolism is the all important factor in the maintenance of life and health. Heat and energy become absolutely necessary in order to convert the nitrogenous or protein elements into proteids and thence into tissue and fat. In order to get this heat and energy our body burns carbon, and thereby gets

the heat, while the energy is supplied, as the result of combustion, by the water contained in the starch elements. The starch first splits into glucose, or starch sugar,  $C_6H_{12}O_6$ ; then into alcohol,  $C_2H_5O$ , this being the most convenient and available form by which the carbon can be separated from the water ( $H_2O$ ) and utilized. The nitrogenous substances, or proteins, are converted into proteids, and thence into tissue building material, by the heat and energy contained in the carbohydrates, the waste being eliminated as carbonic acid anhydride, via the lungs in our exhalations. At the same time there is a constant supply of oxygen entering the body by inhalation, to reoxygenize the venous or carbonized blood, and convert from blue to red the blood, which is carried again to all parts of the animal system, to maintain life and health.

An animal while growing needs much more food than after maturity. The necessary amount of food after maturity is just sufficient to resupply the waste. Any food above this required amount will clog the system, or, if the animal be strong and healthy, may then convert the surplus into fat, and store it away in the body as a hydrocarbon. This is a wise provision of Nature, for when one is overtaken by disease this fat becomes a storehouse of food which will lessen markedly the waste caused by fever and friction, even while the patient remains unconscious or is unable to eat or assimilate ordinary foods.

Many medicinal agents serve to take the place of food. Why does strychnine ( $C_{15}H_{15}N_2O_2$ ) act as a tonic? Because it becomes a food. It contains carbon, oxygen, hydrogen, and nitrogen sufficient to make it a true "flesh former," and thus is a source of Liebig's "nitrogenized elements of nutrition." Most of our drugs which soothe and quiet pain are, in a sense, food. Pain is often but a nerve calling for food. Take atropine ( $C_{17}H_{23}NO_3$ ) and hyoscyamine ( $C_{17}H_{23}NO_3$ ); these are isomeric, with practically the same physiological action, are wonderfully effective in disease, where indicated. And how do they alleviate and cure? Just by resupplying that *something* which is necessary for normal health. Then they likewise must become food and furnish Liebig's "nitrogenized elements of nutrition."

Morphine ( $C_{17}H_{19}NO_3 + H_2O$ ) and cocaine ( $C_{17}H_{21}NO_4$ ) are isomeric and belong to the carbon, hydrogen, oxygen group, plus nitrogen, and hence become a food. All the alkaloids of opium contain carbon, hydrogen, oxygen, and nitrogen, and must of necessity be classed as food. How well we know that patients may be kept alive for weeks and months by this artificial feeding. But while they become a food under restriction, they also become irritants and destroyers when unrestricted, and this assertion is applicable to all ordinary food products, outside the realm of drugs and chemicals.

Now alcohol has its uses and also its abuses. We cannot live and have our being without alcohol in our system. We have seen that all the starches are converted into alcohol before work on the rehabilitation of the organism can begin. But this is no excuse for abusing it, as many do. We have also tried to show that any food becomes an irritant when taken in excess, or above a legitimate

demand. We see diabetics suffering from glycosuria and glycohemia, and we delve into our text-books and find—nothing. We read current medical literature on the subject, and one authority tells us to take away the carbohydrates, while another tells us to feed carbohydrates "good and plenty," and each is sincere in his advice. Now they cannot both be right. It is axiomatic that if withdrawing the carbohydrates from a diabetic patient would benefit and cure him, then administering the carbohydrates "good and plenty" would not benefit him, but *kill* him. Why cannot science and reason come to our assistance? Why does a diabetic pass sugar? Because of faulty metabolism. *He is not able to split the sugar into alcohol in his system.* But why? It is up to the physician to find out. This much is certain, however, that *if you withdraw the carbohydrates the patient will feed on himself until all his fat has been consumed, and then he will die.* I give all my diabetics carbohydrates, "good and plenty," with a sufficient amount of alcohol to convert the nitrogenous food into tissue building material, and thus sustain and maintain their equilibrium and aëroïdiposis. The patient must have a certain amount of alcohol in his system, and it is the physician's duty to see that he gets it, either by remedying the metabolism by treatment, after ascertaining the etiology of the disease, so that a normal condition will prevail, or else by supplying it direct. Alcohol will always benefit a diabetic, for without it in the system he cannot convert the nitrogenous substances into tissue building material, and so will lack sufficient food to sustain life.

If this be true, why should those in advanced age, with falling off of youthful virility, continue to eat the carbohydrates in as great quantities as in youth? Why not swallow a raw egg and a tablespoonful or two of good old rye and give the stomach and system a rest? Here we get the same result as from stuffing with potatoes, cereals, and meats, and the results are all that are necessary. As a rule we eat too much. We need but enough to resupply the waste and no more, if we are to remain healthy after fifty. Arteriosclerosis will find us sooner from gluttony, and embolism and thrombosis be more likely. One who has been temperate up to the age of fifty years may not fear to indulge in a tablespoonful or two of whiskey daily. Not many people become drunkards after fifty. There comes a time when we need a stimulant, and one is embarking on a longer life who knows just when and how much to take. Alcohol is a carbohydrate and carbohydrates are food. But alcohol taken in excess becomes an irritant; it should be taken, like other foods, only when necessary, and then with restriction. Young people do not need to drink alcohol. They have power to convert the starches sufficient for the necessary up-building of their bodies within the zone of health.

If we would prolong the life of a patient, he must be fed. Food then becomes essentially important, in preserving the continuance of animal life. There are many ways to administer food. Any substance containing both a carbohydrate ( $C.H.O.$ ) and nitrogen becomes food when assimilated by the animal economy. But such substances should be administered in the most concentrated form in order to become assimilated with the least possible exertion

on the part of the patient's system. So we conclude that of the carbohydrates, alcohol becomes the most available concentrated form where quick nutritive effect is desired. For prolonged tonic muscular effect strychnine stands preeminent, and may always be relied upon to take up the slack of a weak heart. In alcohol we have a nonnitrogenous food, a heat giver, which is consumed through the respiration. In strychnine we have a nitrogenous food which furnishes tissue building material, and hence is a flesh builder.

314 SPRUCE STREET.

## AN UNUSUAL CASE OF SEPTICOPYEMIA.

By W. B. COFFEY, M. D.,

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N. F. N., aged twenty-eight years, American, baggage man, was admitted to Southern Pacific Hospital, November 14, 1912. Family history negative. Previous history: Usual diseases of childhood; typhoid fever in 1902; denied venereal infection. Present illness began two weeks before admission, when, after being chilled, he was seized with thoracic pains, cough, and dyspnea. Headache developed and all symptoms increased in severity.

Examination: Well nourished young man; pulse 84; temperature 102.6° F.; respiration 24; tongue heavily coated and breath foul. Left buttock showed a large boil with considerable edema, redness, and seropurulent discharge. Over lower right side of thorax dullness, increased tactile fremitus and vocal resonance, and friction rub. Over upper thorax, moist crackling râles. Over lower left side flatness, much decreased voice and breath sounds, and coarse friction rub; many fine moist râles over upper lobe of lung. Examination of heart, and also genitalia, negative.

Urinalysis: November 14th, negative; November 29th, albumin +, granular and hyaline casts; epithelium and leucocytes; agglutination reactions, *Bacillus typhosus*, negative. On admission, leucocytes, 16,200; systolic blood pressure, 108 mm., Hg.

The physical signs of pneumonia persisted; restlessness and tremors increased; periods of stupor developed. Therapeutic was chiefly symptomatic in character, including local dressings, normal salt solution, strychnine, etc. A few days before death a soft systolic, nontransmitted, apical cardiac murmur was heard. Abscesses were then noted over the left shoulder and right elbow. Diarrhea developed three days before death, and at one evacuation, a large clot of blood was seen. Complained of severe pain in both arms. Deafness appeared. Breathing was stertorous. Death occurred in coma December 1st. Blood culture on admission showed *Staphylococcus aureus* in pure culture, and two weeks later the same organism was isolated. Pus from the left shoulder and gluteal abscess showed staphylococci, as well as a few acid fast organisms from the latter location. Clinical diagnosis, pyemia; ulcerative endocarditis.

Post Mortem Record: Exterior of body showed no abnormality except shoulder, elbow, and gluteal abscesses. Peritoneum normal. Spleen, weight, 350 grammes; capsule normal; cut surface dark brown; follicles and trabeculae indistinct; at hilum a small anemic infarct; elsewhere a few, small, yellowish white, soft areas noted. Liver, 1,850 grammes; capsule normal; cut surface "nutmeg" and fatty changes; over capsular and cut surfaces numerous, yellow, firm, millet seed sized areas seen. Gall-bladder apparently normal. Stomach and intestines moderately congested; in ileum numerous, yellow, elevated, firm, split pea sized areas; examination of Peyer's patches negative; mesenteric nodes enlarged and firm. Pancreas, 100 grammes, apparently normal. Left kidney, 230 grammes; capsular surface showed a few large yellow, softened.

elevated areas, areas of similar color and consistency, though smaller, seen in cortex and medulla; pyramids congested; left adrenal and ureter apparently normal. Right kidney, 250 grammes and similar to left; right adrenal apparently normal; ureter irregularly dilated throughout its continuity; no pus. Bladder apparently normal; left lobe of prostate showed abscess formation; testicles not examined. Upon probing gluteal abscess a sinus was found to extend to the ischiorectal region and over toward, but not quite reaching, the hip joint. Left pleural sac contained 400 c. c. bloodstained yellow fluid; a few recent adhesions at apex. Lung, 580 grammes; along pericardial border of upper lobe a pea sized, soft, yellow, elevated area noted; basal congestion, and elsewhere marked edema. Right pleural sac showed old adhesions at apex; lung, 700 grammes; a few soup bean sized, yellowish white, soft areas containing pus scattered throughout organ; consolidation at base; marked edema elsewhere. Pericardial sac apparently normal; heart, 370 grammes; numerous millet seed sized yellow areas slightly projecting on the pericardial surface of left ventricular wall; aortic, mitral, and pulmonary valves apparently normal; in auricle five mm. above free margin of tricuspid leaflets there was a 2x3 mm. sharply defined ulcer. At base of epiglottis, a pin head sized, yellow elevation containing pus; thyroid apparently normal. Brain showed a goose egg sized abscess, with ragged necrotic walls in the right occipital lobe, just beneath the meninges; elsewhere the tissues were congested; spinal cord not examined.

**Histological Examination:** Spleen, moderate capsular fibrosis, infarction, numerous polynuclear cell collections and necrosis; several bacterial masses (cocci); no amyloid degeneration. Liver, moderate cloudy swelling, passive congestion, and hemosiderin pigmentation; numerous necrotic areas, as in spleen. Ileum, hemorrhages in mucosa and submucosa; a few cellular collections, as in spleen. Appendix, fibrosis of submucosa. Pancreas, post mortem changes. Kidneys, marked cloudy swelling; cell collections and necrosis, as in spleen; several bacterial masses; hemorrhages into tubules. Adrenals, congestion and hemorrhage. Prostate, one large and several small necrotic areas with cellular peripheries; many bacterial masses. Lungs, fibrosis of pleura; several large and small areas of necrosis and cellular collections; fibrosis and vascularization of alveolar contents in many places; some alveoli filled with polynuclears, fibrin, and proliferated endothelium; elsewhere emphysema, edema, and hemorrhagic infiltration noted. Heart, hemorrhages in subepicardial tissues; a few arteries in myocardium showed proliferation and necrotic changes in walls; one large necrotic and cellular area, as in spleen. Mesenteric lymph nodes, lymphoid hyperplasia; areas of necrosis and cell collections; bacterial masses and polynuclear cell emboli. Thyroid, two arteries showed intimal fibrosis and calcification. Rectus abdominis, polynuclear cell collections, but no necrosis; congestion and hemorrhage. Cerebrum, several cell collections with and without necrosis (right parietal lobe).

**Bacteriological Findings:** Cultures from spleen showed *Staphylococcus aureus*. Smears from abscesses of right elbow, liver, ileum, kidneys, and brain showed same organism.

**Pathological Diagnosis:** Abscesses of left shoulder, right elbow, spleen, liver, ileum, kidneys, prostate, mesenteric nodes, lungs, heart, epiglottis, and cerebrum; ischiorectal abscess; chronic perisplinitis and anemic infarction; acute parenchymatous hepatitis and hemosiderosis; chronic interstitial appendicitis; acute parenchymatous nephritis; hemorrhage in adrenals; organizing pneumonia, emphysema, and edema; acute toxic arteritis (coronaries) and ulcerative tricuspid valvulitis; calcification of thyroidal arteries; acute myositis (rectus abdominis).

**Remarks.** This case presents several points of interest, viz., the typhoidal type of temperature, the intestinal abscesses, and the ulceration of the tricuspid valve without involvement of the left sided valves. The cerebrum, ischiorectal region, and lungs were suggestively primary foci. The abscesses of the gluteal and ischiorectal regions and lungs offer the most probable sites. The acid fast organisms suggest a tuberculous ischiorectal ab-

cess (chronic) independent of the pyemia, which, however, doubtless contributed materially toward extension into the gluteal region. The well defined organizing pneumonic changes associated with suppuration in the lungs indicate a primary croupous pneumonia and ulcerative endocarditis, and a terminal systemic distribution of the pyogenic organisms.

SOUTHERN PACIFIC HOSPITAL.

### SOME REASONS FOR ADVISING NO DELAY IN OPERATING ALL FORMS OF HERNIA.\*

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The term hernia in this little paper will have reference to organs escaping into openings or passing through the walls of the abdominal cavity, such as umbilical, diaphragmatic, inguinal, femoral, and ventral hernias.

In submitting my reasons for the early operation of hernias I do not care to discuss the kind of operation that is best for a radical cure, nor do I want to show preference for any particular kind of operation, as these procedures are so numerous, and almost all of them achievements of brilliant minds; each having its own special indication. Neither do I wish to discuss the skill required for its performance; nor will I even mention a single point in the methods of diagnosing the presence of hernia. What I aim at in a general way is to condemn the so called truss wearing cure, and to urge that all hernias ought, as a rule, to be operated upon as soon as the diagnosis has been definitely established, even when only a small sized tumor can be felt, on the impulse of coughing or straining, in the inguinal, femoral or umbilical rings. Naturally, there are some contra-indications, to operation, and these I will enumerate later on.

A prominent surgeon once remarked, "Every person with a hernia wears his death robe." This statement is an exaggerated one, especially in modern times and in cities where surgical interference can always be obtained at any time. I would modify it by saying, "A person with a hernia carries a serious charge against himself, but can easily free himself of the same at will."

The patients suffering from hernia are of two kinds: (a) Those in whom surgical interference must be immediately instituted, because the life of the individual is threatened—such cases as strangulated, infected, incarcerated, and very large and irreducible hernias. (b) Those in whom operation can be delayed for a limited or reasonable period of time. In the latter class of cases the individuals are usually deprived of a great many of life's pleasures, health being impaired and the fear of the hernia's becoming strangulated at any time causing great uneasiness of mind and therefore serious hampering in the usual routine of daily life.

\*Read before the Har Moriah Hospital Clinical Society.



The continuous wearing of a truss is a misfortune that no young person likes, and ought not to submit to unless forced to do so by contraindications to an operation. I have made a careful investigation of various forms of trusses, and regret to state that I have as yet failed to discover one that would thoroughly fit, and perform the task it is designed for—by this I mean to say that the head or pad of the truss never thoroughly seals the margin of the opening of the tumor's point of emergence. It should be immovable and not press too hard, for undue pressure cuts off the circulation and innervation of the parts, which weakens the abdominal wall and in inguinal hernia is liable to injure the cord and testis. What I found almost without exception in people wearing trusses was, that the frame and head of the truss pressed too hard, so that the skin underneath was pale, numb, and imperfectly nourished. The fascia and muscles, I suppose, suffer similarly. The hernial tumor often comes out above or below the head of the truss, and, as a result of this mechanical irritation of the parts, pain is produced and a local inflammation, which is followed by serious adhesions, rendering subsequent operations difficult and hindering very much the expected radical cure. When operating for hernia in trussworn patients one often finds the bladder adherent to the sac, and many an accident has happened in such cases where the bladder was seriously damaged by carelessly stripping it away from the sac. Various parts of the gut are often so adherent to one another, and sometimes to the sac, that one finds difficulty in separating them, and reducing such adherent structures in mass leads to serious postoperative complications. We also very often find, in large hernias, an irritated and even an inflamed appendix in the sac; which necessitates removal, and thus adds to the gravity of the case so far as prognosis is concerned. The exceptional cases, such as tube or ovary in the sac, no doubt you have heard of, and they also bother the operator seriously, to say nothing of the really dangerous cases, such as strangulated, gangrenous, or inflamed gut, with its complications, which are well known to you and need not be further discussed.

From the foregoing pathological considerations one might imagine the mortality of hernias to be very great, and the prognosis grave. Yet, looking up various statistics, I could not find one author who gave the mortality rate higher than two per cent. Does it pay, however, to lose even two patients out of one hundred cases? No, I say, emphatically no. A herniotomy in the early stage of the condition is an extraperitoneal operation, and your patient runs hardly any risk under ordinary aseptic precautions.

It seems to me that a great many people have an enormous dislike to trust themselves in an unconscious state to others, and that may mean the anesthetist, or even the surgeon himself, and the nurses. Some dread greatly the aftereffects of the anesthesia, with its possible complications. Such people can easily be operated upon under a local anesthetic, such as cocaine, novocaine, beta eucaine, etc., in various strengths, according to the preference of the operator. Lately, injections of sterile water have been used very successfully, and the most recent local anesthetic employed is the solution of

quinine and urea hydrochlorine, from 0.25 to one per cent. A general anesthesia, however, is always the best if there are no contraindications, as in diseases of the heart or kidney, to its use.

**Contraindications.** There is no such thing as contraindication to operating in class a, as given above. Contraindications to operating in class b are those general diseases that menace life and health, such as general tuberculosis in an active state, diabetes mellitus, grave heart diseases, malignant growths, pregnancy in the late stages, blood diseases, such as pernicious anemia, hemophilia, Hodgkin's disease, splenic anemia, Graves's disease, etc. Age and sex are no contraindications, except in the very young (under one year of age).

Although I have condemned the truss and endeavored to show clearly the uselessness of its application, you are liable to lose many a patient if you insist on operation. I would therefore recommend the following rules for a well fitting truss (which is naturally very hard to obtain).

1. The head or pad should be of soft and yielding material.
2. The head should seal the entire opening and part of the marginal ring around it, so as to effectually prevent the viscus from coming out.
3. The steel rim, as well as the head, should not press too hard on the tissues; otherwise the skin and musculature will become numb and functionless.
4. The entire framework, and especially the head, must be immovable; this can be secured by means of straps arranged like suspenders worn over the perineum.
5. If it is an inguinal hernia the head should be of triangular shape so as to fit the groin.

After the truss is applied, in order to be certain that the hernia passage is secure, make the following trial: Let the patient cough, bend forward and backward, stoop down, with legs widely separated, and finally sit down with crossed limbs. If it is then secure, you may rest in comfort and consider that you have done something at least for your patient.

All these rules are hardly possible of application in a young and active individual, yet some patients want a truss, and if you do not accede to his wishes some kind colleague, the trussmaker, or even some enterprising druggist will satisfy his wants.

In conclusion, I will say that if only a few of you will follow in advising early operations, thereby preventing future complications during a delayed operation and also rendering life more pleasant for the patient, I will be amply compensated for bringing the subject before you.

218 EAST FIFTEENTH STREET.

## Therapeutic Notes.

**Treatment of Constipation.**—Léon Meunier, in *Presse médicale* for April 26, 1913, states that he has been struck with the fact that when, after a small enema of oil has been retained overnight, the rectum is washed the next morning with a solution of soda, the fluid evacuated contains sodium soaps. This is readily proved by filtering the fluid and

saturating it with sodium chloride, when a precipitate of soap is produced. Evidently the oil is in part broken up during the night into fatty acids and glycerin by digestive ferments still active in the lower bowel, and upon contact with the alkaline solution the fatty acid combines with it to form oleate of sodium. The latter being in intimate contact with the entire mucous membrane, cleanses it—in particular removing fatty substances—in a most effectual manner. Meanwhile, the oil itself has exerted the desired lubricant action in the overloaded gut.

Where these two indications are to be simultaneously met, therefore, the author advises that the patient be given in the evening an enema of two to four tablespoonfuls of tepid oil, preferably oil of sweet almonds. This is retained overnight, and next morning the bowel is irrigated with 1 pint ( $\frac{1}{2}$  litre) of a hot ( $104^{\circ}$  F.) solution of sodium carbonate or bicarbonate.

**Treatment of Pruritus Vulvæ.**—A. Stein, in the *Urologic and Cutaneous Review*, January, 1913, in discussing the local treatment lays stress on the fact that neither water nor alcohol should be used in the preparations prescribed. He would even forbid patients to bathe, wash, or douche the affected parts until after the condition has improved. Instead of water he advises the application of olive oil, to be carefully repeated after each act of urination or defecation. This should be followed by the use of an ointment:

R Cocaine, .....  
Menthol, .....  
Acidi salicylici, .....  
Adipis lane hydrosi, .....  
M. ft. unguentum.

This should be applied in a thick layer on gauze, which is to be held in position by a T binder. To relieve itching, the placing of an icebag in contact with the parts, to remain over night, is also often effectual.

If causes such as diabetes, icterus, circulatory disease and parasites can be excluded, and if there is fluor and hypertrophy of the cervix, curettage and if necessary amputation of the cervix should precede the use of the local measures already referred to.

It is of great importance, also, to see that the patients have sufficient sleep and to relieve their extreme nervous excitability. Hypnotics may be used for the night, while during the day the following bromide mixture may be given:

R Potassii bromidi, .....  
Sodii bromidi, .....  
Ammonii bromidi, .....  
Aquæ destillatæ, q. s. ad, .....  
M. Sig.: One tablespoonful three times a day.

**A Simple Method of Arresting Epistaxis.**—Pech, in *Bulletin médical*, December 29, 1912, advises the following procedure: In the standing position and with the head erect, the patient makes constant pressure with the finger on the ala nasi of the side opposite to that on which the epistaxis is taking place and with the mouth closed, executes slow inspiratory movements, each lasting from five to eight seconds. Between inspirations the mouth is opened and expiration quickly effected. Two or

three such inspirations are generally sufficient to arrest the epistaxis. This occurs owing to the relative difficulty attending the entrance of air through the single nostril left open, the orifice being reduced to a mere slit owing to displacement of the septal tissues toward the ala of the side opposite from that compressed. A relative vacuum is thus produced in the thorax, as a result of which the blood pressure is lowered in the vessels of the head, this favoring clot formation at the bleeding point. That the mechanical effect thus exerted is a considerable one is shown by the fact that if the obstructed inspirations be continued much longer than is actually necessary, equilibration is impaired owing to ischemia of the brain.

**Treatment of Insomnia in Children.**—Comby, in *Journal de médecine de Paris* for April 26, 1913, urges in particular that the meals be given regularly, that coffee be interdicted, that the child be kept quiet before bedtime, and that the nervous system be toned up by life in the open air and cold affusions or wet packs. Constipation should be overcome with glycerin enemas or suppositories. Where there is much excitation, calmatives and hypnotics may have to be used. Thus the following solution may be given at bedtime to a child four or five years old:

R Potassii bromidi, .....  
Chlorali hydrati, .....  
Syrupi aurantii florum, .....  
Aquæ destillatæ, .....  
M. fiat solutio.

Or, a teaspoonful of the following may be given at hourly intervals until the desired effect is produced:

R Potassii bromidi, .....  
Chlorali hydrati, .....  
Extracti hyoscyami, .....  
Extracti cannabis indicæ, .....  
Syrupi aurantii florum, .....  
Aquæ, .....  
M. fiat solutio.

An enema might be given as follows:

R Potassii bromidi, .....  
Chlorali hydrati, .....  
Vitellii ovi, .....  
Aquæ, .....  
Misce.

A solution of  $7\frac{1}{2}$  grains (0.5 gramme) of antipyrine in 2 ounces (60 grammes) of water may also be administered in this way.

The following suppositories may be used:

R Chlorali hydrati, .....  
Olei theobromatis, .....  
M. fiat suppositorium unum.  
R Sulpho-nethylmethani, .....  
Olei theobromatis, .....  
M. fiat suppositorium unum.

In malarial districts quinine should be tried, while in syphilitic children the best treatment for insomnia will consist in mercurial inunctions and potassium iodide.

**Treatment of Gastrointestinal Atony.**—G. Sée, in *Paris médical* for April 12, 1913, is credited with the following combination for the purpose referred to:

R Magnesii oxidi, .....  
Crete præparatæ, .....  
Columbe pulvis, .....  
Vanille pulvis, .....  
M. Sig.: One half teaspoonful before each meal.

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*A Weekly Review of Medicine.*

Edited by

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### MENTAL DISEASES IN THEIR RELATIONS TO THE INTERNAL SECRETIONS.

Judging from the viewpoint of the general practitioner, at least, psychiatry—to which might be added its sister branch, neurology—does not afford as great a degree of satisfaction, in so far as therapeutic results are concerned, as do other specialties. An academic explanation of the morbid process supposed to be present in a given case is usually vouchsafed, but the results are in most cases disappointing. Modern researches, however, seem to be furnishing a clue to the cause of this unfortunate state of affairs. Defective anabolism through deficient oxidation and, conversely, imperfect catabolism of toxic wastes, have been known to explain many morbid phenomena of the cerebrospinal system, but the underlying cause of these departures from normal metabolism had remained obscure until the marked influence of the ductless glands upon these processes had opened a new field of study.

The intimate relationship between the internal secretions and mental disorders have been emphasized particularly through the labors of Lloyd Andriezen, McLane Hamilton, Laignel-Lavastine, Möbius, Dercum, Frankl-Hochwart, and others.

In a recent paper (*Journal of the American Medical Sciences*, August, 1913) the last named writer clearly sets forth the many landmarks which illustrate this connection. The onset of puberty coincides often, as we know, with the development of dementia præcox and other precocious mental aberrations. Disorders of the thyroid gland are prolific in such, as illustrated by the psychic anomalies observed, not only in certain cases of exophthalmic goitre, but also in the milder types of hyperthyroidia, in which excitement and manic outbursts are not infrequent. The asthenic stage of the same disease shows the converse of those witnessed during the erethic period, viz., a tendency to hypochondria, drifting at times into typical melancholia. Similar depressive psychoses are witnessed in myxedema or in its *formes frustes*, hypothyroidia. The tetany following removal of the parathyroids was shown by Frankl-Hochwart, and others since, to be attended in some instances by psychic phenomena in which excitement predominates. Removal of the thymus in young animals has been found to enfeeble their intelligence—the *idiotic thymopriva* of Basch and Klosevoigt. The pituitary body, aside from the psychoses observed in the course of acromegaly and dystrophia adiposogenitalis, is distinctly the source, when the seat of a tumor, of psychic disturbances. Whether these are due to pressure upon the neighboring basal structures or to perversions of the glandular functions, matters little; an etiological connection between the pituitary and mental disorders is nevertheless an established fact. The adrenals seem also to merit attention, destruction of these organs having been found by Leri to coincide, in three instances, with melancholia. The pineal gland even has imposed itself upon the psychic field, a teratoma of this organ having caused in a five year old child so rapid a mental development that he reasoned as would a young man, with a predilection for ethical and philosophical questions—a point, perhaps, in favor of Descartes's view that the pineal gland is the seat of the soul!

Frankl-Hochwart closes with the remarks that "brain anatomy helps but slightly in showing how higher mental development is to be explained," and that "perhaps the time will come when we shall learn to perceive how much depends on the individual structure of certain glands and on their individual internal secretion." This will occur, in our opinion, only when the *functions* of each organ will be taken into account in the study of the morbid processes involved—and when the empirical use of organic products will have been replaced by their employment only where actually indicated and in appropriate doses.



## PARINAUD'S CONJUNCTIVITIS.

Since Parinaud described in 1889 a peculiar disease of the conjunctiva associated with swellings of the lymphatic glands on the same side of the neck, a number of cases have been reported and its etiology has excited some discussion. Quite a number of writers have been insistent that the disease was a modified form of tuberculosis of a benign type in spite of the facts that it runs a self limited course, that the conjunctiva was not ulcerated, that inoculations of conjunctival tissue frequently failed to produce tuberculosis, that the tubercle bacilli were not usually found in the glands, that the proportionate number of patients in whom the tuberculin reaction was positive did not seem to be abnormally great, and that the histological examination of the tissue always appeared to indicate an infective origin. Those who did not accept this theory were obliged to content themselves with pointing out the objections to it, and with the hope that some day the morbid agent would be discovered. Dr. F. H. Verhoeff presents in the *Archives of Ophthalmology*, for July, the reasons which lead him to believe that he had discovered this agent. Incidentally he holds that certain atypical cases of conjunctival tuberculosis may be mistaken for Parinaud's conjunctivitis, and have been reported as such, but that they do not possess its characteristic histological features. The characteristic feature is the occurrence of focal areas, varying in size and shape, infiltrated with endothelial phagocytes in various stages of necrosis, not packed close together and united with each other, as in tuberculosis, but discrete. The necrosis involves the cells alone and bears no resemblance to the caseation of tuberculosis. Surrounding these areas the tissue is densely infiltrated with plasma cells. Ordinary granulation tissue also is formed, the amount depending on the duration of the process. In eleven of his twelve patients he found within these areas of cell necrosis minute, filamentous microorganisms, for the most part in masses and intertwined about one another, though separate individuals also could be seen, by means of a technic that he describes in full detail. In one case, evidently an early one, numerous masses were to be seen in the superficial lymph spaces, and were especially prominent just beneath the epithelium, where the areas of cell necrosis usually occur. Such masses appear to be the starting points for areas of cell necrosis, for all the stages in the formation of the latter could be made out, beginning with the invasion of a mass of microorganisms by a few endothelial cells, and this one case alone seems to him to be sufficient to exclude the possibility that these microorganisms are secondary

invaders. Their predilection for the lymph spaces explains the early involvement of the regional glands. Since no branching of the filaments could be detected he classes the microorganism as a leptotrix, and, so far as he knows, no similar one pathogenic for man has previously been described. The unusual character of these organisms, their great abundance, the fact that they were situated so as to explain the lesions, and the absence of any others that were demonstrable, lead him to believe them to be the causative agents of this peculiar disease. This can be made certain only by successful cultivation on artificial media, and the experimental production of the disease, preferably in monkeys.

ACTIVE IMMUNIZATION AGAINST  
DIPHTHERIA.

There is no phase of immunity of greater practical importance than the active immunization against infectious diseases. Important as the curative serums are, they nevertheless constitute merely a therapeutic agent. Valuable, it is true, but one which falls short of the ideal of imitating Nature in her lasting protection of races and individuals against infectious diseases. After all, prophylaxis is the ideal toward which we are striving, and any measure which brings us nearer to the goal constitutes an important advance along the line of battle that is being waged against the pathogenic bacteria. It is for this reason that Jenner's vaccination against smallpox has remained the classical example of active immunization. It showed the way. Pasteur's labors along the line of active immunization also furnished a clue, while the recent researches of Wright opened up a vista of great possibilities in the prevention as well as the cure of infections.

In a recent contribution to the *Rousski Vrach* (May 4, 1913) S. K. Dzerzhgovsky relates an interesting instance of a horse preserving its immunity against diphtheria for sixteen years, or almost its natural life. This horse served for the production of antitoxine and was sold. Sixteen years later it was repurchased and injected intravenously with 12,500 minimum fatal doses to guineapigs, this being the maximum amount of diphtheria toxine the horse received during the last immunization. No reaction followed. A second subcutaneous injection of the same quantity was followed by a slight general and local reaction. The horse was then bled, and the serum was found to contain 300 units of antitoxine to each cubic centimetre or about four times the strength this horse yielded during the first immunization sixteen years before. A similar result was obtained with a dog which was immunized against diphtheria for a period of thir-

teen months, yielding a serum of 3.5 units to each centimetre. A year later the dog, still showing an antitoxic serum of 0.897 units, was injected with toxine and yielded a serum of 30 units or nine times as strong. The author also experimented on himself, and seven years after active immunization with diphtheria toxine responded to immunization by inhalation with a serum five times stronger than the first. These observations show, according to the author, that active immunization produces such profound changes in the organism that the response to subsequent intoxication is very much greater, and this property to react may last for years. The comparatively brief immunity following a natural attack of diphtheria the author explains on the ground that the immunization period is too short. Another interesting fact brought out is that for purposes of immunization the doses of toxine need not be at all large. In fact, a dose too small to cause the slightest reaction may be sufficient to induce a permanent immunity. This is shown by the occurrence of natural immunity with previous apparent infection, as well as by the observation that healthy individuals often show antitoxine in the blood, such individuals having acquired the immunity by frequent exposures to minimal doses of toxine. It is quite probable that the comparative immunity of physicians and nurses to infection is due to their repeated absorption of small doses of toxine.

If the foregoing observations are correctly interpreted, may we not look forward to a time when active immunization will be accomplished by the introduction of small amounts of toxins, a procedure which would be perfectly harmless to the individual and yet effective in the production of lasting immunity?

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#### THE MORTALITY FROM CONGENITAL DISEASES.

Until recently the principal cause of death among infants under one year old in this city was diarrheal disease. Thus, in 1908 we find that the deaths of such infants from diarrheal affections numbered 5,118, as against 4,533 from congenital diseases, and before that the preponderance of diarrheal deaths was even greater. Now, however, with the marked reduction in infant mortality during the past three years, a reduction confined almost entirely to diarrheal diseases, the congenital diseases have taken the first rank as a cause of death. These for the most part occur during the first month of life, and they produce no less than thirty-five per cent. of the total mortality under one year. Even so short a time ago as 1908 it was not considered possible to do much to reduce

the number of this class of deaths. This view is taken in the annual report of the Bureau of Records of the Health Department for that year, where we read:

It will be seen that the most important factor in the mortality of infants is that of death from diarrheal diseases. The death rate from this cause is one that we may improve, and the many agencies working toward this end give promise of betterment in the future. The deaths from congenital diseases consist mainly of malformations and prematurity of birth, and are not, to any great extent, susceptible to official interference.

But at the present time these congenital diseases are attracting special attention, and it is believed that by prenatal care, particularly, much can be done to bring about conditions which will result in a material reduction in the mortality from this cause. At the conference on infant welfare held at Albany in June, the report of which has just been issued by the State Department of Health, this subject was taken up by several of the speakers, among them Doctor Pisek, of the New York Milk Committee. Dr. Florence Loughton, of the Russell Sage Foundation, expressed the opinion that there had scarcely been an undertaking for the prevention of infant mortality that showed evidence of greater promise than instruction given to the coming mother, and spoke of the prime importance of well organized cooperation on the part of those working in this field. Dr. Josephine Baker, chief of the division of child hygiene, Department of Health of the City of New York, was in accord with these views, and said that in the future the work for the reduction of infant mortality must be more and more educational and more and more social in character. The difficulties encountered in dealing with the congenital diseases are great, but the success achieved in the intestinal troubles of infancy affords some assurance at least that with systematic efforts concentrated in this direction the problem may eventually be solved.

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#### VERTIGO IN GLAUCOMA.

In most of the cases of vertigo that come under the ophthalmologist's observation, this symptom is due to paralysis of the ocular muscles or to faulty refraction. Considered characteristic of ocular vertigo is the fact that it disappears upon closure of the eyes. L. Dor (*Lyon médical*, July 6, 1913) has recently directed attention to a form of ocular vertigo occurring independently of vision, i. e., arising even in a blind eye, and due to the intra-ocular tension of glaucoma. The dizziness at times appears suddenly, without direct relationship to an effort of visual attention, may be marked enough almost to cause the patient to fall, and can be overcome as a result of the emotion induced.

the patient becoming aware of a sudden afflux of blood to the head, followed by relief from the vertigo. Dor asserts that at least one out of every four glaucoma patients suffers from this symptom, though special questioning may be necessary to elicit the fact, the patients often failing to associate the symptom with their diminished vision. Though other forms of vertigo, e. g., those of gastric, arteriosclerotic, and even of labyrinthine origin, may occur in these cases, the specific nature of "glaucomatous vertigo" is shown by its prompt relief through iridectomy, sclerectomy, enucleation, or even through the mere instillation of pilocarpine. Of four patients referred to by the author, three presented complete monocular blindness, and the fourth such restriction of the visual field as to amount practically to the same condition. The lesson drawn by Dor from these cases, then, is that even in the presence of a painless and visually incurable glaucoma, operative intervention may at times be indicated to overcome dizziness, the latter being very distressing to these patients and keeping them from enjoying to the full the visual capacity remaining in the other eye.

### News Items.

**Pellagra in Tennessee.**—The State Board of Health of Tennessee reports that during the month of June, 1913, there were reported 105 cases of pellagra throughout the State.

**Ohio State Medical Association.**—The sixty-eighth annual meeting of this association will be held in Cedar Point on September 2d, 3d, and 4th, under the presidency of Dr. J. C. M. Floyd, of Steubenville. Dr. J. H. J. Upham, of Columbus, is secretary of the association.

**Mr. J. Merton Taylor,** president of the Taylor Instruments Companies, of Rochester, N. Y., died in the Rochester General Hospital, on Thursday, July 31st, at the age of fifty-seven years. Death was due to complications arising from an operation. Mr. Taylor was the son of the late George Taylor, founder of the Taylor Instrument Companies, manufacturers of thermometers, barometers, and other scientific instruments.

**Leprosy in St. Louis.**—Surgeon Carrington, of the United States Public Health Service, reported a case of leprosy in St. Louis, Mo., on August 6th, in the person of an ex-soldier, a native of Illinois, who had served in the Army at Cebu, P. I., in 1900, at which time there was a leper colony near the army post. The diagnosis of leprosy has been verified bacteriologically, and the patient removed to the municipal quarantine station.

**Gifts and Bequests to Hospitals.**—By the will of Joseph Kuder, who died in New York on July 24, 1913, the German and the St. Francis Hospitals will each receive \$5,000.

The will of Henry Korn, a real estate dealer, who died in New York last October, contains bequests of \$500 each to Lebanon Hospital, Mount Sinai Hospital, Beth Israel Hospital, and the Montefiore Home.

By the will of Mrs. Anna F. Francine, late of Philadelphia, the two sons of the testator are to have the income from an estate valued at \$130,000 during their lives, and if they die without children two thirds of the estate will be given to the Pennsylvania Epileptic Hospital and the Colony Farm in Chester county, and the other third to the University Hospital.

The will of Henry Freedman, who died recently in Philadelphia, contained a bequest of \$500 to the Jewish Hospital.

**New York and New England Association of Railway Surgeons.**—The twenty-third annual meeting of this association will be held at the Hotel Astor, New York, on Wednesday, October 22d. An interesting programme has been arranged, a prominent feature being the Address in Surgery, by Dr. Hugh H. Young, of Baltimore, Md. Railway surgeons, attorneys, and officials, and all members of the medical profession are cordially invited to attend. Dr. John W. LeSeur, of Batavia, N. Y., is president, and Dr. George W. Chaffee, of Brooklyn, corresponding secretary.

**Marburg Memorial Ward Opened at Johns Hopkins Hospital.**—Postponing the opening ceremonies until the return of Dr. Winford Smith, medical superintendent of Johns Hopkins Hospital, and some members of the Marburg family, the hospital authorities have thrown the new Marburg Memorial Ward open to patients, and there are now twenty-three patients in the ward. The opening of the new ward relieves the crowded condition that has existed for some time at the hospital, several times during the past six months every ward of the institution being filled.

**Inspector, State Board of Charities.**—On September 13, 1913, the New York State Civil Service Commission will hold an examination for the purpose of obtaining a list of eligible persons from which to fill the position of inspector, State Board of Charities. The salary attached to this position is \$1,200 to \$1,500 a year. It is open to both men and women. Preference will be given to those of good general education, and to applicants between the ages of twenty-five and thirty-five years. The subjects of examination are: The State constitution, the State Charities Law, the Poor Law, public and private charitable institutions in New York State, the history of charity and the problems of dependency, delinquency, and eugenics, and the discussion of some special social problem, to be indicated by the examiner.

**International Eugenics Congress.**—The International Committee, which met in Paris recently to decide upon the place and time of the next meeting of the International Eugenics Congress, has decided to accept the invitation to hold the next congress in New York in 1915, on or about September 20th. The question whether only general meetings or sectional meetings also should be held was discussed, and both plans found advocates, but all these details were left to the American committee to decide. The American delegates to the congress were Dr. Frederick Adams Woods and Dr. David Starr Jordan. The arrangements for organizing the next congress rest with the American delegates and the Eugenics Record office at Cold Springs Harbor, N. Y.

**Assistant Physician Wanted at the Craig Colony for Epileptics.**—Among the positions for which the New York State Civil Service Commission will hold examinations in various cities throughout the State on September 13th, is that of assistant physician, regular, Craig Colony for Epilepsy, Sonyea, N. Y. The salary is \$900 a year, with maintenance. This examination is open to men only, who are licensed medical practitioners in New York State, who have graduated from a registered medical school, and who, since graduation, have had one year's experience on the resident medical staff of a general hospital, or as medical interne or clinical assistant in a State hospital or institution, or have been engaged for three consecutive years in the practice of medicine. Intending competitors must execute application blanks and file them in the office of the commission on or before September 5, 1913.

**American Electrotherapeutic Association.**—The twenty-third annual meeting of this association will be held in the Engineering Societies' Building, New York, on Tuesday, Wednesday, and Thursday, September 2d, 3d, and 4th. An interesting programme has been arranged, and the medical profession is cordially invited to attend. The officers of the association are as follows: President, Dr. Edward Humphries, of London, England; vice-presidents, Dr. George E. Pfahler, of Philadelphia, and Dr. Edward C. Titus, of New York; treasurer, Dr. Emil Heuel, of New York; secretary, Dr. J. Willard Travell, of New York; registrar, Dr. Frederick M. Law, of New York; board of trustees, Dr. Charles Rea Dickson, of Toronto, and Dr. Thomas D. Crothers, of Hartford, Conn., one year; Dr. Francis B. Bishop, of Washington, D. C., and Dr. Frederick de Kraft, of New York, two years; Dr. Fred H. Morse, of Boston, and Dr. William D. McFee, of Haverhill, Mass., three years.



**First Convocation of the American College of Surgeons.**—The degrees of the newly constituted American College of Surgeons, whose first convocation will be held in Chicago on November 13th, are to be conferred by Sir Rickman John Godlee, of London, who has accepted an invitation tendered to him by a delegation of distinguished American surgeons. The delegates were Dr. Franklin H. Martin, of Chicago; Dr. John Benjamin Murphy, of Chicago; Dr. George Emerson Brewer, of New York; Dr. George W. Crile, of Cleveland, and Dr. William J. Mayo, of Rochester, Minn. Fellowships of the American College are to be bestowed at its first meeting on 1,400 prominent surgeons of the United States and Canada.

**American Public Health Association.**—The forty-first annual meeting of this association will be held in Colorado Springs, Colo., from September 9th to 13th, under the presidency of Rudolph Hering, D. Sc., of New York. The work of the association has been divided into the following sections: Laboratory Section, Professor F. P. Gorham, of Providence, R. I., chairman, and Dr. D. L. Harris, of St. Louis, secretary; Section in Vital Statistics, Dr. W. S. Rankin, of Raleigh, N. C., chairman, and Mr. David S. South, of Trenton, N. J., secretary; Section of Public Health Officials, Dr. P. M. Hall, of Minneapolis, chairman, and Dr. E. C. Levy, of Richmond, Va., secretary; Section in Sanitary Engineering, Colonel J. L. Ludlow, of Winston-Salem, chairman, and Dr. H. D. Pease, of New York, secretary; Sociological Section, Mr. Homer Folks, of New York, chairman, and Mr. S. Poulterer Morris, of Denver, secretary. An elaborate programme has been prepared, not only for the section meetings, but also for the general sessions, an interesting feature being a symposium on the control and improvement of food supplies. The local committee has also arranged a programme of entertainments for the visitors and their friends, which includes a number of excursions into the beautiful country surrounding Colorado Springs. The officers of the association are: President, Mr. Rudolph Hering, of New York; first vice-president, Dr. W. R. Batt, of Harrisburg, Pa.; second vice-president, Dr. James Roberts, of Hamilton, Canada; third vice-president, Dr. J. E. Monjaras, of Mexico; secretary, Professor Selskar M. Gunn, of Boston; treasurer, Dr. Livingston Farrand, of New York. The official headquarters will be in the Chamber of Commerce Building, and hotel headquarters at the Antlers Hotel.

**International Congress on School Hygiene.**—The fourth International Congress on School Hygiene will be held in Buffalo, N. Y., August 25th to 30th. Public health officers will occupy a prominent position on the programme of the congress and some fifty of these public officials will discuss various phases of the work from the viewpoint of medical, hygienic, and sanitary inspection. Topics for discussion will include the organization of health departments in schools; the relationship of the school to the board of health; the equipment, training, and compensation of school physicians; school nurses; school clinics; relation of health supervision in the schools to the physician, the dentist, and the hospital; the relation of medical and hygienic supervision in the schools to health supervision in the home; sanitary supervision of school rooms, locker rooms, swimming pools, school books, and school furniture; supervision of disease carriers; prevention of epidemics; follow up methods and results; medical inspection and treatment. Among the two hundred and fifty contributors to the programme are college presidents and professors, State, city, and county commissioners of education; teachers of public schools; professors of medical colleges; State, county, and city health officers; physicians in private practice; engineers, and architects. Moving pictures will be employed in many instances to illustrate the subjects under discussion, and the vexed question of sex instruction for teachers in universities, colleges, and normal schools and the preparation of suitable books upon this topic for school use are scheduled for consideration. The Department of Health of the city of New York will be represented by an exhibit on school inspection, and the following officers of its Division of Child Hygiene will attend the congress: Dr. S. Josephine Baker, director, Dr. John J. Cronin, assistant director, and Dr. Jacob Sobel, borough chief of Manhattan. The secretary of the congress is Dr. Thomas A. Storey, with offices at the College of the City of New York.

## Pith of Progressive Literature.

### MEDIZINISCHE KLINIK.

*June 6, 1913.*

#### Salvarsan Poisoning and Arsenic Susceptibility.

—K. Brandenberg presents a typical clinical picture of death by salvarsan as follows. During the first days after the injection the symptoms are not as pronounced. Headache, elevation of temperature, gastrointestinal disturbance, moderate, flighty nervous irritation, paralytic developments, as double vision, an arrhythmic heart; later, restlessness, changed demeanor, slight visionary difficulties. On the third or fourth day a state of sudden collapse supervenes: deep coma, very severe epileptiform cramps, and a peculiar edema about the eyes and lips. It is mostly the young and healthy that are attacked. The autopsy in sudden death from this remedy gives scant satisfaction. The brain shows edema and hyperemia, with or without capillary bleeding, fresh parenchymatous inflammation of internal organs, as of liver and kidney, at times hemorrhages of the intestinal mucous membrane. According to the author's opinion this is none other than a picture of arsenical poisoning. These results show, emphatically, a general or local idiosyncrasy to arsenical poisoning.

**Comparative Examination of Influence on Body Temperature of Water, Carbonic Acid, or Mud Baths.**—R. Schmincke states that for practical purposes the mud baths, on account of their mild action on temperature, are to be preferred. Carbonic acid baths at 86° F. are more suitable for reducing body heat than water baths of the same temperature, because the specific heat of the carbonic acid bath is less than that of the water bath.

**Treatment of Retroflexed Uterus.**—B. Franqué emphasizes the importance of treatment for the retroflexed uterus only when urgent indications demand it; indications for treatment are not the rule but rather the exception.

**Acute Infections during Infancy.**—E. Müller reviews among these: 1. The complex infection modernly designated as grippé; 2, diphtheria; 3, whooping cough; 4, varicella; 5, measles; 6, skin infections. Scarlet fever has no significance for this age; the nursing period is immune. Even mothers stricken with scarlet fever are permitted to give their nurslings their breast milk. The author considers grippé as being the most harmful of these maladies. Under this he classes: 1. Catarrhal fever, especially of the respiratory tract; 2, enteric disturbances; 3, the forms of severe intermittent fever. Lesage's ingenious device against contagion is described as follows: Nurslings are isolated, separately, in what is called boxes, the walls of which are of transparent glass not reaching to the ceiling of the room, so as to afford free communication of air above the boxes. Thus the disease germs are kept within the boxes; they sink to the floor and perish. For fifteen years Lesage has successfully followed this plan of isolating the various infantile infections, except varicella, the germs of which were known to float above the box walls. The author names four important condi-

tions affecting prognosis: 1. The constitution of the infant. 2. The method of nourishment before and during infection. 3. Environment. 4. The character and severity of the existing epidemic.

**Respiration a Mechanical Aid to Circulation.**—L. Hobbaner describes the mechanical influence of respiration on the systemic circulation. The muscles of respiration act as a motor for the circulatory apparatus and it is in this respect more effectual than the heart itself. The intestines and large glands of the abdomen are relieved of venous engorgement by the contractility of the muscles brought about by respiration. Not only is the venous blood of the liver aided in its passage back to the heart by the respiratory act of the muscles of the diaphragm, but the blood is also, by the same means, propelled through the vena cava. The abdominal muscles are the most effectual auxiliary to the left heart. These last aid the return flow from the lower extremities; peripheral engorgement is relieved in the weakest part of the circulation and edema of the lower extremities is effectually prevented.

July 13, 1913.

**Arteriosclerosis Occurring before the Age of Thirty.**—M. Hirsch discusses the generally erroneous belief that arteriosclerosis occurs only at an advanced age. Spastic conditions in childhood are not so rare but what one may also find a spastic state of the bloodvessels. The author emphasizes the importance of detecting the disease early when the prognosis is favorable; the word, arteriosclerosis, will then no longer sound as a death warning to patients.

**Perrheanal.**—S. Zawacki says that as an injunction, trichlorobutyl ester of salicylic acid and the acetylsalicylic acid, when used thrice daily, has never, so far as his observations go, caused the slightest irritation of the skin. In muscular rheumatism perrheanal was used as a lubricant in massage, and its use was followed by a prompt relief of pain. Most favorable results were observed on all patients where the salve was used in pains of joints both rheumatic and gouty.

**Hematogenous Icterus.**—J. W. McNee concludes from his investigations and observations that blood pigments may be changed to biliary pigments without the aid of the liver. He suspects that the endothelial cells of the vascular system, bone marrow, and muscular apparatus, take part in this process. Apparently, no exact histological examinations have been made. According to the author's researches, the endothelial cells rank first in consideration as a cause of hematogenous icterus.

**Indications of a Diet Free from Meat.**—Peusquen reviews the diets proposed by various authorities, especially one by Klotz, who recommends the meat free diet for enuresis nocturna. A vegetable diet is given as an ideal for this malady. In the absence of nitrogen, such preparations as plasmone, nutrose, somatose, etc., may be substituted. The great decrease in the consumption of fluids gives rise to no inconvenience. Coffee, beer, and all alcoholic beverages are strictly forbidden. A milk diet is not advised because of one thousand parts of milk, six hundred pass out as urine. The

defluxion of milk is solely renal. Thirst may be quenched by allowing fruits.

**Physical, Chemical, and Biological Characteristics of Thorium X.**—Kahn explains the germicidal power of thorium x by the examination of agar plates which were at the same time protected from the presence of air. With the growth of kress seeds, it is seen that even small doses of thorium x stimulate growth; by large doses growth is impeded; at the same time a difference in chlorophyll content and root growth are observed. In all plants treated by thorium x there is a branching of the plant stem. In patients at the author's clinic it was noticed that even small doses caused exanthema and annoying sensations. Aside from leucemia, no positive deductions can be drawn as to the effects of this remedy.

July 20, 1913.

**The Diagnostic Significance of Albumin Reaction in Sputum.**—H. Schmitz finds that: 1. In most instances of insipient tuberculosis of the lungs, even when expectoration is only slight, albumin in varying quantities is found in the sputum without the presence of tubercle bacilli; 2. Without doubt, there are tuberculous pulmonary diseases (fibrous forms) without the presence of albumin in the sputum; 3. The albuminous content of the sputum seems to depend upon the location of the disease; generally only exudative inflammatory forms show a positive reaction. Generally the proliferating form, which tends to cicatrization, yields no albumin; 4. The quantity of albumin is not an index in early differential diagnosis; but it seems to stand in certain relation to the stage of the disease and may perhaps be of value in forming a prognosis; 5. In the albumin reaction of the sputum we have an additional method of examination in tuberculosis.

**The Action of Glanduitrin.**—M. Mátyás used glanduitrin in all stages of delivery. The results were as good in the stage of dilatation with membranes intact, as when they were ruptured early in labor. The dangers of prolonged delivery could be avoided by the use of glanduitrin. With most patients it makes delivery prompt and easy. In early rupture of the membranes and tardy pains, the remedy should be used without delay. Through its administration the necessity for the use of the forceps is greatly diminished. In eclampsia glanduitrin produced no unfavorable results; it increased the pains. In placenta previa the author has used it three times, aided by ballooning; rapid dilatation was accomplished; after version and extraction, living children were born. Glanduitrin may therefore be considered a harmless remedy, in suitable doses, for facilitating prompt delivery in any stage of labor whether the membranes be ruptured or not. Disease of the heart, lungs, or kidneys is no contraindication.

July 27, 1913.

**The Significance of Sweat Cure for Internal Diseases.**—A. Schwenkenbecher demonstrates that in systematic treatment with hot water baths, we possess a simple and easily procurable remedy, which acts as a therapeutic agent in various diseases. A valuable characteristic in this method of

treatment is the great variation in its dose, the quantity of water, its temperature, and length of time used—which allows it to be used for patients having a poor circulation and a weak constitution. A local hot bath also acts as a mild diaphoretic agent; for instance, a prolonged hot footbath along with hot applications relieves uremic headache and nausea. Systematic sweating serves two purposes in kidney disease, viz., the excretion of increased quantities of nitrogen and of chlorides, and to diminish any possible edema.

#### WIENER KLINISCHE WOCHENSCHRIFT.

June 26, 1913.

**Early Diagnosis of Carcinoma of the Gastro-intestinal Tract.**—Emil Schuetz points out that although the need of an early diagnosis of carcinoma of the gastrointestinal tract is most important, and though this is one of the localities in which the disease occurs most frequently, yet it is associated with great difficulty more often than when a cancer is found elsewhere. He makes some suggestions how early signs may be recognized. For the present we need to rely on clinical observations and examinations and to make a routine practice in every questionable case of gastrointestinal trouble of making functional tests, palpating the stomach, and investigating with the endoscope and the x rays. Beginning with the esophagus, this should be examined for stricture in every case of persistent vomiting or regurgitation soon after meals which is not readily explained by the presence of some known condition. He introduces first a stiff catheter, and if this meets with an obstruction, withdraws it and introduces a soft catheter, as he thinks more can be learned from the two than from either one alone. The x ray will clear up the diagnosis between an hourglass stomach and one that has been contracted by a cancer. Palpation is not always reliable, for this requires skill, and under certain circumstances the tumor cannot be felt, but nevertheless should always be practised. The first postulate for the recognition of pathological conditions in this manner is a knowledge of how the normal conditions feel, yet he has known experienced specialists to mistake a contracted loop of intestine, or the tense belly of the rectus abdominis for a neoplasm. When a tumor has been made out in the stomach the diagnosis of carcinoma is not positive, though such is its nature in the majority of cases. When the tumor is at the pylorus its presence can be recognized from the symptoms of stenosis more quickly than when it is elsewhere in the wall of that organ, because in the latter place it is apt to give no marked local trouble, and the accompanying general symptoms may be the first to attract attention. To differentiate between cancer and ulcer of the stomach the examination of the contents is of very great importance. Ulcer is accompanied as a rule by superacidity, sometimes with normal acidity and supersecretion, only exceptionally by subacidity, while in carcinoma free hydrochloric acid is almost regularly absent, subacidity is rare, and lactic acid is often present. He has never found lactic acid in a well marked case of ulcer, but he has repeatedly seen cases in which the history and

course seemed to indicate ulcer with an absence of acidity or with subacidity and lactic acid, which proved on histological examination to be carcinoma. Inversely he has seen large tumors with superacidity which proved histologically to be ulcers. Hence he believes that the diagnosis of carcinoma should be made in every case of pyloric stenosis, whether a tumor can be felt or not, when free hydrochloric acid is absent, or lactic acid is present. He found achylia in scarcely three per cent. of 830 noncarcinomatous cases, a lack of hydrochloric acid in only seven per cent. of nearly 1,000 cases of noncarcinomatous diseases of the stomach, while hydrochloric acid was wanting in over seventy per cent. of 150 cases in which carcinoma was present. The diagnosis of cancer of the intestines is possible only through symptoms of stenosis, or the demonstration of a tumor, and, even then, the diagnosis is only probable. He suggests giving the patient a dose of a purgative mineral water, and palpating the intestines a few hours later. An accumulation of fluid may be found above the constricted portion. Symptoms of disease of the lower portion of the intestines, such as hemorrhage, mucus, or tenesmus, should lead the physician to make a rectal examination, although he thinks that this is not done in a great many cases, so that the disease is not recognized until late in its course. He sees many patients yearly who have been treated for chronic intestinal catarrh, at Carlsbad and elsewhere, without endoscopic examination, or even digital exploration. Such examinations are necessary in order to make an early diagnosis.

**Gangrene of the Extremities and Its Treatment.**—Hans Ehrlich and Marian Maresch report eighty-one cases of gangrene met with in von Eiselsberg's clinic between April, 1901, and the end of March, 1913. The gangrene was due to electricity in one case, to embolism in two, to freezing in two, to ligation of the popliteal artery in three, to arteriosclerosis in forty-four, to diabetes in twenty-nine. In the case caused by electricity a boy laid his hand on a live wire; amputation of the arm was necessary. The cases of embolism were due to puerperal sepsis. The popliteal artery was ligated in one case because of a wound, in two because of aneurysm. The cases of arteriosclerosis are of more interest. The patients had usually suffered for years from paresthesias, chilliness of the limb, rheumatic pains, or intermittent limping. The lower limbs were the ones almost always affected, the process usually beginning in the toes, more rarely in the skin of the back, or the sole of the foot, or of the leg. The anemia or cyanosis of the skin may last a long time, with considerable pain, before the patients die. Frequently the process has from the start an inflammatory character, beginning as a paronychia, or an ulcer of the ball of the great toe, and then suddenly the true state is revealed by an intense lymphangitis and a disturbance of the circulation with edema and cyanosis of the leg. In many cases the gangrene starts from a slight local trauma, such as the pressure of a shoe, or an operation for ingrowing toenail. The pain is very severe and has a bad influence on the general condition of the patient. Mummification is not characteristic of arteriosclerotic gangrene.



though it is more common than the moist variety. Prophylactic and conservative measures are indicated, hence it is important that the condition should be recognized early. Conservative treatment consists of rest in bed, the internal administration of potassium iodide, elevation of the limb, and the application of ointments when ulcers are present. In all forms of gangrene which are not caused by a diffuse or progressive disease of the arteries, as after wounds, burns, or freezing in young people, demarcation should be awaited and amputation performed in healthy tissue unless an earlier intervention is forced by sepsis. In cases of arteriosclerosis, when the condition otherwise is good, the spontaneous sloughing of the toes should be encouraged, as the slight prospects of a permanent cure discourage exarticulations in the foot. When amputation is necessary because of faulty demarcation, extension of the process, infection, or unbearable pain, in senile gangrene, it should be performed in the thigh. In presenile gangrene good results can be obtained by amputation of the leg if the extent of the process offers no contraindication, the popliteal pulse can be felt, and the stump bleeds freely during the operation. Any amputation performed on a diabetic must be of the thigh.

**Pseudotuberculous Ulcers on the Female Genitals.**—G. Scherber says that these ulcers are distinguished by their appearance, their rapid development, their acute inflammatory nature, and their painfulness. The disease comes on with or without high fever, with redness and swelling of the labia, and a subjective sensation of burning which is increased, by touching, to severe pain. At the same time numerous gray white or gray yellow nodules, as large as pinheads, appear, which enlarge somewhat and break down into apparently follicular ulcers. The inguinal glands may be swollen. These ulcers respond readily to mild antiseptic measures, but when mistaken for syphilitic sores and not treated locally they persist for a long time.

#### ZEITSCHRIFT FÜR AUGENHEILKUNDE.

July, 1912.

**Therapeutic Experiences with Lipojodin in Some Diseases of the Optic Nerve and Retina.**—A. Dutoit finds lipojodin to be a very valuable remedy in the treatment of optic neuritis of infectious or toxic origin. The improvement of the vision is commonly quick and appears to be constant, but the remedy must be used for a long time. The same is true to a certain extent of diseases of the retina. It seems to be of especial value in senile degeneration of the macula. The preparation is given best in the form of tablets, in doses of from 0.3 to 1.5 grammes. No unpleasant aftereffects have yet been noticed even with doses as large as 5 grammes a day.

#### LYON MÉDICAL.

July 29, 1912.

**Effects of Salvarsan Enemas in Certain Forms of Tuberculosis.**—P. Courmont and Durand, having found, with Nicolas, Charlet, and Gaté, that

in certain syphilitic patients there developed an increase in the agglutinative power of their serum toward the tubercle bacillus after injections of salvarsan, undertook to administer small doses—0.1 gramme—of this drug by enema to nine tuberculous patients. Each patient was given eight such injections in the course of four weeks. The results varied greatly in different cases. It seemed as if patients with grave tuberculosis with extensive lesions and steady progression of the morbid process might be rendered worse by the salvarsan. Other patients, however, were improved by it, sometimes most strikingly so; these were the patients in whom the customary tuberculosis treatment had already given favorable results. Preliminary administration of sodium arsenate seemed to be useful both to accustom the patient to arsenic and to indicate whether the more energetic salvarsan arsenical treatment should be instituted. The agglutinative power toward the tubercle bacillus was not increased by the salvarsan enemas, where it had previously been nil or very slight; it was greatly increased, on the contrary, in cases where it had already been high, and this increase seemed to afford a good prognostic omen as regards the result of the treatment. Salvarsan enemas would seem to be useful as a reinforcing therapeutic measure in certain tuberculous cases, accelerating the improvement where such is already taking place. Their action should be controlled by keeping under observation the patient's general condition, the weight curve, and the agglutinative power of the serum.

#### PRESSE MÉDICALE.

July 1, 1912.

**Alcohol and Alcoholism from the Biochemical Standpoint.**—Maurice Nicloux finds it difficult to believe alcohol a normal product of carbohydrate metabolism since only extremely small amounts (0.018 c. c. in one liter of blood) have been found in the blood. Ingested alcohol enters all tissues and secretions. The milk, in particular, contains it, even where the amount taken has not been sufficient to cause "intoxication." Experiments conducted by the author showed that alcohol passed freely into the secretions of the male reproductive organs as well as into the blood of the fetus from that of the mother. Such findings permit of readily accounting for what is clinically known as "alcoholic heredity," which has for its consequences premature births, abortions, high infantile mortality, and later, physical and mental degeneration. There may with propriety be coined the term "congenital alcoholism," to designate the effects of alcohol on the embryo, beginning at the moment of conception.

**Primary Acute Orchitis in Children.**—L. Ombrédanne refers to that form of acute orchitis formerly attributed to masturbation and at present described in textbooks generally as an acute inflammatory form of testicular tuberculosis. The condition is characterized by a rather sudden onset, pain of varying intensity, temperature of 37.5° to 38° C., edema and redness of one side of the scrotum, enlargement of the testicle, little or no fluid in the tunica vaginalis, and opacity of the

mass. The author operated in seven successive cases seen in the last two years and was surprised to find torsion of the spermatic cord in four instances, with the probability, moreover, that torsion had existed in one and perhaps even two of the remaining three patients. From this the author is led to divide the condition manifested in the symptoms already referred to into two, viz., cases of true orchitis and cases of torsion. The former appear to be neither gonococcal nor related to a general infection, and a tuberculous origin also seems doubtful, inoculation of a guineapig in the author's case proving negative, and the patient's operative wound healing by first intention. In the torsion cases, certain facts seemed to suggest masturbation as a cause. Three grades of local disorder were found at operation, viz., edema and turgescence of the epididymis with inversion of the testicle, testicular apoplexy, and abscess with necrosis of the gland. To differentiate torsion from orchitis without operation is difficult. On the whole, since if in a given case torsion exists, conservative treatment may be followed by destruction of the gland, intervention should be early practised in case of doubt. Where supravaginal torsion is found, the vaginalis should be fixed to the scrotum, and where intravaginal torsion exists, the testicle should be fixed to the vaginalis and the latter to the scrotum.

July 25, 1913.

**Vaccine Treatment in Whooping Cough.**—L. Lagane calls attention to results recently obtained by Nicolle and Conor by the administration in pertussis of living cultures of the Bordet-Gengou organism. From one to five drops of an emulsion of this bacillus—about 1 to 5 million bacilli—washed and heated to 46° C. for half an hour, were given subcutaneously every two or three days to 104 children suffering from pertussis. In the series of cases, 35.7 per cent. were cured, 38.46 per cent. improved, and 25.96 per cent. unimproved. Seventy-eight per cent. of the cures were obtained after two to five injections, i. e., within three to twelve days. The greatest percentage of cures was not observed in the cases treated early, but in those in which the disease had already been present two to three weeks. Lagane considers these results "encouraging," and suggests that if the method were used for prophylactic purposes it might prove of even greater value.

**Inequality of the Radial Pulses in Chronic Syphilitic Aortitis.**—Laignel-Lavastine and Vinhiet report three cases illustrating this condition. Sphygmomanometric examination showed in each a marked difference in the systolic pressures of the two arms, though the diastolic differed by only 10 or 20 mm. Hg. The sphygmogram on the side with low systolic pressure showed weakening, retardation, and deformation of the pulse wave. In each instance radiography and orthodiagraphy showed clearly that there was no aneurysm but merely elongation, slight dilatation, and a sinuous course of the aorta. This was confirmed at autopsy in one of the cases. The presence of syphilis was shown in at least one case by the marked improvement following mercurial treatment.

**General Toxic Effect of Heavy Metals after Subcutaneous Injection.**—Benjamin Moore and his collaborators, G. F. Oldershan and O. T. Williams, have conducted comparative studies on the lethal doses, sites of action, and paths of elimination of several of the heavy metals, namely, copper, zinc, silver, tin, arsenic, and lead. The heavy metals, as a class, have a common and preponderant toxicological characteristic, namely, the production of marked irritation, congestion, and destruction of the intestinal mucosa, caused by local accumulation and excretion, via the intestine, of the heavy ions. These effects are almost identical with those caused by the saponins or sapogluco-sives. It is remarkable, also, that both these latter substances and the heavy metals are not absorbed from the gastrointestinal tract. A specific affinity seems to exist between the intestinal columnar cell and these chemical bodies. This relation is extremely selective, allowing the drugs to pass through the cells in the direction of excretion even at the expense of the cells, and absolutely resisting absorption from the intestine without damage to the same cells. Death from the heavy metals is due to shock and collapse, secondary to the destruction of the intestinal cells. Perhaps the most remarkable observation is that with these metals the lethal dose is not proportional to body weight, but is nearly proportional to the two thirds power of body weight—that is to surface, the surface being that of the intestine. For example, in the case of copper the white mouse is found to be 2.5 times as resistant as the guineapig. Such an observation throws light on the arsenic treatment of trypanosomiasis in the rat and in man. In such a case the rat would probably have five times the factor of safety of man, and it would be easy to reach a blood concentration in the former sufficient completely to sterilize the blood of parasites, whereas in man such a concentration is usually impossible on account of his greater relative intestinal surface area and consequent lower resistance to the toxic action of the heavy metal. It has been suggested that volatile lead compounds are given off in the drying of paint, or that other volatile substances are liberated which render men susceptible to the actions of lead. A series of careful intensive pharmacological experiments by the authors seem utterly to disprove the truth of these contentions. The most valuable deduction to be drawn from this report is the necessity for the promotion of excretion, via the intestine, in cases of chronic poisoning in man by the heavy metals.

**The Influence of Copper upon the Growth of Mouse Carcinoma.**—A. J. Gelaire's experiments, while not by any means conclusive, seem to show that copper tends to arrest the growth of mouse carcinoma in a large proportion of cases. In a much smaller proportion the tumors have undergone retrograde changes. He used cuprammonium sulphate by subcutaneous injection and colloidal copper in the same way and by intravenous injection. The latter drug and the intravenous channel seemed to give the best results.

## LANCET.

August 2, 1913.

**A Fatal Illness in Children Associated with Acute Interstitial Parotiditis.**—All four of M. H. Gordon's cases obviously were of the same nature.

Among the common features were: Drowsiness as an initial symptom, coma, and sunken eyes with dilated pupils; muscular rigidity in some form, stiffness of the neck muscles, retraction of the head, and Kernig's sign in most cases; Babinski's sign was present in two; all patients had some fever and a rapid pulse, together with some vomiting and diarrhea. The cerebrospinal fluid was under increased pressure, and showed a lymphocytosis in every case. A leucocytosis was present in every case, and a relative lymphocytosis was equally constant. All four cases presented similar post mortem lesions—namely, congestion of the meninges and central nervous system, slight and variable lymphocytic infiltration of the pia, some variable increase in the glial cells, and wasting and chromatolysis of some of the anterior horn cells. All cases showed more or less extensive foci of acute interstitial inflammation in the salivary glands, most marked in the parotid. No sign of tuberculosis could be discovered, and cultures of blood and cerebrospinal fluid were constantly negative. By a process of elimination Gordon comes to the conclusion that the condition was one of atypical mumps.

**The Production of Ulcer of the Stomach in the Rat.**—Charles Singer succeeded in a large majority of cases in inducing single or multiple gastric ulcers, by keeping his animals in unsanitary surroundings, and feeding them with food contaminated with their own fecal matter. Ulcers developed in an even larger proportion when the diet was contaminated with the fecal matter from rats suffering from ulcer. But even under the latter diet ulcers did not develop in rats when the animals were kept in sanitary conditions, so that they retained their full health. This suggests that ulcer is possibly due to an infection by an organism normally present in some other part of the digestive tract but which is unable to cause the lesion when the normal protective powers are preserved.

**Arsenic Cancer.**—In concluding their paper on thirty-one cases of arsenic cancer, R. J. Pye-Smith and his associates give the following summary: There is a remarkable similarity in many of the features of the series of cases. In nearly all cases arsenic had been taken for periods extending over years. In nearly all hyperkeratosis was present, especially in the palms and soles, and of a type often produced by arsenic. The cancerous lesions were multiple in fully half of the cases, a fact suggestive of the presence of some general and unusual predisposing or exciting cause. Some special cause is also suggested by the fact that in one fourth of the cases the age of the patients did not exceed thirty-five years. In several of the cases the use of arsenic had been discontinued many years before the cancerous changes developed, pointing to its being an early or remote rather than a late or final cause. The epitheliomatous process always began in the skin and in most of the cases it appears to have started in a patch of keratosis, probably never in normal skin, and seldom, if ever, in a patch of

psoriasis. This shows that psoriasis, though present in two thirds of the cases, is probably not a causative factor. In nearly two thirds of the cases the lesions were on the upper extremity, usually the hand; on the lower extremity, especially the foot, in a fourth of the cases; the rest of the cases were nearly equally divided between the trunk and neck and the external genitals and perineum. In only one instance was the face affected. The great frequency of involvement of the hands and feet suggests that either trauma or the keratosis, so generally present there, was a determining factor in localization. Excision of the cancerous lesion or amputation was done in two thirds of the cases and in many instances local recurrence followed. Metastasis took place into the glands and internal organs in about a fourth of the cases. Three times as many men were affected as women. It seems reasonable to conclude that, while arsenic plays a definite part as an indirect etiological factor in the small group of cases known as arsenic cancer, there is no probability of its being of etiological importance in the great majority of cases of cutaneous epithelioma, and still less in cancer generally, in spite of the fact of its very wide distribution in nature. The prognosis in arsenic cancer is, apparently, at least as bad as it usually is in cases of epithelioma of the skin.

**A New Guaiacal Chloriodide Compound.**—John Maberly reports several cases in which he has used this new drug and, though the reports are not very convincing to the careful observer, he feels justified in offering the following conclusions: 1. That mixture of guaiacal chloriodide controls and relieves asthma and the dyspnea of emphysema in a rapid and satisfactory manner. 2. That it has the peculiar property of being eliminated as a powerful local antiseptic at the uterus, where it acts as a curative agent in chronic and acute septic conditions. 3. That it acts as a lung stimulant and antiseptic in many forms of chronic bronchitis. 4. That its value in the medical treatment of early and incipient phthisis, and also in some of the chronic forms, especially those in which the temperature is usually normal, requires further working out, and at the same time is of a promising character.

## PRACTITIONER

July, 1913.

**Clinical Notes on Phlebitis.**—Dyce Duckworth considers phlebitis to be a disease for the care of physicians rather than surgeons. The treatment is both regiminal and medicinal. Posture is of the first importance, and rest of the involved part is essential. If a leg is the seat of the process it must be laid out horizontally, the knee slightly flexed, and the foot everted. A pillow under the knee, supporting and slightly raising the ankle, secures rest. One part of belladonna liniment to four of warm water should be applied on lint, well soaked, and loosely bandaged over the vein. This is to be covered with oiled silk and lightly bandaged. This is all that is required locally. An aperient of calomel, colocynth, and henbane, in pill, should be given over night, and a dose of any saline powder or water taken the following morning. It will be advisable to repeat this saline dose several mornings



in the week. Citrate of potassium or sodium, and citrate of lithia with compound tincture of bark in an ounce of sarsaparilla decoction, taken twice a day, is a useful medicine. The diet is very important. It must consist chiefly of fish, eggs, and light pudding. Well cooked green vegetables are advisable—fresh, tender lettuce, and cooked fruit, apples by preference. Strong coffee should be avoided, but weak tea or Vichy water are allowed, and a little whisky, if the circulation is feeble. Freshly made lemonade may be taken. Milk is to be avoided because it is rich in lime and may tend to promote clotting. Whey is a safe liquid to employ. Extra drinking of water, distilled if possible, is very advisable. Milk is inadvisable in all cases of viscosity of the blood. Care must be taken at first on assuming the erect position, no sudden movements should be made. Bending the knee of one limb in getting into bed has proved fatal in several cases, by causing rupture of the clot and embolism of the pulmonary artery. The patient should sit on the bed and have the legs raised by an attendant. The affected limb should be bandaged carefully for some weeks. It may sometimes remain permanently enlarged and more clumsy than the sound one. At a later period warm douching and gentle massage may be employed. Massage should be avoided till the circulation is reestablished.

**Cystic Mammary Tumors.**—Harold Upcott says that as an exact diagnosis in these cases is possible only through an exploratory incision, this incision should be made deliberately through the overlying structures until the cyst wall is exposed; then the cyst may be opened, the nature of its contents observed, and finally explored. If the knife passes through an indurated, gritty area before opening the cavity, malignancy may be suspected; if the cyst contains bloody fluid, and there is no papilloma to account for it, or if the contents are thick and grumous, it is certainly cancer. A hard nodular excrescence on the cyst wall justifies a radical operation. Personally, he thinks the breast should be removed in any case, for the surgeon should act on the principle that every tumor of the breast of a woman over thirty is cancer until it is proved to be otherwise.

**Inoperable Cancer and Radium.**—A. A. Warden finds from his experience in these cases that radium relieved the pain, temporarily arrested the growth, temporarily destroyed the cancer cells, had no effect on metastasis, and probably prolonged life. He believes that radium has established a claim to be tried not only in hopeless cases, but in those in which gland infection and cachexia have not yet reduced the patient's chance to a minimum.

**On Arterial Spasm.**—O. K. Williamson says that broadly speaking, for other than broad general statements are inadmissible, inasmuch as each case must be treated on its merits, treatment should in the first place be directed toward relaxing the vascular spasm. If the sphygmomanometer yields a low reading, it will be necessary to stimulate the heart and thus endeavor to minimize the danger of thrombosis. If, on the other hand, the reading is a high one the question to be decided is, how much of this is due to the resistance of the

arterial wall, and how much to actual blood pressure. This decision can be made only by the use of the trained finger. If the conclusion is arrived at that the actual blood pressure is low, then a stimulating line of treatment should be adopted. If, however, it is high, such treatment must be avoided. We have, in fact, to steer between the dangers of thrombosis and of hemorrhage.

**Cyclic Vomiting in Children.**—Hugh T. Ashby says that on the theory that the liver is at fault, and that there is an absence or nonusage of the carbohydrates, we give sugar in large quantities during an attack, and, if possible, before an attack comes on. The best way to give it is as glucose in soda water, giving an ounce of glucose every two hours by mouth. The children get very thirsty during an attack and are only too eager for drinks; a good deal is vomited, but if a drink of glucose and soda water is given soon after an attack of vomiting some of it will be absorbed before the next attack comes on. The glucose should also be given by the rectum in large quantities, as this seems to materially shorten an attack and make it less severe. If the parents can tell when an attack is coming on, the glucose should be given at once to ward it off, or at least to shorten it. The bowels should be kept freely moving with enemas, and if the child during an attack is getting worn out by the continual vomiting and retching, a small injection of morphine often helps to diminish the vomiting and to give some rest. He thinks that this treatment is more rational and productive of better results than the use of bicarbonate of soda in large doses.

**The Treatment of Infantile Diarrhea by Saline Injections.**—H. B. Day maintains that saline injections alone, without drugs, are capable of curing most cases of infantile diarrhea. Quinton's marine plasma has no definite superiority over artificial saline of the same strength. Such hypertonic solutions are preferable to weaker (0.75 per cent. or less). The administration of medicine is preferable to injections of saline as a routine treatment of infantile diarrhea. Disregard of dietary instructions is the commonest cause of failure of outpatient treatment. Injections are valuable in proportion as the loss of fluid by vomiting and diarrhea exceeds the intake. They should be given before actual symptoms of collapse arise. The disadvantages of saline injections as compared with medicinal treatment are thus summarized: 1. It entails a certain amount of preparation and the insertion of a needle, a procedure resented more by the mother than by the baby. 2. A course of daily injections is usually necessary to secure success. It may be difficult or impossible for the patients living at a distance to attend so often. 3. Much valuable time is taken up in giving the injections. On the other hand, saline injections have the following points in their favor: 1. The treatment is carried out under direct supervision, whereas the administration of drugs is chiefly entrusted to the mother. 2. Any treatment which necessitates daily observation of a case is more likely to succeed than one in which attendance may be irregular. 3. Saline injections are the recognized treatment for collapse. The early use of injections is of value in combating the exhaustion feared in bad cases of diarrhea and vomiting.

**On "Tunnel" and "Caterpillar" Skin Grafting.**—Alexander Maclellan described a method of introducing skin grafts beneath granulations, which he called tunnel grafting and described again in detail. Now he presents another new method which he calls caterpillar grafting because the graft is made to crawl on to the ulcer. It consists in cutting a long strip of skin running up to, but not entering, the ulcer. The top end is pointed and detached. The flap is then doubled on itself and a single stitch retains it in its new position. The raw surface left behind is closed by a continuous suture. The flap should be broad, not less than one inch, and should not be longer than five inches. After the pointed end has acquired a firm hold in its new bed, the other end is cut into the ulcer and the caterpillar is straightened out, the fold then being formed of the granulations and part of the bed of the ulcer. After the graft has acquired a hold, the elevated part of the ulcer, carrying the former blood supply of the caterpillar graft, is cut away; thus, a long sound strip of the entire skin is planted across or well into the ulcer. The flap should not be stitched to the cut edge of the granulation tissue in the ulcers, but the edges should be drawn together by mattress sutures passing below the graft, so as to avoid interference with the blood supply of the new strip of skin. This method of grafting the writer does not think of such general utility as the tunnel method, but it is suitable in some cases.

**The Picric Acid and Camphor Treatment of Ringworm.**—Agnes Savill uses a lotion consisting of picric acid, seven grains; camphor, one half ounce; and rectified spirit, one half ounce, with excellent success in the treatment of ringworm.

#### SOUTH AFRICAN MEDICAL RECORD.

June 14, 1913.

**A Critical Review of Recent Experimental Leprosy Research.**—This elaborate review is made by H. Bayon, who says, at the outset, that the paramount and most urgent question in connection with leprosy at the present moment is the outcome of a bacteriological problem. The importance of settling, once for all, whether the microorganism of leprosy can be artificially cultivated on nutrient media, or the disease transmitted to animals, can hardly be exaggerated. He first endeavors to settle the contradictory points in relation to the staining properties and the morphology of the microorganism, and then takes up successively the attempts by various investigators to cultivate this, the transmission of leprosy to animals by inoculation of the human "virus," rat leprosy and its relation to the human disease, the serology of leprosy as a means of diagnosis of the disease and for the purpose of controlling specific treatment, and the communicability or contagiousness of leprosy. In regard to the last named he says that a careful review of the literature on the subject cannot but lead one to the conclusion that it is with relative ease communicable from the diseased to the healthy, under unhygienic conditions, by intimate personal contact. Where the principal rules of hygiene are observed, and contact is not intimate, the proportion of risk diminishes to a vanishing point; so that only one individual in a thousand, or even

less, may become infected. In the discussion of the results of his critical review the author states that the consideration of Hansen's bacillus as the end stage of an actinomycotic germ, is the only view which explains the extreme difficulty encountered in gaining a pure acid fast culture, the frequent isolation of partially acid fast diphtheroids by numerous independent workers, the low pathogenicity of the virus for animals, and the extreme capriciousness with which leprosy is transmitted, even under favorable circumstances, such as would be the case between mother and child. It explains, up to a certain point, how people can live for years with lepers without contracting the disease, while in other instances a very short stay in a leprosy area has been sufficient to bring about infection. It is to be expected that a bacterium with such a complicated developmental cycle will have equally varied degrees of infectivity; which, again, can also be followed by an absolutely different complex clinical set of symptoms. No explanation of these obscure points has even been attempted, nor is light on the subject to be expected, until we are enabled to base our calculations on a large series of experiments. The results of this critical review of recent research on the bacteriology of leprosy, Bayon says, can be summed up in these few words: Those microorganisms, isolated from lepers, which not only present a morphological identity to the bacillus in tissues, but also produce lesions absolutely identical with those brought about by the injection of virus into receptive animals, have a first claim to be considered pure cultures of Hansen's bacillus. He attempts to prove that this postulate has been fulfilled by Kedrowsky's and Bayon's strains of leprosy by a number of drawings, which give a comparative illustration of the lesions caused by various microorganisms, and which, he holds, bear out many of the statements made in the course of the paper. He does not wish, however, that any opinion of his should be taken for granted without a careful valuation of all the evidence available to elucidate the knotty points of a problem which has baffled research for over thirty years, but which now shows signs of yielding to the pertinacious efforts of some of the more insistent of numerous investigators.

#### BOSTON MEDICAL AND SURGICAL JOURNAL.

August 7, 1913.

**The Surgeon and the Ptosis Problem.**—F. B. Lund says that it is not an uncommon belief among surgeons that a careful review of the large number of cases reported by those who have operated freely in this field would show a large proportion of real failures from a therapeutic point of view. For this reason conservatism and candor in reporting results are to be desired, as well as optimism and courage in proceeding with this work.

**The Role of Gastric and Intestinal Stasis in Some Cases of Epilepsy.**—Hale Powers reports five cases of both grand and petit mal, the histories of which differ widely in most respects, the patients suffering more when constipated and when careless about diet, and having been benefited by diet, laxatives, and exercises. Two improved while not taking bromides. The x ray demonstrated stasis in

three, but not in two, in one of which there was an arrest of the disease and in the other only the lightest of petit mal attacks. The amount of stasis was in proportion to the severity of the disease. In one case there was atony of the stomach, with a question of iliac stasis. In another there was marked ptosis, the greater curvature of the stomach being below the iliac crests and the transverse colon down in the pelvis, with consequent lengthening and accentuation of the hepatic and splenic flexures. One patient had never taken bromides. In one there was a history of cerebral syphilis and of epilepsy developing five years after the primary lesion, but the epilepsy appeared at a time when the patient was debilitated from overwork and was drinking to excess, and the gastrointestinal disturbance so caused may have been the cause of the epilepsy. In one case there was consanguinity and epilepsy in two uncles, but it must be borne in mind that anomalies of the viscera, such as ptosis, are sometimes hereditary, and that epilepsy in this patient may have been the result of an inherited tendency toward enteroptosis, rather than of inherited "instability of the nervous system."

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

August 9, 1913.

**Our Tendency to Fads,** by Joseph Zeisler.—See this JOURNAL for July 5, p. 42.

**Nephritis; Its Treatment with Thyroid as a Preliminary to Operation,** by J. F. Percy.—See this JOURNAL for July 5, p. 38.

**Necessity of Consent to Operations.**—W. S. Wermuth deals first with the matter of the consent of the patient himself and then of the consent of those other than himself, and expresses the opinion that the safest practice is to obtain the consent of the patient. If the patient is a wife, that is probably sufficient. If the patient is a child, at present the consent of the parent should be obtained. If the patient cannot consent, every effort should be made to gain the consent of some relative. Carefully explain the scope of the operation to the patient, or, if that is clearly inadvisable, to the nearest relative. Operate no more than outlined except in dire emergency.

**Three Cases of Amebic Dysentery Treated with Salvarsan.**—S. H. Wadhams and E. C. Hill report these cases. Two were given neosalvarsan, and one, salvarsan, and all three patients recovered. The first was treated for syphilis, and it was not at first known to the authors that he suffered from chronic amebic dysentery; so that the discovery of the apparently curative effect of the neosalvarsan was accidental. It is perfectly evident, the authors say, that these three cases prove nothing; yet the results were so striking that it seemed desirable to make this report in order that others with more clinical material might investigate the matter further.

**The Elimination of the Digitalis Bodies,** by R. A. Hatcher. See this JOURNAL for July 5, p. 50.

**Venous Blood Pressure as Influenced by the Drugs Employed in Cardiovascular Therapy,** by J. A. Capps and S. A. Matthews. See this JOURNAL for July 5, p. 50.

**Lactic Acid Spray for Diphtheria.**—H. A. Wood states that a spray of lactic acid bacilli was recently used in available diphtheria cases with a view to clearing up refractive diphtheria carriers and in an attempt to find, for spraying, some organism which is not foreign to human tissues and not regarded as pathogenic. The success was rapid and marked, but with a few trials no definite statements can be made. The suggestion is offered that others try this spray, as the staphylococcus is now being used for overriding local bacterial infections; so that its usefulness may be measured or the inadvisability of its employment demonstrated.

**Tonsillitis Following Use of Staphylococcus Spray.**—C. M. Davis reports this case, in which the patient was a girl eighteen years old.

**An Anomalous Case of White Spot Disease,** by H. H. Hazen.—See this JOURNAL for July 5, p. 42.

**Idiopathic Atrophy of the Skin; with Report of a Case,** by H. G. Irvine.—See this JOURNAL for July 5, p. 42.

**Adaptation of the Cinematograph to the Study of Embryology and Tissue Growth.**—J. E. McWhorter and F. Prime, Jr., describe a method they have evolved for adapting the cinematograph to the microscope for the purpose of photomicrography, and state that from the results thus far obtained with it they feel warranted in assuming that the method is at least practical and capable of much further elaboration. The embryos, as well as the tissues used in their experiments, were those of the chick, the pictures being taken in different stages of development.

**Neuroma Cutis (Dolorosum),** by M. L. Heidingsfeld. See this JOURNAL for July 5, p. 42.

**The Newer Cutaneous Mycoses,** by E. D. Chipman. See this JOURNAL for July 5, p. 43.

**Turpentine Poisoning Producing a Scarletinoid Rash.**—J. D. Blackwood, Jr., describes this apparently unique case. The patient, a girl of twenty, presented a scarlatinoid rash, in addition to the ordinary symptoms of turpentine poisoning, forty-eight hours after the ingestion of oil of turpentine. The toxic dose was very small (only fifty-five minims in twenty-four hours). Desquamation began three days after the appearance of the rash. The rash had to be distinguished from that of any of the diseases subject to quarantine.

#### MEDICAL RECORD.

August 6, 1913.

**The Problem of the Social Evil Considered in its Social and Medical Aspects and in its Relation to the Problem of Race Betterment.**—

J. E. Mears says that to control prostitution its existence must be fully recognized. Its social and its hygienic conditions demand the earnest efforts of the social worker and the medical profession. Being hostile to the best interests of the community, it calls for restraint by the law, which should be applied in a humane and rational manner. This would seem to be best accomplished through a commission appointed preferably by the State, the constitution of which (of paramount importance) should include both men and women of experience and judgment. To such a commission could safely be entrusted the formulation of such plans of care and control of prostitutes as



would contribute to their betterment and the protection of the community. Through it the black-mailing policeman and the grafting politician would be eliminated, and, with the powerful assistance of the national government, the white slave traffic would be destroyed. No valid reason can be urged against the maintenance of an assumed freedom from disease of the public prostitute by compulsory examination and treatment under plans instituted by the commission.

**Authoritative Diagnosis of Gonorrheal Stomatitis.**—J. B. Stein points out how obscure and difficult the diagnosis of this condition is. In the urethra the number of cocci resembling the gonococcus is small, but the reverse of this is true in the mouth and nasopharynx. At the present time the finding of a living contagium plays the chief rôle in the diagnosis. The fact that the meningococcus and other forms of cocci are to be found in the secretions of the nose must arouse much caution. The morphological and staining characteristics of the meningococcus and gonococcus are very similar, and it is only possible to distinguish them from each other by cultural methods, the conclusions from which should be confirmed by the use of the sugar litmus serum agar media of von Lingelsheim.

**Personal Experience with Neosalvarsan.**—The following are the conclusions reached by T. S. Van Riemst: 1. Neosalvarsan is preferable to salvarsan on account of its equal efficiency, lesser toxicity, and easier mode of administration. 2. In an early diagnosis of syphilis we can prevent the appearance of secondaries by the timely injection of neosalvarsan. 3. The doses in children and infants should be based on body weight—preferably 0.015 gramme for every kilogramme of body weight. 4. Neosalvarsan is not a positive cure for syphilis, but is superior to mercury, potassium iodide, or mixed treatment, and should always be resorted to when lesions persist under such treatment. 5. The intravenous is preferable to the intramuscular injection, on account of the severe pain and frequent abscess formation and sloughing produced by the latter. 6. The introduction of a small amount of air into the vein has no deleterious effect upon the patient. 7. The intervals between the injections should never be less than one week.

**Indicanuria, the Feces, and the Sulphates of the Urine.**—J. C. Warbick reports the results of the examinations in eleven individuals. First, a meal consisting chiefly of beefsteak was taken, along with coffee and bread; after which an examination of the urine was made in each instance, or after every meal, and the results were tabulated from time to time. At each examination the amount of the feces passed was noted, and also their color and odor, as tending to have some part in the formation of indican in the urine, and also as having some influence on the amount of sulphates, which were remarkably high on some occasions—far beyond the amount of chlorides and phosphates. The highest point the sulphates reached was the unusual figure 50.775, and the lowest, 1.155; thus making a wide range. Indican was found in eight of the urinary examinations, while twice it was absent under circumstances when it might have been expected, namely, a high

specific gravity and a large amount of sulphates. At none of the other examinations when all the conditions necessary for its formations seemed present was the amount of indican high.

**Pneumonia; Immediate and Contributing Cause of Death; Rational Treatment.**—W. C. K. Berlin has made investigations which indicate that the more profound the infection and toxemia, the more viscid is the blood stream. The successful treatment bears a close relation to this condition, and the first effort should be directed to the prevention of this viscosity, or so much so as to relieve the great strain which it imposes on the heart until the regular cycle of the disease has passed. One of the early diagnostic features in pneumonia is the deficiency of chlorides in the urine. It would seem reasonable to supply this evident lack of chlorides in the blood and tissues, and this is easily accomplished by giving intravenously large amounts of isotonic saline solution at more or less frequent intervals. This also dilutes the blood and, in addition, stimulates the kidneys and facilitates the elimination of toxic material. Some two years ago the author introduced to the profession the safe administration of an iodine solution intravenously as a treatment for tuberculosis and bronchial affections. Since then he has noted, in experiments upon blood, that this solution, added in small quantities to a large amount of blood, prevents coagulation. To the isotonic saline solution he has therefore added this iodine solution, to which were added creosote and guaicol, for their anesthetic and germicidal action. Although the number of patients so treated has been too small to be conclusive, everyone has recovered, in spite of the fact that several had been given an absolutely bad prognosis by competent consultants.

#### AMERICAN JOURNAL OF TROPICAL DISEASES AND PREVENTIVE MEDICINE.

July, 1913.

**Trypanosoma Americanum in Naturally Infected Animals.**—Foster M. Johns reports having found the *Trypanosoma americanum* in the blood of each of forty-three adult cattle and in two out of seven yearlings coming from widely separated localities in the United States. The number of trypanosomes found varied from two to twenty-one in each ten c. c. of the whole blood. Different forms analogous to the "male" and "female" specimens described for other trypanosomes could be demonstrated.

**Surgical Treatment of Elephantiasis.**—Rudolph Matas, after discussing the procedures advocated by various surgeons in elephantiasis and elephantoid states dependent upon chronic obstruction of the lymphatic and venous channels, reports, with H. B. Gessner, two cases in which Kondoleon's operation was performed. This procedure consists in the free excision of the fascia lata in the thigh and leg and suture of the skin directly over the underlying muscles, and is intended to establish new, permanent anastomotic channels between the supraaponeurotic and the infraaponeurotic lymph spaces. In the cases reported, both operated in the leg only, encouraging results were obtained; in the first case the benefit has been maintained for five months. Matas advises others to give the method a trial, when the occasion presents.

## Proceedings of Societies.

### THE FORTY-SIXTH ANNUAL MEETING OF THE CANADIAN MEDICAL ASSOCIATION.

*Held at London, Ont., June 24, 25, 26, and 27, 1913.*

**The Address of the President.**—Dr. H. A. McCallum spoke in part as follows: It was his intention to speak plainly on many matters affecting the profession. He urged a more active interest in the work of the association. It had done great service in doing away with provincialism and inaugurating great reforms of inestimable benefit to the profession and the public generally. With every practitioner in Canada a member, greater and more beneficent results could be obtained. More funds were necessary, however, to rescue the association from the exploitation and the commercial enterprise of certain drug houses. The chemical industry of Germany was carefully organized and it was difficult to know what to accept and what to reject. Trained and scientific censors were needed to give advice and to assist in shaping legislation to prevent the sale of nostrums. The promise of Hon. R. L. Borden that a portfolio of public health would be instituted in the near future had created unbounded satisfaction among the members of the profession. A pure food law or federal control of vaccines, serums, and drugs was impossible without this. Doctor McCallum praised on the whole, the report and work of the Carnegie Foundation, but thought that a mistake was made in exaggerating the value of the German methods of medical teaching. In his opinion the British methods of medical training produced the best practical men, which was, after all, the main object of such teaching. Attention was drawn to the fact that the medical student of to-day was burdened too much with scientific subjects and laboratory work, without being grounded sufficiently in the fundamentals. This was a mistake, and the general practitioner suffered. The larger proportion of students graduating to-day were going to specialize in surgery, and there was a grave danger that this branch of medical science would crowd the practice of medicine into the background. This was not in the best interests of the profession as a whole, nor of the public. The lack of knowledge of the value of medicine made the practitioner, as well as the public, a victim of the nostrum peddler.

Doctor McCallum advocated the annual examination by competent physicians of every adult. School children were examined periodically, but the adult never consulted a doctor until sickness compelled him. Insurance companies had adopted a plan of examining their clients annually, and in his judgment it would be good business if all men and women underwent a thorough periodical examination. The necessity for higher degrees in surgery in Canada and the United States was dealt with. The profession generally would be improved thereby. Incidentally the low fees prevailing in many parts of the Dominion were referred to and he expressed hope that there would be a general

leveling up in this respect. He was of the opinion that more publicity should be given to the achievements of medical science. Certain branches of the profession had followed this out with much success. Great publicity had been given to the results of vaccination in the prevention of smallpox, and the same results would follow if wider publicity were given to vaccination against typhoid fever. The inroads of tuberculosis had been made public and the support of the people enlisted to stamp out this disease. Similar methods should be adopted in the case of cancer and other diseases. That the profession should not be an arm of the civil service was most emphatically stated. If it were, the public would not be protected against its own gigantic credulity, nor the profession purged of its abuses. A demagogue might arise at any time to attack the profession, and it was best to be armed and ready.

Dr. LEWELLYS F. BARKER, professor of medicine at Johns Hopkins University, Baltimore, gave the address in medicine. The address dealt with the nerve supply of the internal secretory organs and of the smooth muscles, but inasmuch as it was delivered extemporarily and illustrated by diagrams thrown on screen, thus necessitating the turning out of the lights, it was impossible to take adequate notes of it. The address was of a most instructive and interesting nature and as Doctor Barker announced that it would be written out and handed in to the secretary of the Canadian Medical Association, it will doubtless be published in the journal of the association, where medical readers will be afforded the opportunity of studying an intricate subject presented by a master.

Dr. T. S. CULLEN, of Johns Hopkins University, Baltimore, gave the address in gynecology. This address mainly discussed the great importance of the early diagnosis of cancer and the need for educating the general public, and especially women, with regard to its early symptoms. Doctor Cullen emphasized the point that cancer, contrary to popular belief, is not a blood disease, neither is it incurable when treated properly at a sufficiently early date. In order to gain this result the message must be carried directly to the people. A brief sketch was given of the campaign on popular lines against cancer initiated at the Congress of Surgeons of North America, held in New York in November, 1912, and since inaugurated on a large scale. It was pointed out that after considerable deliberation it was decided, not only to interest daily and weekly journals and popular magazines in the matter, but to employ a lay rather than a medical writer for the purpose of propagating knowledge of cancer among the laity. Mr. Hopkins Adams was chosen as the writer who would best fulfil this mission. According to Doctor Cullen the results of this popular campaign had already been most successful. A strong impression had been made throughout the country by Mr. Adams's writings and in consequence many persons had been treated with success who otherwise would have allowed the disease to gain so strong a foothold that remedial or curative measures of any kind would have been futile. Regarding the duty and responsibility of the medical man in the early diagnosis of cancer, the need for an adequate supply of good

surgical pathologists was dwelt on. Not only must every surgeon have a thorough grounding in surgical pathology, but every hospital must have a skilled surgical pathologist on its staff. Doctor Cullen recommended that Canada should follow the example set by this country and inaugurate a popular educative campaign on similar lines.

Dr. I. ALEXANDER HUTCHISON, of Montreal, gave the address in surgery, taking as his subject fractures and their treatment. A somewhat exhaustive review of the treatment of fractures was given and the report on fractures issued recently by the committee appointed by the British Medical Association to investigate into the matter was referred to in eulogistic terms. Doctor Hutchison also highly praised a partial report on the same subject, which has just been published in the United States, and which held out the promise of greatly adding to our knowledge of fractures and their treatment. The misuse of x rays in courts of law was alluded to and it was pointed out that skiagraphs without skillful interpretation were not only useless but in a high degree harmful, and in the opinion of the speaker the medicolegal section of the association should investigate and report on the position of the medical profession with regard to this question.

An event of the meeting was the presentation of the committee nominated by the Canadian Association for the Prevention of Tuberculosis to investigate and report upon the so called Friedmann cure. At first the committee consisted of five members, but afterwards added to itself those physicians who had under observation the cases treated. The number inoculated by the Friedmann serum were, in Montreal, 10; in Ottawa, 10; in Toronto, 81; in London, 35. The committee reported as follows: "As a result of our observations from March 11 to the present time the following conclusions seem justifiable":

1. The inoculations have neither constantly nor frequently been followed by marked changes in the clinical course of the disease.
2. The cure or progress toward cure claimed by Doctor Friedmann for the treatment has neither constantly nor frequently taken place in the time during which these cases have been under observation.
3. Thus, upon investigation, the committee finds that the results have been disappointing and that the claims made for his remedy by Doctor Friedmann have not been proved, and that nothing has been found to justify confidence in the remedy. Signed, Professor J. G. Adami, Professor J. J. MacKenzie, Dr. A. H. Caulfield, Dr. E. S. Harding, Dr. John W. S. McCullough, Dr. W. E. Ross, Dr. J. H. Elliott, and Dr. George Porter.

Dr. CHARLES H. HODGETTS, of Ottawa, a member of the committee, was averse from signing the report and gave as his reasons for his aversion from doing so that Doctor Friedmann had promised to reveal to the members of the committee the composition of his remedy. Not having kept his promise, Doctor Hodgetts considered that it nullified any value the report might have had, and consequently thought it would be useless to sign it.

In the Section in Public Health, under the chairmanship of Dr. Helen MacMurchy, the report of the special committee on medical inspection of

schools, compiled by D. John Stewart, of Halifax, was read in his absence by Doctor FIDLAR, of the London Institute of Public Health.

DOCTOR STEWART, after passing in review the work being done in all the provinces of Canada, and especially remarking on the sympathetic interest taken in the work by Doctor Pyne in Ontario, stated that he was forced to conclude that the work was yet in its elementary stage. While there had been progress in the cities, owing to the efforts of the few, there was still apathy shown in the smaller places, and this condition of affairs would continue until some definite system was worked out that would constitute a national standard. For this reason therefore there was need for a national public health service that could deal with such questions as immigration, sanitation of factories, control of diseases, and adulteration of foods along with the medical inspection of schools.

In the discussion that followed the reading of this paper, Doctor BARTY, of British Columbia, expressed the opinion that the work of medical inspection of school children in Canada was wrongly conceived and carried out. Children were shut up at the very time they needed the vigor giving sunlight and air. What he thought was needed was out of door workshops, leaving the regular school curriculum to be picked up later. Doctor HALPENNY, of Winnipeg, in discussing the question as to whether it was best for the control of medical inspection of schools to be placed in the hands of the school authorities or left to the boards of health, said that arguing from the experience of Great Britain and of the United States in this matter, he thought that such control should be placed in the hands of the school authorities. The chief reason he gave for the conclusion was that in the United States and in Canada the boards of health were dominated by local politics and that the school boards were comparatively free from this pernicious influence. Also the line of reasoning afforded a strong argument for federal control, as by this means inspection of school children would be wholly removed from the sphere of local politics. Professor Adami, of Montreal, emphasized the importance of earnest cooperation between the school boards and the boards of health. A committee was appointed to frame a report on this subject, the main recommendation of which was that for the present the inspection of children be done by an appointee of the school board, working in conjunction with the medical officer of health. At the end of a long debate it was decided to leave the matter over for another year, and have it take a prominent place on the programme of the next convention.

Another important discussion that took place in the Section in Public Health was that dealing with venereal diseases. Papers in reference to the solution of the venereal disease problem were read by Dr. H. W. Hill, of London, and by Dr. F. A. Clarkson, of Toronto. DOCTOR HILL compared to some extent syphilis with typhoid fever, and in the course of his remarks said: "If it was criminal for a city to allow its citizens to drink polluted water, it was yet more criminal in his opinion to allow venereal diseases to spread, destroying the race and blasting future generations. While it was a moral



question in one respect, it was a physical matter involving the future well being of the race, and as such should receive the legislative attention that its great importance deserved.

Doctor CLARKSON in his paper advocated segregation as a means for preventing the spread of the disease.

In the discussion which followed the reading of these papers, Doctor ADAMI advised that the question of morals should be disregarded by the medical profession when attacking the problem of venereal disease, not because the profession was not heartily in accord with the views of the moralists, but because the view of the medical profession was purely a physical one. Doctor DILL argued that moral suasion had been tried for centuries without effect and that it was now necessary that legislation be introduced which would control the spread of syphilis and gonorrhea. Doctor HUTCHINSON, of Westmount, thought that what moral suasion could not accomplish, legislation would not. Dr. R. E. WODEHOUSE said that in Fort William there was a segregated area and that this system tended to keep down the spread of venereal disease. Doctor HALPENNY, of Winnipeg, disagreed with this view *in toto* and held that where there was a segregated area the disease was spread among shop girls and factory girls. Prostitutes, as a rule, were careful to avoid disease, since their earning powers depended upon the state of their health. He declared that in his opinion segregation always was and always must be a hopeless failure. He suggested that hospitals and jails be required to report on all cases of venereal disease coming under their notice.

A committee was appointed to deal with the subject and report thereon. The most important recommendation made in this report was to the effect that provincial boards of health be asked to have venereal diseases added to the list classed as reportable infectious diseases. A certain amount of doubt was expressed as to the probability of this suggestion being considered practicable, but it was pointed out that as in the case of tuberculosis a beginning must be made. Though few cases might be reported at first there would be more in time. Doctor WILSON said that in Saskatchewan syphilis was now a reportable disease, while Doctor HALPENNY, of Winnipeg, saw an advantage in the recommendation that it would awaken legislators to the problem that has arisen in the country and would probably start them in search of a solution.

Dr. LEWELLYS F. BARKER, of Johns Hopkins University, Baltimore, gave an address on mental hygiene. He said in part that by this term was meant the conservation and improvement of mental health to make men think better, act better, and become better than now. The imbecile, the criminal, the prostitute, the insane, were so because they had to be. Their minds worked that way. The majority had been born with a bad brain and acted as their brain directed, while others, though born with a good brain, because of some deleterious act acted wrongly or criminally. Two sciences were dealing with the problem of mind improvement. One was the science of eugenics and the other eugenics. The advocates of the first believed largely in heredity and were endeavoring to bring children into

the world equipped with good brains. The other school believed that environment played the larger part in the development and expression of brain power. Both schools were of equal importance and there should be no quarrel between them. Doctor BARKER outlined the recent campaign for the promotion of mental hygiene in the United States, which was intended to make the public, the doctors and the lawgivers recognize the importance of the question. Criminality, prostitution, imbecility and the like were due to bad brains, and by enacting proper laws to prevent the marriage of the unfit to prevent the spread of diseases that affect the physical well being of the coming generation, much of the evil could be stamped out. The benefit of institutional training was shown and highly recommended by Doctor Barker. He believes that psychiatric clinics should be held frequently, and that school teachers should be educated to recognize exceptional children and segregate them or have them placed in institutions where their mental well being would be assured. Such a campaign undertaken in Canada ought to produce as good results as it had produced in the United States.

Dr. GEORGE NASMITH, of Toronto, pointed out, in a paper dealing with milk supplies, the need for absolute cleanliness from start to finish. There was need for regular inspection of milk by municipalities and in addition farmers should be encouraged to use the "cow test" to insure quality. The only way of making milk an entirely safe article of diet was by pasteurization. Doctor BRYCE, of Ottawa, suggested that municipal control of milk supplies would be a move in the right direction. Dr. H. W. Hill, of the London Institute of Public Health, gave an interesting account of health statistics, secured from the parents of 8,000 children attending the schools of London. He computed that each child in the city had 2.5 infections during the ages from five to nineteen. Taking these figures as typical of the whole province, he concluded that during each year there were 200,000 cases of infectious diseases which at the very low estimate of two dollars per case would mean that the province expended \$600,000 annually for the care of these cases. The monetary loss was great, not to mention the deaths and suffering following. Medical men should do all they possibly could to prevent the spread of these preventable diseases. Every year there were, at least, 15,000 cases of scarlet fever in Ontario, 37,500 cases of measles, and 27,000 cases of whooping cough, which was the most dangerous of them all.

Dr. HELEN MACMURCHY, of Toronto, gave a popular and instructive lecture at a public hall in London on the evening of June 26. Dr. MacMurphy said that there was a high standard of national health in Canada at present. This fact was attested by the protest of a number of English doctors recently when complaint was made that some of the immigrants were not physically fit. It was not to be expected, they said, that they should equal the native born Canadian in physique. How to conserve this high standard was the problem at present facing the nation. The observation of a few simple rules was all that was required. Fresh air, good food, a good water supply, cleanliness, and

sleep were all that were needed to preserve the health of the nation, but without these essentials national health was impossible. Doctor MacMurphy cited many instances to show the progress made by the medical profession in matters of sanitation. England had led in this respect and had practically taught the world sanitation. The making of the Panama Canal had been rendered possible only by the doctors. France had tried the project and failed, not because her engineers were inferior to those of America, but because disease had stricken the laborers. Sanitation had practically wiped out fever in the canal zone. Dr. MacMurphy referred to the subject of the care of the feeble-minded. The Province of Ontario should look after these, as they were unable to care for themselves. They should not be allowed to marry to bring into the world others similarly afflicted.

*Symposiums on Diseases of the Stomach and on Diseases of the Thyroid* were introduced respectively by Dr. ALEXANDER MCPHEDRAN, of Toronto, and by Dr. A. J. OCHSNER, of Chicago. Dr. FRANK BILLINGS, of Chicago, conducted a medical clinic and Dr. JOHN B. MURPHY, of Chicago, gave a clinical lecture, illustrated by lantern slides. Dr. Billings attacked the present methods of handling vaccine in the United States. He said that drug firms manufactured vaccines for nearly every known disease and even went so far as to combine a number of cultures of various kinds to make a vaccine supposed to act as a sort of cure-all for disease. He was a believer in the use of vaccine. It was without question valuable in the treatment of some diseases, but the manufactured vaccines were often entirely unsuited for the purpose for which they were sold and were likely to have serious effects on the patients. He urged doctors to prepare vaccine for themselves when a case seemed to demand it.

The executive committee of the Canadian Medical Association was elected as follows: Dr. F. P. Drake, of London; Doctor MacKidd, of Edmonton; Doctor Primrose, of Toronto; Doctor Small, of Ottawa; Doctor Adami, of Montreal; Doctor Reeve, of Forest; Doctor Halpenny, of Winnipeg; Doctor McKechnie, of Vancouver; Doctor Brett, of Banff; Doctor McNeil, of St. Johns; Doctor Mader, of Halifax; Doctor Park and Doctor Whitelaw, of Edmonton, and Dr. F. N. E. Starr, of Toronto. St. John, New Brunswick, was chosen as the next place of meeting, and Dr. Murray MacLaren, of St. John, was selected for the presidency next year.

### Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*Handbuch der Hygiene.* Unter Mitwirkung von Geh. Obermedizinalrat Dr. R. ABEL, Berlin; Kaiserl. Baurat J. BOETHKE, Berlin; Geh. Medizinalrat Prof. Dr. C. FRAENKEN, Halle, et al. Herausgegeben von Prof. Dr. M. RUBNER, Geh. Medizinalrat, Berlin, Prof. Dr. M. von GRUBER, Obermedizinalrat, München, und Prof. Dr. M. FICKER, Berlin. III. Band, 2. Abteilung. Die Infek-

tionskrankheiten. Die pflanzlichen Parasiten. Spezielle Darstellung. Anhang: Infektionskrankheiten zweifelhafter Aetiologie. Mit 73 Abbildungen und 25 farbigen Tafeln. Leipzig: S. Hirzel, 1913. Pp. vii-536.

This publication gives a very clear and interesting presentation of the bacteriology of infectious diseases. Although not a textbook on bacteria it gives good descriptions of them and a well coordinated picture of the methods by which the various organisms give rise to the manifestations of disease. The various chapters take up the diseases due to pathogenic cocci, bacilli, vibrios, spirochetes, yeasts, moulds, and blastomycetes, and a final one discusses those infections of doubtful origin. The two most extensive articles are on the plague and cholera, while others give much in detail concerning Malta fever, yellow fever, recurrent fever, typhus, and smallpox. Rabies is also given considerable space. From the above it would seem that the tropical side is somewhat emphasized, but in these days tropical diseases have plenty of opportunities to lodge in our own lands and we should be ready to recognize them. The numerous illustrations are very good and the book can be recommended highly.

*Textbook of General Pathology.* By the Following Contributors: A. P. BEDDARD, London; A. E. BOYCOTT, Manchester; C. H. BROWNING, Glasgow; A. E. GARROD, London; J. S. HALDANE, Oxford; I. WALKER HALL, Bristol; A. F. HERTZ, London; F. W. MOTT, London; M. S. PEMBREY, London; J. RITCHIE, Edinburgh; J. H. RYFFEL, London; S. V. SEWELL, Melbourne; J. LORRAIN SMITH, Edinburgh, and E. AINLEY WALKER, Oxford. Edited by M. S. PEMBREY and J. RITCHIE. New York: Longmans, Green, & Co.; London: Edward Arnold, 1913. Pp. xii-773. (Price, \$5.)

Although the title would indicate that this book deals with general pathology in the usual way, one is very agreeably surprised to note the way in which the treating of the subject differs from other textbooks. There is very little said on histological pathology, and practically no illustrations, the authors taking it for granted that the reader is more or less familiar with that side of the question. The subject of pathology is treated from the important viewpoint of physiology, in order to depict clearly the lack of coordination between the normal activities of the component parts of the body in diseased conditions. The various topics are dealt with by different men in a very able manner, the valuable information being presented in an interesting way. As is stated by the editors, this book is intended primarily for the advanced student and practitioner, not for the beginner. It is one that would be of the greatest value to those who wish to perfect their knowledge of the important correlation of pathological conditions with disturbances of physiological functions.

*The Practical Medicine Series.* Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of GUSTAVUS P. HEAD, M.D., Professor of Laryngology and Rhinology, Chicago Postgraduate Medical School, and CHARLES L. MIX, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Series 1913. Volume I: General Medicine. Edited by FRANK BILLINGS, M.S., M.D., Dean of the Faculty of Rush Medical College, and J. H. SALISBURY, A.M., M.D., Professor of Medicine, Chicago Clinical School. Pp. 404. (Price, \$1.50.) Volume II: General Surgery. Edited by JOHN B. MURPHY, A.M., M.D., LL.D., Professor of Surgery in the Northwestern University, etc. Pp. 632. (Price, \$2.) Chicago: The Year Book Publishers, 1913.

The JOURNAL has frequently referred with approval to this excellent series, and, unless one were to go into a detailed review of the contents, there is little that need be added to the expressions of opinion previously given. As will be noted, Dr. Frank Billings and Dr. J. H. Salisbury remain in charge of the medical portion of the series, and Dr. John B. Murphy, of the surgical, and, as always before, these editors have made excellent selections of material—certainly no easy task when one takes into consideration the vast amount of this to be gone over. The work is naturally well up to date. In the section on infectious diseases in the medical volume we note, for instance, an account of the investigations of Anderson and

Goldberger resulting in the identification of Brill's disease as a form of typhus fever. It has thus been demonstrated that typhus fever, instead of being the exotic plague that it has almost universally been considered, has actually been endemic in this country for many years. In connection with this advance in our knowledge of the disease the authors very properly give the following caution: "This demonstration obliges the American sanitarian to recognize the existence of a problem of which he has heretofore been unaware; it also makes it necessary for the clinician to revise the classical conception of typhus, just as he has had to revise his conceptions of smallpox and yellow fever." In the surgical volume we find the latest improvements and developments in anesthesia, and much attention is devoted to intestinal surgery, in which so much of interest has recently attracted the attention of the surgeon. The books, so convenient in form, are well made up and printed, and the plates and diagrams are of material service in elucidating the text.

*Tabular Diagnosis. An Aid to the Rapid Differential Diagnosis of Diseases.* By RALPH WINNINGTON LEEF- WICH, M.D., Late Assistant Physician to the East London Children's Hospital, etc. New York: Longmans, Green, & Co.; London: Edward Arnold, 1913. Pp. vi-359. (Price, \$2.10.)

This little work contains a collection of 350 diagnostic tables placed perpendicularly opposite one another for purposes of comparison. Many textbooks of practice and diagnosis contain such, but none in such profusion as is offered in the present book. Not only is this mode of exhibiting at a glance the divergencies of two or more diseases an obvious advantage to the practitioner, but it enables the student to test his knowledge and to accustom himself to differential diagnosis, which plays such an important part in clinical work.

*Register of Purchases and Record of Amount Used of Alkaloid Cocaine or Its Salts, or Alpha or Beta Eucaine or Their Salts, or Any Admixture, Compound, Solution, or Product of Which Cocaine or Eucaine or Their Salts May Be an Ingredient.* New York: Winsor & Dornmitzer, New York.

This is a very timely and practical register. It certainly will assist the physician to overcome the difficulty thrown into his way by the law referring to the sale and use of cocaine and its salts in force since June 10, 1913. The arrangement is a very good one as the double form of the back makes its use very easy. We can well recommend it to the physician.

*Consumption in General Practice.* By H. HYSLOP THOMSON, M.D., D.P.H., Medical Superintendent to the Liverpool Sanatorium. London: Henry Frowde (Oxford University Press) and Hodder & Stoughton, 1912. Pp. xv-335. (Price, \$5.50.)

The object of this book is stated by the author in the preface to this, the second edition of the work. To quote directly, "An effort has been made to maintain the aim of the first edition and to provide a short and concise study of the present day problem of consumption as it presents itself in general practice." Despite the worldwide attention that has been given to the topic, the profession is still culpable in failing to recognize the disease in its incipency. Too often the doctor in general practice superficially diagnosticates the condition as dyspepsia, asthenia, neurasthenia, general debility, run down constitution, or some such vague term, when in fact the unfortunate is already in the early stages of tuberculosis. This makes the first sentence in the book of particular importance. The author states, "It is now becoming fully recognized that the successful treatment of pulmonary tuberculosis depends upon its early diagnosis." We agree with the writer that "in the consulting room no more difficult problem presents itself than the immediate diagnosis of early tuberculosis of the lungs." He further states that in all cases of doubt a tentative diagnosis of commencing tuberculosis of the lungs should be made. A frank statement to the patient, coupled with close and conscientious observation and a generally optimistic attitude on the part of the doctor; these in the vast majority of instances overcome the old time dread of the disease, for it is now generally known that many recover and that the earlier it is recognized, the greater the probability of recovery. The author deals with the subject under the headings, Diag-

nosis, Prognosis, and Treatment, and does so in a very practical way, and especially valuable and suggestive are the chapters on treatment. The book, in no sense epoch making, is merely a well balanced statement of facts which, if possessed by every practicing doctor and lived up to by him, would rapidly aid in the solution of the tremendous problem of tuberculosis, which touches all the shores of activity: Educational, sociologic, medical, etc.

*Clinical Electrocardiography.* By THOMAS LEWIS, M.D., D.Sc., F. R. C. P., Assistant Physician and Lecturer on Cardiac Pathology, University College Hospital, Physician to Outpatients, City of London Hospital. London: Shaw & Sons, 1913. Pp. viii-120.

This is a timely little book, but one which will appeal to the specialist and more especially even to a limited number of those who have already worked with the various graphic methods for the study of cardiovascular diseases. From the standpoint of the electrocardiogram and its interpretation, the work is rich in suggestiveness and illustration, but as an aid to those who wholly lack familiarity with the instrument and its technicalities the book is lacking in detail. It is essentially a further amplification of another book of Doctor Lewis's on Clinical Diseases of the Heart Beat. From the fullness of his experience, he is able to state convincingly his belief in electrocardiographic methods as paramount to all others in the intimate study of diseases of the heart and bloodvessel system. He states: "Those cardiac patients are few in whom an electric examination is superfluous, and in a large and increasing percentage of cases the records profoundly modify our conception of the conditions with which we deal. The time is not distant when no hospital which undertakes the care of many of these patients may neglect the string galvanometer, if it is to rank amongst institutions whose design is proficiency."

*Berechnete ärztliche Kostverordnungen nebst vollständigem Kochbuch für Zuckerkranken.* Von Dr. med. HERMANN SCHALL. Würzburg: Curt Kabitzsch, 1913. Pp. 319.

This volume is intended to save the physician trouble in working out combinations of food for diabetics, and also acts as a guide to the cook in preparing the same. Some one hundred and thirty pages are devoted to recipes, each one giving the proportions of albumen, fat, carbohydrates, and the resulting calories. A list is given of the above values of many different foods, and then nearly two hundred and fifty pages are filled with menus for the different meals during the day; the object being to afford as much variety as possible. For one in sanatorium practice or interested particularly in dietetics this book would be distinctly valuable.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending August 13, 1913:*

**Derivaux, R. C.**, Assistant Surgeon. Upon receipt of instructions from Surgeon R. H. von Ezdorf, directed to proceed to Anniston, Ala., and such other points in the State as may be designated, for the investigation of the prevalence of malaria. **Eager, J. M.**, Surgeon. Relieved from temporary duty in the Hygienic Laboratory, effective August 23, 1913, and directed to proceed to Philadelphia, Pa., and Ellis Island, N. Y., on special temporary duty; upon completion of this duty to proceed to Naples, Italy, for duty in the office of the American Consul. **Fricks, L. D.**, Surgeon. In compliance with requests of State health officers, directed to visit certain places in Union County, Oregon, and Lincoln County, Wash., for the investigation of cases of spotted fever. **Robertson, H. McG.**, Passed Assistant Surgeon. Granted one month's leave of absence from August 21, 1913. **Rodman, J. C.**, Acting Assistant Surgeon. Detailed to assist Senior Surgeon H. R. Carter in the investigation of malarial conditions in the State of North Carolina. **Stiles, C. W.**, Professor. Detailed to attend the annual farmers' meeting in various counties in North Carolina, from August 25th to September 6th, and on completion of this duty to proceed to Birmingham, Ala., and to the Sixth Congressional District of



Alabama between September 9th and 20th, to lecture on rural sanitation and the prevention of disease. **Von Ezzdorf**, R. H., Surgeon. Directed to proceed to Birmingham, Ala., and to the Sixth Congressional District of Alabama for the purpose of delivering lectures on rural sanitation and the prevention of disease. **Warner**, H. J., Passed Assistant Surgeon. Relieved from temporary duty at the Hygienic Laboratory, Washington, D. C., and directed to proceed to the New Orleans Quarantine Station and report to the medical officer in charge for duty and assignment to quarters.

#### Promotions.

Assistant Surgeon Charles M. Fauntleroy promoted and commissioned as passed assistant surgeon, effective June 13, 1913.

Assistant Surgeon Hermon E. Hasseltine promoted and commissioned as passed assistant surgeon, effective August 7, 1913.

Assistant Surgeon James P. Leake promoted and commissioned as passed assistant surgeon, effective July 30, 1913.

Assistant Surgeon Lawrence Kolb promoted and commissioned as passed assistant surgeon, effective August 5, 1913.

#### Boards Convened.

Board of commissioned medical officers convened to meet at the Bureau, Washington, D. C., at 10 o'clock a. m., August 9, 1913, for the physical examination of Mr. F. A. Hunnewell to determine his fitness for appointment as constructor in the U. S. Revenue Cutter Service. Detail for the board: Surgeon Taliaferro Clark, chairman; Passed Assistant Surgeon H. J. Warner, recorder.

Board of medical officers convened to meet at Providence, R. I., for the reexamination of aliens Nicola and Angelo Ibello. Detail for the board: Surgeon S. B. Grubbs, chairman.

### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending August 16, 1913:*

**Anderson**, J. B., First Lieutenant, Medical Reserve Corps. Ordered to Fort Caswell about August 20th for temporary duty. **Armstrong**, John M., First Lieutenant, Medical Reserve Corps. Relieved from active duty in the Medical Reserve Corps, to take effect at once, and so much of paragraph 13, Special Orders No. 157, as relieve him from active duty on August 22, 1913, is amended accordingly. **Barker**, John R., Captain, Medical Corps. Ordered to Washington, D. C., with insane soldiers from Letterman General Hospital, San Francisco, Cal. **Bispham**, W. N., Major, Medical Corps. Reported on academic leave of August 8th. **Blanchard**, R. M., Major, Medical Corps. Ordered to Fort Niagara, N. Y., for duty with the 20th Infantry until the completion of field service. (About August 16th to October 1st.) **Chappell**, S. L., First Lieutenant, Medical Corps. Left Fort Bliss, Texas, on August 7th, for temporary duty at Columbus, New Mexico. **Collins**, Christopher C., Major, Medical Corps. Relieved from duty at Fort Screven, Ga., to take effect upon his return to that post after the completion of his present duties with the Provisional Cavalry Brigade at Winchester, Va., and will then proceed to the Presidio of San Francisco, Cal., and report in person to the commanding officer of that post for assignment to the command of Field Hospital No. 2. **Doerr**, Charles G., Captain, Medical Corps. Left Fort Thomas, Kentucky, en route to Camp Perry, Ohio. **Gregory**, Junius C., Captain, Medical Corps. Relieved from temporary duty on the *Sherman* and detailed to duty in the Army Transport Service, with station at San Francisco, on August 4th; afterward relieved from duty in the Army Transport Service, to take effect upon the expiration of the leave of absence heretofore granted him, and ordered to proceed to Fort Screven, Ga., and report in person to the commanding officer of that port for duty, and by letter to the commanding general of the Eastern Department. **Grissinger**, Jay W., Captain, Medical Corps. Granted leave of absence for twenty days, effective on or about September 1, 1913. **Hess**, Louis T., Major, Medical Corps. Returned to Fort Hamilton, N. Y., on August

9th, from detached duty at Sea Girt. **N. J. Kennedy**, J. S., First Lieutenant, Medical Reserve Corps. Left Fort Barrancas on August 7th for temporary duty at Fort McPherson, Ga. **Lavature**, L. A., First Lieutenant, Medical Reserve Corps. On practice march from Fort George Wright, August 2 to 23, 1913. **McMurdo**, H. B., First Lieutenant, Medical Corps. Left Fort Huachuca on July 20th on leave of absence for one month; August 4th, entered as sick the Letterman General Hospital. **Moncrief**, W. H., Captain, Medical Corps. Arrived at Sea Girt, N. J., on August 9th, from Philadelphia. **Porter**, Ralph S., Captain, Medical Corps. Left Fort Sheridan, Ill., on August 12th, on thirty days' leave of absence. **Reno**, William W., Major, Medical Corps. On August 2d reported arrival at Camp Perry, Ohio, for Field Hospital No. 1. **Reynolds**, Charles R., Major, Medical Corps. Granted leave of absence for one month, to take effect upon relief from present duty. **Trinder**, J. H., First Lieutenant, Medical Corps. Left Fort Omaha on August 9th en route to Waterloo, Neb. **Troutman**, Holmes F., First Lieutenant, Medical Reserve Corps. Resignation accepted, taking effect August 9th. **Wilde**, A. G., First Lieutenant, Medical Corps. Relieved from duty at Fort Flagler, Wash., and will proceed to San Diego, Cal., and report in person to the commanding officer of the Signal Corps Aviation School, for duty, relieving Captain Matthew A. Reasoner, Medical Corps, who, upon being thus relieved, will proceed to Texas City, Texas, and report in person to the commanding general, Second Division, for duty, with station at Fort D. A. Russell, Wyo.

### Births, Marriages, and Deaths.

#### Married.

**Deibert—Bader**.—In Birdsboro, Pa., on Tuesday, August 5th, Dr. Edward J. Deibert, of Hellertown, and Miss Flora Bader. **Kenney—Dugan**.—In South Attleboro, Mass., on Monday, August 11th, Dr. William Bernard Kenney, of Providence, R. I., and Miss Mary Elizabeth Dugan. **Powers—Byrne**.—In Los Angeles, Cal., on Wednesday, August 6th, Dr. L. M. Powers and Mrs. Mary R. Byrne. **Walsh—Yates**.—In Brockton, Mass., on Wednesday, August 6th, Dr. Daniel J. Walsh and Miss Inez Yates.

#### Died.

**Allen**.—In Brooklyn, N. Y., on Friday, August 8th, Dr. Emma T. P. Allen, aged sixty-eight years. **Edwards**.—In Atlanta, Ga., on Tuesday, August 5th, Dr. G. O. Edwards, aged twenty-eight years. **Fuller**.—In Bath, Me., on Friday, August 8th, Dr. Edwin Motley Fuller, aged sixty-three years. **Garrett**.—In Lithia Springs, Ga., on Tuesday, August 5th, Dr. C. C. Garrett, aged sixty-three years. **Green**.—In Charlottesville, Va., on Saturday, August 2d, Dr. Bennett Wood Green, aged seventy-eight years. **Gregory**.—In Sea Girt, N. J., on Monday, August 11th, Dr. Andrew J. Gregory, aged eighty-four years. **Grice**.—In Bryan, Texas, on Wednesday, August 6th, Dr. N. S. Grice, aged fifty-eight years. **Harris**.—In Richmond, Ky., on Sunday, August 10th, Dr. Giles Harris, aged sixty-eight years. **Hotaling**.—In Syracuse, N. Y., on Friday, August 8th, Dr. Albert S. Hotaling, aged forty years. **Iralson**.—In St. Louis, Mo., on Wednesday, August 6th, Dr. Abraham Iralson, aged thirty-eight years. **McGeorge**.—In Woodstown, N. J., on Tuesday, August 12th, Dr. Emerson Pullen McGeorge, aged forty-two years. **Miller**.—In Bloomington, Ill., on Tuesday, August 5th, Dr. W. T. Miller, aged eighty-five years. **Minor**.—In Watford, Conn., on Saturday, August 16th, Dr. John Cranwell Minor, aged seventy years. **Mitchell**.—In New York, on Tuesday, August 12th, Dr. Hubbard Winslow Mitchell, aged seventy years. **Morrill**.—In Chicago, on Monday, August 4th, Dr. Harlow Justin Morrill. **Perley**.—In Fort Preble, Me., on Saturday, August 9th, Colonel Harry O. Perley, Medical Corps, United States Army, retired, aged sixty years. **Shaw**.—In Denver, Colo., on Tuesday, August 5th, Dr. Robert T. Shaw, aged sixty-two years. **Windle**.—In Hamorton, Pa., on Tuesday, August 5th, Dr. John Windle, aged eighty-eight years.

# New York Medical Journal

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### Original Communications.

#### AN ANALYSIS OF FIVE HUNDRED FATAL MEDICAL CASES IN THE TROPICS,

*With the Clinical Diagnosis in the Light of Autopsy Findings.\**

By W. E. DEEKS, M. A., M. D.,

Canal Zone, Panama,  
Chief of Clinic, Ancon Hospital;

AND W. G. BAETZ, M. D.,

Canal Zone, Panama,  
Physician to Ancon Hospital, Canal Zone, Panama.

When Cabot, in 1910, published his splendid paper entitled *A Study of Mistaken Diagnoses*, based on an analysis of 1,000 autopsies and a comparison with clinical findings,<sup>1</sup> the medical staff of this hospital was very much interested, and profited accordingly. Cabot's study is rather an original conception and of courageous veracity, compared with the average paper, which usually speaks of success achieved and carefully avoids mentioning any serious failures encountered. Two years later, when the same author published a further study on similar lines in 1912, under the title of *Diagnostic Pitfalls*,<sup>2</sup> the value of such studies, both to the patients in our care and to ourselves as a profession, was brought home, and it was decided to undertake a study of a number of consecutive diagnoses in fatal cases coming to autopsy here in the tropics.

Our aim, in the following analysis, has been to ascertain, primarily, the errors made by the medical staff of this hospital in determining the actual cause of death among a population in the tropics where the negro and mulatto outnumber the white in a ratio of about 6 to 1. Secondly, it has been our desire to profit by our mistakes, and to avoid preventable errors in the future, by determining the cause of failure to diagnosticate, as shown at autopsy.

The autopsies were all performed by Dr. Herbert C. Clark, pathologist of the board of health laboratory, Samuel Darling, M. D., chief of the laboratory. We are greatly indebted to Doctor Clark for his careful and accurate work, and the

help willingly granted in elucidating many obscure points in pathological findings.

Before going into detailed analysis a few preliminary remarks are necessary, for, as Cabot states in his first paper, "it is not a simple matter to collate ante mortem and post mortem matter in an intelligent way." All patients admitted to the hospital moribund, that is to say, patients dying in the first twenty-four hours after admission, are excluded from this series. The object of this is self evident, when one considers the impossibility of obtaining a history or of making a satisfactory physical, microscopical, chemical, or bacteriological examination in many of these cases. This exclusion is not as much in the favor of the clinician as may be supposed, for many fatal malaria or lobar pneumonia patients, both easily diagnosed in even the moribund state, die within a few hours after admission to the hospital. The latitude given the clinician is another point necessitating preliminary explanation. We regret to say that the system of granting the clinician and the pathologist the privilege of giving a primary and an immediate cause of death has never been definitely adopted in this hospital. As an example of the confusion created by the method of giving a single pathological entity as a cause of death, we might cite a case of pernicious malaria fever, complicated, as such severe infections always are, by acute toxic or degenerative nephritis. The patient lives long enough to have his circulating blood and organs cleared of the infecting parasites by the specific quinine treatment. Nevertheless, he dies in four or five days of acute degenerative nephritis and suppression of urine, because his kidneys were unable to take care of the malarial toxins contained in the destroyed plasmodia. In this case the clinician may give estivoautumnal malaria as the cause of death, while the pathologist's report may read acute degenerative nephritis or acute infection of undetermined origin. Another bad feature resulting, when the pathologist is held to give only either a primary or an immediate cause of death, is the habit formed by the clinician to include all complications of the primary disease in his diagnosis, so as to find confirmation with the pathologist. This "gunshot" method is as objectionable in diagnosis as in prescribing, and leads to similar errors.

A very good system of diagnosis is the one advocated by Dr. Henry B. Baker, former secretary of the Michigan board of health, and adopted by this board. Doctor Baker gives the primary cause of death, the immediate cause of death, and the contributing factors in both clinical and pathological

\*Read at the meeting of the Isthmian Canal Medical Association, May 17, 1913, and published with the kind permission of Colonel W. C. Gorgas, U. S. A., Chief Sanitary Officer, and Lieutenant Colonel Chas. F. Mason, U. S. A., Superintendent of Ancon Hospital.

<sup>1</sup>R. C. Cabot: *A Study of Mistaken Diagnoses*, *Journal of the American Medical Association*, October 15, 1910.

<sup>2</sup>R. C. Cabot: *Diagnostic Pitfalls*, *Journal of the American Medical Association*, December 28, 1912.

diagnoses. A recent case of ours serves as a good example. An aortic aneurysm developed in a patient afflicted with tertiary syphilis. This aneurysm, by compression and erosion, causes an empyema of the pleural cavity. Rupture of the aneurysm results in sudden death. The diagnosis here would read: syphilis as the primary cause of death, hemorrhage from rupture of aortic aneurysm as the immediate cause of death, and empyema of the pleural cavity as a contributory factor. In so diagnosing, a correct conception can be formed as to the rôle syphilis plays as a cause of death. Under our system it is often impossible to do this. It would be interesting to search the mortality statistics of our large cities, and to know the small number of deaths for which a widespread and often malignant disease like syphilis is held responsible.

In the diagnosis of the nephritides, the clinician, and also occasionally the pathologist, is sorely beset. We have experienced the truth of Cabot's statement when he sums up, saying, "Aside from the immediate results of acute infections (such as scarlet fever, diphtheria, tonsillitis, and pneumonia) 'acute' nephritis usually turns out to be 'chronic.'" To this group of infections we may add the acute toxic nephritis of pernicious malaria. The term acute nephritis in these cases we take to be synonymous with the pathologist's acute degenerative nephritis or cloudy swelling of the kidneys. Attempts to subdivide either the acute or chronic nephritides clinically have been so unsuccessful with us that they have been given up to a great extent. In the presented series the differentiation of "acute" and "chronic" has been the only one required for a correct diagnosis. It is true that chronic nephritis can often be subdivided into the chronic diffuse and chronic interstitial types, but in determining the cause of death these niceties of diagnosis are of little value. An acute toxic nephritis, superimposed by an intercurrent affection like lobar pneumonia, so completely hides the underlying chronic diffuse or interstitial condition, that the latter often becomes a mere guess.

Organic disease of the heart, excluding aneurysm, is a diagnostic term which we have been permitted to use, and which we think entirely too liberal, and too broad in its meaning. A simple dilatation of a chronically hypertrophied heart in a chronic nephritic with arteriosclerosis, is quite another condition of affairs from acute vegetative endocarditis, and each should be diagnosed as such. In this series of cases we have accepted the term organic heart disease as sufficient. Any case diagnosed tuberculosis as the cause of death is deemed correct, even if the localization and extent of the infection have not been determined. Under this agreement, a case diagnosed pulmonary tuberculosis, in which the pathologist finds an acute disseminated infection with the bacillus of tuberculosis, is accepted as correctly diagnosed.

Considering the great benefit we have derived from the commendable system in the Canal Zone, of performing an autopsy on the great majority of patients dying in this hospital, a plea for more frequent post mortem examinations in our large hospitals in the United States may not be amiss here. If the general public would once grasp the

fact that, everything else being equal, the community that allows and advocates the most thorough post mortem examinations will have the most competent and trustworthy physicians, and religious prejudice and superstition would fade away more rapidly than at present. Furthermore, imported and so called sporadic cases of much to be feared epidemic diseases, in which the patients die before a clinical diagnosis is possible, are detected, and proper precautions observed to prevent serious loss in life and property. An imported case of septicemic plague demonstrated the value of autopsy to us in this direction, very forcibly, several years ago. A careless or incompetent physician fears the autopsy as much as some of the deceased patient's sentimental relatives. So long as autopsies are as common in European hospitals as they are rare in many American, so long will Europe excel in diagnosis, the key to successful treatment.

In our total series there are 448 males, forty-five females, and seven infants whose sex has been omitted in the records. As to the age, we have 470 adults, one boy of six years, and twenty-nine infants. Of the total 500 cases, 450 are in tropical negroes, mostly from the West Indies (particularly from Jamaica and the Barbadoes), forty-six white European laborers (Spaniards, Italians, and Greeks), two white Americans from the United States, one Chinaman, and one Hindoo.

#### MORTALITY CAUSES.

The entire 500 cases of this series have been divided into the following groups, according to the cause of death as given by the pathologist:

Group.	Comprising.	Number.
I—Pulmonary and pleural (including pulmonary tuberculosis) .....		162
II—General infections (including disseminated and miliary tuberculosis) .....		141
III—Renal .....		59
IV—Gastrointestinal (including peritoneal) .....		45
V—Cardiovascular (including pericardial and aneurysms) .....		32
VI—Cerebrospinal .....		19
VII—Undetermined or questionable .....		17
VIII—Neoplasms .....		13
IX—Hepatic .....		11
X—Pancreatic .....		1
Total .....		500

Group I comprises in order of case frequency: lobar pneumonia, 102; pulmonary tuberculosis, forty-six; pulmonary gangrene, six; bronchopneumonia, five; pulmonary abscess, pleurisy, and unqualified pneumonia, each one.

Group II. Disseminated and miliary tuberculosis, seventy-four; estivoautumnal malaria, twenty-one; purulent infections and pyemia (excluding those due to pneumococcus and gonococcus), twelve; malarial hemoglobinuric fever, eleven; typhoid fever, ten; pneumococcal pyemia, six; measles, diphtheria, and erysipelas, each two; gonococcal pyemia, one.

Group III. Chronic nephritis (all types), forty-eight; pyelonephritis, five; acute nephritis, four; urinary calculi and hydronephrosis, each one.

Group IV. Clinical dysentery (i. e., dysentery of unknown etiology), 14; diarrhea and enteritis (under two years of age), nine; amebic dysentery, eight; malnutrition and congenital debility, five;



tuberculous peritonitis, three; duodenal ulcer and septic peritonitis, each two; bacillary dysentery and gastric ulcer, each one.

Group V. Organic heart disease (syphilitic aortic endocarditis, eleven; hypertrophy and dilatation due to chronic nephritis, nine; vegetative aortic and mitral endocarditis, two), twenty-two; anemia (unqualified), three; embolism and thrombosis, two; pneumococcal pericarditis, two; aneurysm, arteriosclerosis, and phlebitis, each one.

Group VI. Pneumococcal meningitis, five; cerebral hemorrhage, five; cerebral softening, simple meningitis, and alcoholism, each two; cerebral abscess, encephalitis, and tuberculous meningitis, each one.

Group VII. Acute undetermined infection, eight; ill defined disease, five; cause of death questionable (from clinical standpoint), four.

Group VIII. Epithelioma of esophagus, two; sarcomatosis, five; carcinoma of stomach and liver, three; carcinoma of rectum, carcinomatosis, and cerebellar tumor, each one.

Group IX. Atrophic hepatic cirrhosis, two; hepatic abscess (amebic), eight; acute hepatitis, one.

Group X. Chronic pancreatitis, one.

In analyzing the clinical diagnoses as sustained or refuted by the autopsy findings, we arrive at the following results:

Cause of death correctly determined	407=	81.40 per cent.
Cause of death partially or incorrectly stated	76=	15.20 per cent
Cause of death questionable or undetermined	17=	3.40 per cent.
	500	100.00 per cent.

#### *Incorrect and Partially Correct Diagnoses.*

##### GROUP I. PULMONARY AND PLEURAL (6.17 per cent. failures).

Case No.	Condition found at autopsy	Mistaken for, or clinically obscured by.
1	Bronchopneumonia	Disseminated tuberculosis
2	Bronchopneumonia	Lobar pneumonia
3	Bronchopneumonia	Undiagnosed
4	Lobar pneumonia	Acute undetermined infection
5	Lobar pneumonia	Serofibrinous pleurisy
6	Pneumonia (unqualified)	Undiagnosed
7	Pulmonary gangrene	Chronic nephritis
8	Pulmonary gangrene	Lobar pneumonia
9	Pulmonary abscess	Bulbar palsy
10	Pulmonary tuberculosis	Pneumonia (unqualified)

Cases one and two of this group were pardonable errors. Case one presented an unusual complication which distorted the picture and findings of bronchopneumonia. A spontaneously healing amebic liver abscess had caused red atrophy of the liver, blocking the hepatic circulation and causing a hydropertoneum. This, added to the pulmonary signs, with a low leucocyte count, a uniformly enlarged liver, and a serofibrinous pleuritis, completed the usual picture of a terminally disseminated tuberculosis. Case two was a massive bronchopneumonia in an infant—almost impossible to differentiate from a lobar pneumonia. In case three, a fifteen day old infant, it would seem as though inadequate physical examination was at least partly to blame for the failure in diagnosis. The pulmonary findings, on admission, were very conveniently recorded with a question mark, and no

further examinations made (at least not entered on the chart) for the following three days, at the end of which death occurred. Case four is an excellent example of the common error to neglect repeated physical examinations on a patient with a definite diagnosis. The patient was a measles case in which lobar pneumonia developed as a complication, and of this he died on the eleventh day after admission. The error in case five is a very pardonable one. The patient's lobar pneumonia was masked by a quite extensive serofibrinous pleurisy. Death occurred thirty-six hours after admission. Lack of systematically repeated physical examinations is again to blame for case six not having been diagnosed as bronchopneumonia at least. Repeated physical examinations were made, but they all seem to have been confined to the gastrointestinal tract, as the infant was evidently suffering with a complicating diarrhea. The diagnosis in case seven is the result of pure negligence and inexperience on part of the ward physician. While it is true that the chronic nephritis was present to a degree, as diagnosed, the septic temperature chart, not to mention the undoubtedly evident gangrenous odor of the sputum, should have pointed to other pathological processes, in addition, and should have suggested another physical examination. The ward nurse's notes as to cough and expectoration are also conspicuous by their absence. Case eight, also a missed gangrene of the lung, may be excusable. Death took place early in the course of a severe lobar pneumonia, which masked the rapidly developing gangrene. Case nine was a very interesting one of bulbar palsy. The abscess, due to aspiration, following respiratory palsy, was located more or less centrally over the diaphragm. The paralysis of the respiratory muscles made a satisfactory physical examination of the chest quite difficult. The last case of this group was a military pulmonary tuberculosis patient who died on the fifth day. The diagnosis came as near being correct as it possibly could, without actually being so. The sputum examinations were negative.

Four of these ten cases might have been diagnosed, had more attention been given to repeated, thorough physical examinations. In none of the ten cases did the failure to diagnose injure the patient's chance of recovery appreciably.

##### GROUP II. GENERAL INFECTIONS (9.93 per cent. failures).

Case No.	Condition found at autopsy.	Mistaken for, or clinically obscured by.
1	Disseminated tuberculosis	Atrophic hepatic cirrhosis
2	Disseminated tuberculosis	Exhaustive infection psychosis
3	Disseminated tuberculosis	Meningitis
4	Disseminated tuberculosis	Meningitis
5	Acute military tuberculosis	Malnutrition, bronchopneumonia
6	Acute military tuberculosis	Septicemia
7	Pneumococcal septicopyemia	Serofibrinous pleurisy, tuberculous meningitis
8	Pneumococcal septicopyemia	Meningitis
9	Typhoid fever	Septicemia
10	Typhoid fever	Intestinal hemorrhage, malaria
11	Typhoid fever	Undiagnosed
12	Pyemia	Acute ileocolitis
13	Pyemia	Malaria
14	Pyemia	Hepatic abscess, general tuberculosis

The first six cases of this group show the difficulty often encountered in diagnosing a generalized tubercle bacillus infection. Case one was admitted with a frank lobar pneumonia which ended by lysis on the fourteenth day. Many weeks of normal temperature followed, but an ascites developed and the patient was tapped repeatedly. A clear serous fluid of low specific gravity was obtained. On percussion, a small liver was easily outlined. Nevertheless, the patient died of disseminated tuberculosis. Although at autopsy the lungs showed only a few miliary tubercles, the spleen, liver, and peritoneum were completely studded with them. Case two gave cerebrospinal symptoms on admission, and patient became delirious. Brain and cord syphilis was suspected, though the Wassermann test, made with the serum of the peripheral blood, was negative. The last week the patient was in coma, with a normal or subnormal temperature. At autopsy the original focus of the disease was found to be an old vertebral caries, not to be demonstrated clinically. In case three a good attempt was made to ascertain the etiology of the existing meningitis by performing several lumbar punctures, culturing the cerebrospinal fluid and examining it for tubercle bacilli. As frequently happens, the result was negative, and a definite diagnosis not reached. Case four is very similar, except that a blood culture was substituted for the second cerebrospinal fluid examination, because of the high absolute and differential white blood count. An excuse for the error in case five will be granted by all. Here the spinal fluid was negative for tubercle bacilli ante mortem, but positive post mortem. The error in case six will be as readily understood as in case five. Here again the spinal fluid was negative for tubercle bacilli, though the meninges were affected. It is probable that prolonged search (for which our time is usually too limited) in spinal fluid stains would in some of these cases have decided the diagnosis. Generally speaking, these cases tend to show that, given an acute infection with a low leucocyte count, a negative blood culture early in the disease, signs of meningitis with a negative bacteriological result in spinal fluid examinations mean tuberculosis. Case seven proves the proverbial exception to this rule. This case was admitted with serofibrinous pleurisy and acute meningitis. Blood culture and spinal fluid being negative, and, in addition, the presence of a low leucocyte count, the diagnosis of tuberculous pleurisy with extension to the meninges seemed a fair conclusion. A resolving lobar pneumonia was found at autopsy, masked by the pleural effusion and complicated by a pneumococcal septiciopemia. The pneumococcal meningitis found in case eight, would have been diagnosed as such if the examination report of the spinal fluid sent to the laboratory had reached the ward before the death of the patient. Here lack of time caused a diagnosis to be given which *per se* is only a symptom. Cases nine, ten, and eleven are typhoid fever cases in which the patients died on the fourth day after admission. In two, the blood culture was obtained too late for the ward to receive the positive return before death. One of the cases in which the patient died of intestinal hemorrhage was complicated

by estivoautumnal malaria. In the third case the blood culture was negative. Case twelve was an infant suffering with ileocolitis. There seems to have been a systemic infection from the intestines, which was of course easily missed in the presence of the focal symptoms. The next case, a pyemic death on the second day (probable entry to be found in an ulcerated colon), is an excellent example of the fallacy to diagnosticate malaria *per se*, as a cause of death, when a properly made Romanovsky stain of the peripheral blood fails to show the asexual plasmodia. In our experience in the tropics we recall no fatal case of malaria in which the ordinary peripheral blood film, stained with Hasting's stain, did not show the infecting organism without much expenditure of time and patience, provided that the patient died directly of the infection, and had not been given large doses of quinine prior to examination. The last case of this group is a partially diagnosed one. The hepatic abscess (or rather abscesses) was part of the pyemic process, while the general tuberculosis, also diagnosed, was an error of commission. The persistently low leucocyte count was the cause for considering the hepatic abscess to be non-purulent (i. e., amebic) and the general infection to be tuberculous, rather than pyogenic.

Excepting the criticism concerning malaria in case thirteen, this group of cases was well handled. The cases were conscientiously examined, considering the time at the disposal of the physicians. It is doubtful whether further or more complete examinations during the time under observation would have been conducive to making a better diagnosis. None of these patients would have gained anything, had a correct diagnosis been made.

#### GROUP III. RENAL (16.95 per cent. failures).

Case No.	Constitution found at autopsy.	Mistaken for, or clinically obscured by.
1	Acute nephritis	Posthemoglobinuric fever
2	Chronic nephritis	Disseminated tuberculosis
3	Chronic nephritis	Bronchopneumonia, acute nephritis
4	Chronic nephritis	Hepatic cirrhosis
5	Chronic nephritis	Chronic nephritis, cerebral hemorrhage
6	Pyelonephritis	Undiagnosed
7	Pyelonephritis	Undiagnosed
8	Pyelonephritis	Cystitis
9	Hydronephrosis	Cystitis
10	Ureteral calculi (bilateral)	Uremia, suppression of urine

The only case of acute nephritis, heading this group, was an interesting one. The patient, a Hindoo, was admitted suffering with a severe anemia, suppression of urine, and persistent vomiting. The blood picture was that of a secondary anemia. A clear cut history of a recent malarial attack, voiding of "dark" urine, and the presence of an enlarged spleen and liver, brought about the diagnosis of posthemoglobinuric fever with suppression. Autopsy on the fifth day showed extensive malarial pigmentation of the spleen and liver, with an acute nephritis, but hemoglobin casts were not present. In the light of autopsy findings, the case seems to have been an acute degenerative nephritis, following a recent acute attack of

malarial fever. The diagnosis of hemoglobinuria fever evidently overshot the mark, but cannot be considered entirely unjustifiable. Case two presents rather a humiliating error of commission. The chronic nephritis, of which the patient died, was recognized without difficulty. A bronchopneumonia diagnosed clinically was also found. In attempting to rule out the possibility of the pulmonary infection being tuberculous, sputum specimens were examined. Unfortunately, a mistake occurred by which a positive tuberculous sputum of another patient was sent to the laboratory as having been obtained from this patient. The diagnosis of tuberculosis was the result. This mistake taught us the lesson never to diagnose a case of pulmonary tuberculosis from the sputum until the bacillus has been found in two independently obtained specimens. Case three shows an easily made error. A chronic diffuse nephritis with severe pulmonary congestion was interpreted as bronchopneumonia and acute nephritis. A little more attention paid to repeated urinary analyses in case four might have shown that, while the diagnosed atrophic hepatic cirrhosis was present, the kidneys were also at fault. Possibly this case belongs to the group of questionable ones, as both liver and kidney function seems to have been severely impaired. Case five demonstrates the uncertainty of central nervous system diagnosis. The chronic nephritis was easily recognized, but an error of commission was made by interpreting a hemiplegia, caused by terminal central edema, as a hemorrhage. This throws the case into the class of partial diagnoses. Similar errors are not uncommon and are easily made. Cases six to ten are examples of rather frequent, yet often neglected, pathological conditions. The greater interest taken in this hospital of late in urine cultures, cystoscopy, and ureteral catheterization, we hope, will prevent errors or absence of diagnosis in many of these cases. The clinical diagnosis in case ten, considering that cystoscopic examination was not available, is certainly commendable. The cases diagnosed cystitis, clinically, teach the old lesson that infections of the bladder should always be looked upon with suspicion, as they are generally the result of disease above or below in the genitourinary system. The importance of diagnosing and treating these infections early and thoroughly is being generally recognized. It will not be long before all large hospitals have added a urological division to their special departments.

Excluding cases one, three, and five, this group could have been much improved on, as already shown. In cases six, seven, eight, and ten a correct diagnosis, followed by surgical intervention, might have saved some or all of these four patients, provided that they had applied earlier in the disease.

#### GROUP IV. GASTROINTESTINAL (24.44 per cent, failures)

Case No.	Condition found at autopsy	Mistaken for, or clinically observed as
1	Duodenal ulcer	Undiagnosed
2	Duodenal ulcer	Chronic lead poisoning
3	Gastric ulcer	Gastric carcinoma
4	Clinical dysentery	Chronic nephritis
5	Clinical dysentery	Malnutrition and enteritis
6	Clinical dysentery, leprosy	Chronic colitis, tertiary syphilis

Case No.	Condition found at autopsy	Mistaken for, or clinically observed as
7	Amebic dysentery	Acute tuberculosis
8	Amebic dysentery	Secondary nephritic dysentery
9	Diarrhea and enteritis	Bronchopneumonia
10	Pneumococcal peritonitis	Gastroenteritis
11	Abdominal tuberculosis	Chronic nephritis

Case one of this group needs little comment. It demonstrates the difficulty of visceral ulcer diagnosis, especially in the colored race. The sensibility of the negro's peritoneum seems to be much less than that of the Caucasian. The former seldom complains of any abdominal pain until the ulcer has perforated. Even then, a generalized acute peritonitis is often only spoken of as a "cutting in the bowels." In this case the patient died suddenly while convalescing from a malarial attack. The shock of perforation seems to have been the immediate cause of death. The unusually severe attacks of abdominal colic, in a negro plumber and lead fitter, were the reasons why duodenal ulcer was not seriously considered in case two. Granting the presence of lead poisoning, which seems to have been very doubtful in this instance, a correct diagnosis of the complicating ulcer would seem exceedingly difficult. Had the perforation in case three not occurred so soon after admission, an analysis of the stomach contents might have helped materially in correcting the tentative diagnosis. In all three cases the patients died within a few hours after perforation. In cases four and five the term clinical dysentery is employed as a cause of death. By this term is meant an ulcerative colitis, or enterocolitis, of which the etiological factor cannot be demonstrated. The dysentery in case four was probably a secondary ulcerative enterocolitis, a frequent termination of chronic interstitial nephritis with us in the tropics. Chronic nephritis was found at autopsy as clinically diagnosed. The failure to recognize the dysentery before death was due to a laxity in macroscopical and microscopical stool examinations by the ward physician. Only negligence can account for the fact that a patient whose chart shows from fourteen to eighteen bowel movements each day was not examined for dysentery. The same may be said of case five, with the addition that the nurse seems to be incriminated, for her records show constipation—a quite unusual condition of affairs in an infant dying with dysentery. Case six belongs to the group of partially diagnosed cases, for the clinical dysentery which the pathologist gives as the cause of death was fairly well diagnosed clinically as chronic ulcerative colitis. It is difficult to state whether the clinician was simply guilty of an error of omission, when he diagnosed the extensive caries of the nasal bones tertiary syphilis, or whether he mistook leprosy for syphilis. The result of this failure has been that all caries of the bones, diagnosed as syphilitic, are now examined routinely for lepra bacilli. In case seven the stools were examined on several occasions, but negligence seems to have been present, in that fresh specimens were not utilized. The diagnostician who relies on cold stool examinations in dysenteries will seldom recognize an amebic case. The incorrect diagnosis of acute tuberculosis was a guess—a post mortem one—on part of the physician, and deserves neither the name diagnosis nor any further



comment. The criticism concerning fresh stool examinations in case seven explains case eight also. The failure to diagnosticate case nine correctly was undoubtedly due to the shortness of time under observation, thirty-six hours. Focal congestion of both lungs was taken to be bronchopneumonia. The mistake in case ten is an easily comprehended one in an infant of eight months. Whether or not the diagnostician deserves censure here can hardly be determined from the chart at hand. The last case of this group is still another instance of being satisfied with a primary diagnosis and neglecting further examinations. The patient had chronic diffuse nephritis, as correctly diagnosed, but the well developed tuberculous pleurisy and peritonitis might have been recognized if looked for.

Four of these eleven cases might have been diagnosed if the stool examinations had received proper consideration. The great value of microscopical examinations of the feces does not seem to be sufficiently recognized by many physicians. In another case, a simple carbolfuchsin and Gabbet's stain would have shown the bacillus of leprosy by the millions, and would have made the diagnosis. One failure was due to inadequate physical examination. As far as the patient's outlook is concerned, it is problematical how much either medical or surgical treatment would have accomplished in the ulcer cases, had they been diagnosed as such. In cases seven and eight it is our opinion that the bismuth treatment<sup>8</sup> for amebic dysentery might have changed the final outcome in favor of the patient, had the infecting *entameba* been found in the stool.

#### GROUP V. CARDIOVASCULAR (31.25 per cent. failures).

Case No.	Condition found at autopsy.	Mistaken for, or clinically obscured by.
1	Pneumococcic pericarditis	Septicemia
2	Myocarditis, cardiac dilatation	Adhesive pericarditis
3	Myocarditis, cardiac dilatation	Pulmonary tuberculosis and hemorrhage
4	Myocarditis, cardiac dilatation	Pulmonary tuberculosis and pericarditis
5	Myocarditis, cardiac dilatation	Hepatic cirrhosis
6	Acute and chronic endocarditis	Acute undetermined infection
7	Anemia (unqualified)	Secondary anemia, gastric carcinoma
8	Aneurysm	Organic heart disease, tertiary syphilis
9	Embolism and thrombosis	Purulent infection, pulmonary hemorrhage
10	Embolism and thrombosis	Organic heart disease, cerebral hemorrhage

The first patient of this group was admitted in very poor condition. An acute hemorrhagic pleuritis, bilateral, obscured the pericardial involvement. Though weakness of the cardiac sounds was noted, it was ascribed to the acute myocarditis of sepsis, a not uncommon mistake. Cases two to five are examples of the extreme difficulty of clinically diagnosing myocarditis. In case two the reverse mistake found in case one was made, the distant, weak cardiac sounds, and the arrhythmia of cardiac

action being taken to indicate adhesive pericarditis. In case three the patient died after a pulmonary hemorrhage induced by passive congestion of the lungs, incidental to myocardial weakness. Pulmonary tuberculosis was diagnosed simply because of the fatal hemorrhage, in spite of several negative examinations of the sputum for tubercle bacilli. It was quite impossible to diagnosticate the myocardial condition in case four because of a masking serofibrinous pleurisy clinically recognized. Here, also, pulmonary tuberculosis was diagnosed, notwithstanding the negative sputum, because of the presence of a chronic serous membrane inflammation and pulmonary congestion. The fifth patient was admitted to the ward with ascites. After the emptying of the peritoneal cavity, the edge of the lower border of the liver was charted as hard and nodular. The conception of neoplasm, causing hepatic cirrhosis, seems to have been uppermost in the clinician's mind. Death occurred suddenly. At the autopsy chronic myocarditis and marked cardiac dilatation were found. A moderate cirrhosis of the liver, and an associated cholelithiasis, coupled with the difficulty of diagnosing myocarditis and acute cardiac dilatation, seem to have been the clinician's downfall. In the sixth case of this group the presence of bronchopneumonia, pericarditis, and pleuritis, completely hid the vegetative endocarditis which the pathologist gave as the cause of death. The clinical diagnosis made was, of course, not incorrect in itself, but rather too general to be accepted. It may be added that an ante mortem blood culture remained sterile. The concluding four cases of this group are more or less partially correct diagnoses. In case seven gastric carcinoma constitutes an error of commission that should not have been made, because the sole reason for the diagnosis rested on the presence of severe anemia, emaciation, and vomiting, in an old man. The patient died before clinical analysis of the stomach contents was made. In case eight the primary disease, syphilis, had been recognized. The site of chief destruction was also known, but the actual aneurysm was not found. How much the diagnosing physician is to be held responsible for this error can, of course, not be said from clinical records alone. In case nine the cause and the effect of the embolism, which was located in the lung, were self evident. The error consists in the mistaken opinion, expressed by the physician in his daily notes, that he considered the pulmonary hemorrhage tuberculous in origin. In the last case, case ten, the very common mistake is made of ascribing the hemiplegia of embolism to cerebral hemorrhage. In the presence of the recognized heart lesion, embolism should probably have been given the preference.

All the cases of this group were difficult ones, and in none of them could additional aid have been rendered the patient, had the diagnosis been correctly made.

#### GROUP VI. CEREBROSPINAL (47.36 per cent. failures).

Case No.	Condition found at autopsy.	Mistaken for, or clinically obscured by.
1	Pneumococcus meningitis	Cerebral hemorrhage
2	Pneumococcus meningitis	Cerebral hemorrhage

<sup>8</sup>The Treatment of Amebic Dysentery, Deeks and Shaw, *Medical Record*, November 13, 1909.

Case No.	Condition found at autopsy	Mistaken diagnosis clinically—obscure diagnosis
3	Pneumococcus meningitis	Hydrocephalus, bronchopneumonia
4	Cerebral hemorrhage	Estivoautumnal malaria
5	Cerebral hemorrhage	Chronic nephritis
6	Cerebral softening	Cerebral hemorrhage
7	Cerebral softening	Cerebral hemorrhage
8	Encephalitis (cerebral abscesses)	Diarrhea and anemia
9	Embolie encephalitis	Cerebral hemorrhage

This group comprises one of the most difficult fields for the diagnostician. The incorrect diagnoses of cerebral hemorrhage in cases one and two were made solely because of hemiplegia—otherwise the pictures were clear cut cases of acute meningitis. A lumbar puncture in each would have saved the ward physician from a failure in two diagnoses. In case three the diagnosis could also have been made by lumbar puncture, but this was not performed, because a chronic hydrocephalus seemed sufficient cause for the meningism, while the bronchopneumonia was considered the terminal infection. Case four is an unpardonable mistake, due to insufficient examination. This patient lived eight days after admission to the hospital. An examination of the blood showed estivoautumnal parasites in the thick film on the day of admission. The patient's temperature was normal during his entire time in the ward. Only one physical and one urine examination were made. These were made on admission, at the time of the blood examination. At the autopsy a ruptured posterior meningeal artery and subdural hemorrhage were found as the cause of death. In case five we again find the absence of repeated examinations, which might have shown that the patient's chronic diffuse nephritis was not all that ailed him. In this case there was a remittent temperature for ten days, and the patient finally died on the thirteenth day with very meagre evidence as to the cause of death, excepting a lone urine examination, upon which the clinical diagnosis seems based. Cases six and seven merely show that it is quite impossible to differentiate cerebral softening from cerebral hemorrhage, especially if there is an entire absence of history prior to admission in coma. The clinical and the pathological diagnoses seem hopelessly far apart in case eight, yet the error is one which may easily be repeated. An eighteen months old infant was brought to the hospital with a history of vomiting, diarrhea, and fever of one month's duration. Nothing further was gained by a physical examination excepting the observation of severe anemia. Death occurs on the fourth day, and the pathologist finds multiple brain abscesses of the right frontal and left parietal lobes. The port of entry was not found. In the last case of this group, hemiplegia developing rather suddenly was again taken to mean cerebral hemorrhage. Instead, an acute purulent sinusitis had caused septic mitral valvulitis, which, in turn, produced embolic encephalitis of the left frontal lobe and caudate nucleus. This case is a lesson not to omit examinations of the accessible sinuses in an obscure case.

Though both ears were searched for suppuration, no mention is made of any sinus examinations.

Cases one, two and three teach the diagnostic value of lumbar puncture, and should have been dignosticated by this means. Cases four, five, and nine again show the value of thoroughly repeated physical examinations. All cases were hopeless as to prognosis, irrespective of diagnosis made.

(To be concluded.)

## NERVOUS CONDITIONS AND THEIR RELATIONS TO PELVIC DISEASES.\*

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When a woman has attacks of headache it is assumed by the laity, and often by the profession, that she must have some diseased condition of her pelvic organs. She goes to a physician, and he finds from the history of the case that she has had a number of children, the youngest one perhaps ten years ago, and that some two or three years ago she began to have attacks of cephalalgia with every menstrual period, just before, during, or after. Then, continuing that way for a year, every month the attacks became more frequent, and now she has attacks at irregular times, one or two a week, or one in two weeks. On examination he finds a badly lacerated cervix, and proposing an operation, performs it and the woman is cured. He bases his diagnosis on the fact that this condition occurred at first only during the menstrual period, and that therefore the pelvic congestion and irritation must have had something to do with the pain in the head. Also that in the course of time the condition became aggravated, and the attacks more frequent.

Now, some of you may say, "Why, this woman had a lacerated cervix for at least six or seven years, and never had any attacks. What was the cause of the attacks; why did she not have them immediately?" This seems very plausible, but is not true, for a woman who has prime health may have some pelvic trouble, and no nervous manifestations; but let her get an attack of typhoid fever, cholera morbus, indigestion, or have some worry and anxiety, in fact anything that lowers her state of health, and then the nervous condition will manifest itself. At the same time, I think that in some cases the contraction of the cicatrix may in the course of time become so great as to compress the nerve filaments, and that symptoms are produced which in the earlier stages of the scar were not present. This patient was cured by the proper diagnosis and the proper repair of the tear.

Another patient comes along, with almost the same symptoms and history. She also has a tear, the doctor makes the diagnosis and operates upon her, but she is not cured; she is just as bad as ever. She finally goes to another physician, who is a diagnostician; he finds some little variations in the symptoms that make him suspicious, and sends her to an oculist for careful examination. The latter finds astigmatism, myopia, or something else, fits

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her with proper glasses, and, lo and behold, the woman is cured. The operation did no good; in fact, was not necessary.

Another patient comes along; she also has the same attacks, same history, same condition. Attacks seem to be worse at night, she is unable to sleep until early in the morning. She has a lacerated cervix, and is also operated upon, but remains as troubled as she was before. Then *she* also goes to a diagnostician. He looks her over carefully, finds that it is an obscure case of syphilis, puts her on mercury, and relieves her in a short time. Another woman comes along with the same kind of history, the same pelvic condition with attacks of headaches, nervousness, palpitation of the heart. Better for a week or two, then worse again. She is also operated upon, and promises are made that all her nervous symptoms will disappear. But they do not—in fact she is gradually getting worse. She goes to a diagnostician, and he makes the diagnosis of exophthalmic goitre. If the first physician had studied up on the ductless glands, and been up to date, he would not have made the mistake. I think that this particular kind of mistake is often made. Still another one comes along with the same train of symptoms, same diagnosis. She is not relieved by operation, she gets discouraged, gets some patent medicine, and feels better, but is not cured. So finally she goes to an up to date medical man, who can make a diagnosis, and who on thorough investigation finds that the woman is suffering from autointoxication. She has constipation, she eats too much nitrogenous food, or too much candy; the whole fluid intake in twenty-four hours is a pint and a half. Her liver is dry, her kidneys do not act; she suffers from reabsorption of effete matter. The doctor regulates her mode of living, and cures her. The operation was of no benefit and unnecessary.

And so I could continue upon this one nervous symptom of headache for the whole time allotted to me. Instead of previously saying *lacerated cervix*, I might just as well have said lacerated perineum, retroverted uterus, tuboovarian inflammation, disorders of menstruation, or any other abnormal pelvic condition. Instead of saying headache, I might have said backache, epilepsy, hysteria, or any other nervous condition, including psychoneurosis.

Now, let us take up some other morbid condition. The woman has a displaced uterus, and has attacks of the kind mentioned or some other nervous symptoms. By keeping the womb in place with a supporter or by operation she is relieved. The woman may be thirty years old, and may never have had any symptoms before. The woman is thirty, yet received that displacement, as the result of falling off a bicycle or a swing, twelve years before. She had no symptoms because she was in good physical condition, but two years ago, something was added, perhaps a fall, severe lifting, or some disease. The next woman with a displaced uterus is not cured with a supporter or operation, the wrong diagnosis has been made, and perhaps an unnecessary operation performed. Another patient comes along who is complaining of distress in the right side, with symptoms of indigestion, bloating, distress after eating, or perhaps

relieved by eating; she is irritable and cross, and generally out of sorts. She has been losing flesh. An examination is made, and while the pelvic organs are found to be normal, it is discovered that she has a loose kidney. The doctor decides to operate, and fixes the kidney (if he knows how), but the patient is no better. She has been promised complete relief, but does not get it. She goes to another surgeon, who makes a diagnosis of duodenal ulcer, or perhaps trouble with the gallbladder. He operates upon her, and relieves her. The loose kidney had nothing to do with her condition, although in some cases prolapsed kidney is an important etiological factor. These are the most puzzling cases to make a diagnosis, when two or three different conditions exist. Which one is causing the trouble, one or all together?

A woman, thirty years old, mother of four children, had some inflammation on the right side immediately after the birth of the last child. This is accompanied by fever, but the symptoms are not serious, and in the course of two or three weeks she recovers, by being treated on general principles. In the course of eight or ten months she again has a pain in the right inguinal region, appearing during the menstrual period. The doctor makes a diagnosis of pus tube, as he has the history of puerperal infection. However, the attack is not serious and subsides, but recurs at the next period. The woman also has indigestion and is run down, and the doctor finally urges an operation, to which the patient consents. The right tube and ovary are removed, but the patient is not improved. The attacks recur later at irregular intervals, and the patient consults a diagnostician, who makes the diagnosis of chronic catarrhal appendicitis, and with great difficulty persuades the woman to have another operation. She recovers, and is entirely cured. The appendix was found to be club shaped, kinked, and strictured, and contained several enteroliths. The symptoms of pain, being well down in the pelvis, and not at McBurney's point, deceived the first physician.

One of the nervous symptoms women often complain of is backache, and backache, while generally attributed to kidney trouble in men, is commonly supposed to be due to pelvic trouble in women. A patient with headache goes to a physician, who is superficial, and he may find a retroversion of the uterus, and proceeds to perform one of the numerous operations recommended for that kind of displacement. The operation was a success, but the patient is not relieved, because the backache was due to an entirely different condition. If we take hysteria, how often do we find pain on the left side above Poupart's ligaments, and how many left ovaries have been removed uselessly to relieve this nervous symptom of hysteria. If we take up the question of the more serious conditions, for instance epilepsy—which often manifests itself at first only at the menstrual period, at the beginning of puberty, but the attacks of which, in the course of time, comes on at frequent intervals—we find that such patients are often brought to a gynecologist, to remove the ovaries for the purpose of curing the epilepsy. As a rule, the result will be sadly disappointing. However,



these patients are often erotic and feeble minded. Sometimes they become pregnant, and if we believe in eugenics and think it is a good thing to stop the breeding of such people, we do a good work for the race in removing the ovaries; but we must not be too sure of curing the epilepsy. I have seen a few cases cured, but more often this was not the case.

When it comes to the still more serious condition of insanity, we must be especially on our guard. I have seen a few patients on the verge of insanity who were absolutely cured by some pelvic operations, but I have also had lamentable failures. I remember operating in one case on a woman, near the menopause, who had been in an asylum. She was worse during menstruation. I performed a vaginal hysterectomy, including the ovaries, and she seemed very quiet and rational; but forty-eight hours afterward jumped out of the second story window of the hospital. She was returned to bed, and thereafter restrained, and finally sent home, but she is to-day at the asylum in Manistee. Years ago a young woman was brought to me suffering from menstrual insanity for three days every month. During one of these spells she attempted to shoot the young man to whom she was engaged. It was apparently a plain case of menstruation insanity. "Ergo," I thought, "stop menstruation and you cure the insanity." I stopped the menstrual period all right, but she is now in an insane asylum in Ohio. This kind of case makes us suspicious, and very careful in operating.

Professor Bossi, of Genoa, lately reported in the *Zentralblatt für Gynäkologie* some cases of septic endometritis causing insanity. Some of these patients were in the asylum for a considerable time and most violent, even maniacal. He had them transferred to his clinic, and cured them by dilatation, curetting, and drainage. The results were remarkable, the patients being restored to perfect health. Some of them were married, and the trouble of a puerperal origin; others were virgins. Such cases must certainly be rare. In these cases of insanity due to pelvic troubles I have always held that an insane woman should be relieved of all her troubles, if possible, and if she had any pelvic diseases (tumors, abscesses, etc.), they should be cured just the same as affections of the kidneys, lungs, or stomach. But I do not believe that many cases of insanity are caused by pelvic troubles, although I have always believed that puerperal insanity is puerperal infection in ninety per cent. of the cases, and always treat it as such. As to infection, it is to me marvelous how a slight sepsis, like a stitch abscess, affects some persons; they are perfectly wild, abusive, and delirious, but when the septic condition is relieved all their nervous symptoms disappear. I have often had them apologize to me for being so unreasonable, and say they could not help it. In the early stages patients with psychoneurosis very often think that the trouble is due to some pelvic disease. They may have symptoms indicating this, and, in fact, may have it, and, by continually thinking about this trouble in the pelvis, it grows on them; they magnify it, and their mental condition is undoubtedly made worse. If in such patients we cure their pelvic

diseases, they are often improved in mind, and it seems to me that in many cases in the earlier stages they can be absolutely cured of the mental trouble by relieving them of the pelvic pathological condition. Of course, not all of them have the same happy outcome; some of them branch off on some other condition of their system, stomach, throat, nose, etc. Nevertheless, much relief is given—they are improved, and often the neurologist can afterward cure them, which he could not do if the gynecologist had not first relieved them of their pelvic diseases.

As from statistics collected in large institutions only from ten to twenty-five per cent. of the women have pelvic diseases that can be recognized, it is self evident that not many cases of mental diseases can be due to reflect pelvic troubles. In Prussia there are 127,000 insane in hospitals (men, 71,000; women, 56,000), hence pelvic trouble cannot cause many cases of insanity. A neurologist calls me in consultation to see an unmarried woman, twenty-four years old, who has some symptoms, which make him think that perhaps she has some pelvic trouble. I examine her, but find nothing abnormal. During the digital examination I notice a spasmodic contraction of the vagina, and know that if I had continued the examination she would have had an orgasm. On inquiry as to what I found, I told the neurologist that the girl was suffering from ungratified sexual desires, and that I really believed she did not know what sexual intercourse was. Then he answered, "I see it all now; I did not think of that; it is all plain to me now." This poor girl should be married and have children—that will cure her. A married lady, thirty-nine years old, came from an interior town to consult me. She said she was nervous, irritable, cross, etc., and she had been married fifteen years, but never experienced sexual orgasm, though she had sexual passion. Thus, she was never satisfied. Poor, mis-mated woman, what could I do? I knew of no remedy that would help her. This kind of trouble is frequently the cause of our numerous divorce suits.

That the sexual functions are often at the bottom of the nervous condition we all know. A woman comes to consult us who has been married ten years but has only one child, nine years old. If we examine her and find absolutely no trouble we naturally ask ourselves, Why does she not have more children? We must get at the bottom of the trouble, and on inquiry are told that she does not want any more. Again we ask ourselves, How does she accomplish it? Naturally, on inquiry, we receive different answers from such patients as to how they prevent pregnancy. Very, very rarely they will say they have no connection. Some use injections of different solutions or icy cold water, and these produce disturbances. Some practice *coitus interruptus*, which injures the woman more than the man. This vicious practice, continued for months and years, finally produces a nervous condition, with various obscure symptoms, which cannot be definitely labeled unless one is a skilled diagnostician and goes to the root of the trouble. What a wonderful change you produce in such women in three months if you make them estab-

lish normal sexual relations. But I see them raise their hands in horror. "You must not talk of that; that is tabooed; it is nasty," they say. Now I hold that it is nothing of the kind. The sexual act of a married couple is a perfectly clean and noble act; the act is only nasty when promiscuously performed, or done in a perverted manner. The profession has neglected this subject and must teach the laity correct views on the question, and by instructing people many misunderstandings in families can be prevented and divorces avoided.

I have called attention to movable kidneys, because a movable kidney is virtually only found in women, and therefore I might say it belongs to the department of the gynecology. I noticed that Billington reports remarkable results in the fixation of loose kidneys for insanity, and I have no doubt that sometimes it does wonders, like everything else; but I cannot believe that a loose kidney is the cause of many cases of insanity. In conclusion I would say that the various nervous symptoms found in women are not always due to pelvic trouble, but not infrequently to many other circumstances, such as mode of living, diet, occupation, zymotic diseases, etc. If pelvic trouble is found it is sometimes very difficult to make a correct diagnosis, as the pelvic condition may not be at the bottom of the nervous trouble. This is all the more difficult if we find two or three different pelvic conditions, either one of which might produce the symptoms; for instance, a tear in the uterus, with displacement of the organ, and movable kidney, with or without general abdominal ptosis. When such complications are found the prognosis should be very guarded, and all the conditions should be relieved, and then the patient may require long continued aftertreatment.

#### CONCLUSIONS.

1. The differential diagnosis of nervous conditions in relation to gynecology is very difficult.
2. The medical man very often gets himself in trouble by jumping at conclusions and promising too much.
3. This is especially the result in cases of surgical interference.
4. It is therefore self evident that the gynecologist must not only be a good physiologist, besides a general practitioner, but he must be especially well informed on diseases of the nervous system.

620 WOODWARD AVENUE.

### MYOPIA PREVENTION BY TEACHERS.

By W. H. BATES, M. D.,  
New York.

Myopia with elongation of the eyeball is incurable. It is usually acquired during school life. Acute myopia, spasm of the accommodation, or functional myopia is an early stage of incurable myopia. The cause of myopia is an effort to see distant objects.

Corroboration: 1. Myopic refraction has always been produced in man and the lower animals when regarding unfamiliar distant objects which required an effort. 2. Myopia was prevented in the

public schools of Grand Forks, N. D., for eight years by methods which prevented an effort to see distant objects. 3. Myopia was always benefited by treatment suggested by the cause. 4. The cause suggested a method for the experimental production of myopia in rabbits, dogs, and cats. 5. Physicians, teachers, and others interested have investigated and confirmed these facts. 6. It should be emphasized that there is but *one* cause of myopia, an effort to see distant objects. There is no other cause.

Near use of the eyes is not a cause of myopia. By the aid of simultaneous retinoscopy, it was always demonstrated that an effort to see near objects lessened myopic refraction or produced hypermetropic refraction.

Prevention of diseases is usually suggested by the cause. When the cause is known, prevention may be successful, but when the cause is not known prevention is uncertain. For example: Yellow fever, twenty five years ago, was not prevented by quarantine, disinfection, or other methods until the cause was discovered, the infected mosquito. By removing the cause, yellow fever has been eliminated from Havana and Panama.

Likewise, previous efforts to prevent myopia have failed because the cause was not known. It was erroneously believed that when school children regarded, or made an effort to see, distant objects, that the eyes were at rest or that accommodation or myopic refraction did not occur. Simultaneous retinoscopy disproved this assumption. It has been repeatedly demonstrated with the aid of the retinoscope that all school children with normal eyes when regarding unfamiliar writing or figures on the blackboard, distant maps, diagrams, or pictures had myopic refraction. It was quite otherwise when they regarded a familiar distant object. The retinoscope used at the same time indicated no myopic refraction.

The Snellen test card, while being of use for testing the acuity of vision, was found also during the past ten years to be the best distant object for exercises in distant vision. It should be memorized and thus made a familiar distant object. After its daily use for half a minute or longer myopia was prevented; and, in addition the vision of many pupils with defective sight was improved for an unfamiliar Snellen card, for writing and figures on the blackboard, and for other distant objects. Furthermore, near vision was benefited by the use of the Snellen card. Many pupils stated that they could study their lessons with less or no discomfort.

Myopia prevention was introduced in Public Schools Nos. 6, 183, and 186 of New York city, January, 1912; later, Public Schools Nos. 46 and 43 tested the method.

#### THE METHOD.

A Snellen test card was placed permanently where all the pupils could see it from their seats. Daily the teachers recommended all the children to silently read the card with each eye separately, covering the other eye with the palm of the hand in such a way as to avoid pressure on the eyeball.

Records were made with the same card or with

an unfamiliar card for testing the vision. This matter is discussed below. Each line of the Snellen card is designated by a number which indicates the feet that the line should be read by the normal eye. Records of the vision are written in the form of a fraction: The numerator of the fraction represents the distance in feet of the pupil from the card while the denominator denotes the number which designates the lowest line read. Records were usually submitted as follows:

Public School No. 46, W. A. Boylan, principal.

E. 6A., J. Hiesel. T., 27  
D., 27  
L., 27  
N., 25  
W., 0

	February, 1913		April, 1913		June, 1913	
	R	L	R	L	R	L
John D. ....	20/100	20/50	20/50	20/40	20/20	20/20
Sanford G. ....	20/50	27/70	20/30	20/40	20/15	20/20

Public School No. 6.

The first school authorized to try the method was Public School No. 6, Miss K. D. Blake, principal. In November, 1911, she permitted me to test and record the vision of 115 pupils. Later, she informed me that a medical inspector examined the same children and found my record correct.

In one class room she observed me relieve the defective vision of five pupils in fifteen minutes with the aid of the Snellen card. She was told that the teachers were able to improve the vision of all pupils in the same simple way and thus, logically, prevent myopia.

The memorized Snellen test card aroused much scepticism. Its value for testing the vision was questioned by most teachers. To settle the matter, Miss Blake had the vision of 1,500 pupils tested, January, 1912, with a memorized Snellen card by the teachers. Soon afterward, the vision of the same 1,500 pupils was tested with an unfamiliar Snellen card. The tabulated records of both tests were sent at his request to Gustave Straubenmüller, associate superintendent, with the following conclusion: "The figures submitted are interesting and it would seem as though Doctor Bates had, to a certain extent, proved his point." The test was repeated in June, 1913, and the memorized Snellen card was again found satisfactory for testing the vision. Objective tests were conclusive, and demonstrated the interesting fact that school children did not deceive themselves or others, when their vision was tested with a memorized Snellen card. When a pupil said he was reading the memorized Snellen card with normal vision, the retinoscope, used at the same time, indicated no manifest error of refraction; the eye was adjusted for normal vision.

The reliability of the teachers' records of the vision was investigated by Miss Blake. At her request the health department sent a medical inspector who also tested the vision of the pupils and told Miss Blake that the records of the teachers were reliable and correct.

One teacher taught her pupils to test and record the vision of their own eyes daily. They convinced me that they did both correctly.

The pupils learned the value of the Snellen card

for improving the sight; and many obtained by their own efforts normal vision without glasses. This fact was observed also in other schools. One teacher asked me to investigate a boy who said his vision had improved from 20/200 to 20/20. I found the boy had normal vision, but I had trouble to convince the sceptical teacher that the pupil was able to see perfectly.

It is suggested that a monitor be appointed in each class to improve the vision of all pupils with defective sight.

Miss Blake deserves much credit for her intelligent methods of investigation of myopia prevention by teachers. When Dr. C. Ward Crampton, the director of physical training, investigated the method and visited her school early in 1913, he told her to remove the Snellen cards and discontinue her efforts to prevent myopia. This command was so manifestly unfair to the method at the time that she refused to comply without an order from her superiors. I cannot express in words my gratitude to her for her championship of the method. The records she submitted in June, 1913, of pupils also tested in October, 1912, were the best of all. She desires to continue the method and is now willing for me to use the ophthalmoscope to obtain more scientific facts for the benefit of school children.

Finally, when the question was asked her, "Do you believe that the Snellen card was a benefit?" she replied: "Yes, I do; but I do not understand it."

Public School No. 183.

In the Fall of 1911, Miss A. J. Farley, principal, Public School No. 183, became interested in myopia prevention and consented to try the method in her school. In the beginning most of the teachers neglected to use the method. This was true of other schools.

Miss C. V. Dillon, ungraded class, was the first New York city teacher to submit accurate records of the vision of school children before and after the use of the method of myopia prevention. She recorded the vision of all her pupils, October, 1911, and again, December, 1911. During this time the Snellen card was not used and the vision of no child improved. After the Snellen card was placed permanently in the class room, January, 1912, she gave her pupils daily exercises in distant vision with its aid. She noted a prompt improvement in the sight. The vision of the same children was recorded, March, 1912, and June, 1912, using an unfamiliar Snellen card for testing the sight. The records indicated that the vision of all was improved. She continued the use of the Snellen card, daily, during the school year, 1912-1913.

June 27, 1913, Miss Dillon was asked her opinion of the method. She answered that her results continued good, and offered her recent records as additional evidence in favor of the method. At one time during the year the health department prescribed glasses for all her pupils. As long as a child wore glasses she refrained from giving it exercises in distant vision with the memorized Snellen card, by order from the principal; but, after a child appeared in school without glasses she believed that she was privileged to benefit it with the Snel-



len card. She described in detail the results obtained. Some pupils, even with glasses, were unable to see the writing on the blackboard from their seats. In a short time their vision improved without glasses, so that they had no further difficulty with their sight. Others complained of eye pain or had trouble in seeing to read. They held their books close, about six inches from the face. The use of the distant Snellen card gave them relief and they later read without effort or discomfort at a comfortable distance, about twelve inches. She discarded glasses and relieved her own eyes by the use of the Snellen card. I believe that if all teachers were as enthusiastic or as conscientious as Miss Dillon, no child would acquire myopia while attending school.

The success of Miss Dillon with the method encouraged Miss Farley, the principal, to persuade other teachers to try it.

October, 1912, Miss Knauff, 2A, reported that the vision of six pupils with defective sight did not improve after one week when the Snellen card was not used. After the method was employed daily for one week, all had improved, and five of the six defectives obtained normal vision without glasses. Similar results were obtained by four other teachers. Miss Farley asked the health department for an investigation to determine the reliability of the teacher's records. The medical inspector sent tested the vision of the same pupils and told Miss Farley that the teachers tested and recorded the vision correctly. Relapses occurred after the use of the Snellen card was stopped.

In January, 1913, Miss Farley had the vision of all the pupils recorded on the school card which each child receives on entering school, a method of keeping the records which I recommend. All the teachers began the use of the method and their records were tabulated in June, 1913.

Miss Farley is to be commended for her thorough investigation of the method. She told me that she was convinced of its value and was willing to continue. She will permit the use of the ophthalmoscope.

#### Public School No. 186.

J. T. Nicholson, principal, Public School No. 186, had defective vision without his glasses. With the aid of a memorized Snellen card his vision became normal in a few minutes. In this way he learned the value of the Snellen card. After his personal experience with its benefits he more fully believed in the probability that the teachers by improving the vision of school children would prevent myopia. His teachers did not all record the vision until October, 1912.

On April 14, 1913, all the Snellen cards were removed and not replaced until June 16, 1913. The records of his teachers indicated a less number benefited than in Public Schools Nos. 6 and 183,

where the Snellen cards were in use continuously for a longer time.

Miss Mary E. Simmott, assistant principal, called my attention to the fact that the more experienced or better teachers benefited the vision of a larger number of children than did the teachers of less ability. Mr. Nicholson believed that the vision of the pupils in his school was benefited by the Snellen card. He is now willing that I use the ophthalmoscope for a more accurate investigation.

C. B. Jameson, principal, Public School No. 43, in March, 1913, introduced the method in his school on the recommendation of J. T. Nicholson, principal, Public School No. 186. Four teachers tested the vision, made the records, and used the Snell n card for myopia prevention without my supervision. It was only through the courtesy of J. T. Nicholson that I learned the facts. In June, 1913, Dr. John P. Conroy, district superintendent, kindly loaned me the records of the vision of the pupils tested, in March and again in June, 1913, by the teachers of Public School No. 43. The results were good. It seems probable that the method could be introduced successfully in other schools without my supervision.

W. A. Boylan, principal, Public School No. 46, introduced the Snellen cards in 1912. He has incurable myopia acquired in school. With the aid of the Snellen card, I improved his vision, without his glasses, fivefold in ten minutes. He has cooperated with me as much as he could, but only two teachers submitted records, June, 1913.

Miss J. Hiesel, 6GA, submitted the best records which I have seen in ten years. Of twenty-seven defectives all were improved and twenty-five obtained normal vision in both eyes. She described how one incorrigible, and one truant, became good students after their eyes were relieved of pain and discomfort by the use of the Snellen card. I attended one of her daily exercises in distant vision with the aid of the Snellen card, witnessed the enthusiasm of all the pupils in the game, and learned much of the possibilities of the method for improving defective vision and preventing myopia.

#### RECORDS.

Table 1.—Summary of the records of the vision of the pupils made by the teachers of five New York city schools.

Note that in Public School No. 186 the Snellen cards were removed from all the class rooms April 14, 1913, and replaced June 16, 1913.

	Number.	Percent.
T., Pupils tested twice	5700	
D., Pupils with defective sight at the first examination	3,290	58
I., Defectives improved in one or both eyes	2,026	61
N., Both eyes of defectives found normal at the second test	1,023	31
W., One or both eyes of T. found worse at the second test	350	6
R., Dates when the two tests of the vision were recorded.		

TABLE No. 1.											
P. S.	T.	D.	I.	N.	W.	R.	Teachers.				
	Number.	Number.	Number.	Number.	Number.	Dates of tests	Number.				
6	925	474	51	390	82	October, 1912, June, 1913	37				
183	635	333	52	250	75	January, 1913, June, 1913	21				
186	1,930	1,223	63	660	55	October, 1912, January, 1913	49				
186	2,007	1,130	57	620	54	February, 1913, June, 1913	57				
43	131	85	65	61	22	March, 1913, June, 1913	4				
46	53	45	21	36	20	March, 1913, June, 1913	2				
Totals	5,700	3,290	Av. 58	2,026	Av. 61		121				

Table 2.—Summary of the records of the vision of the pupils made by those teachers of five New York city schools who recorded that the vision of no pupil became worse.

In Public School No. 186.

28 teachers recorded no pupils worse in January, 1913; 13 teachers recorded none worse in June, 1913; and 10 teachers recorded no pupils with vision worse both in January and June, 1913.

	Number	Percent.
T. Pupils tested twice	1351	
D. Pupils with defective sight at the first examination	845	62
I. Defectives improved in one or both eyes.	605	71
N. Both eyes of defectives found normal at the second test	334	40
W. One or both eyes of T. found worse at the second test	0	
R. Dates when the two tests of the vision were recorded.		

human conception which does not have life when entirely separated from the mother's body, but which has reached such a period in the uterogestation that had it been born alive it would have lived. Both definitions would have to be further elucidated as to the definite signs of life. The legal definition would require a detailed description of a viable fetus.

To illustrate the diversity of opinion as to the meaning of the term "stillbirth" I will quote some of the definitions of the term as given by different cities, States, and countries, and by medical and statistical societies: New York State: "A child born dead, having never breathed and having attained sufficient development to determine sex." New Orleans, La.: "Born dead." Baltimore, Md.: "One that has not breathed." Bridgeport, Conn.:

TABLE No. 2.

P. S.	I. Number.	D. Number.	Per cent.	I Number.	Per cent.	N. Number.	Per cent.	W	R. Dates of tests.	Teachers Number.
0	243	113	55	129	95	111	82	0	October, 1912, June, 1913	11
183	108	85	43	81	95	92	71	0	January, 1913, June, 1913	7
186	414	315	77	175	53	82	16	0	October, 1912, January, 1913	10
186	305	213	58	152	71	94	30	0	February, 1913, June, 1913	10
43	07	49	73	37	75	19	30	0	March, 1913, June, 1913	2
40	63	45	71	30	85	26	58	0	March, 1913, June, 1913	2
Totals	1,351	845	Av. 62	605	Av. 71	334	Av. 40	0		32

All the principals and all the teachers, in the beginning, were sceptical. After they used the method and investigated the results in the class rooms, they became convinced that the use of the memorized Snellen card improved the vision of the school children. They do not understand it.

#### CONCLUSIONS.

1. All investigators, I believe, have published that previous efforts to lessen defective vision or prevent myopia in schools have failed.

2. One hundred and twenty one teachers in the schools of New York city have lessened appreciably the number of pupils with defective vision. Note in the accompanying records that over 1000 pupils with defective sight obtained normal vision in both eyes.

3. Thirty-two teachers prevented the vision of all their pupils from becoming worse.

4. Myopia was prevented by teachers.

938 ST. NICHOLAS AVENUE.

#### A STUDY OF STILLBIRTHS.

By LEE W. THOMAS, M. D.,  
New York,

Physician to Outpatient Department, Bellevue Hospital; Physician to the Committee for the Reduction of Infant Mortality of the New York Milk Committee.

**Definition.** There are as many definitions of the term "stillbirth" as there are health departments and legal, medical, and statistical societies which at various times are called upon to define the term. These numerous definitions are divided into two main classes, the medical and legal. In brief, the medical definition is, the birth of the product of human conception which does not have life when entirely separated from the mother's body. The legal definition is, the birth of the product of

"One that does not breathe." Pittsburgh, Pa.: "One that has not breathed at all nor shown any signs of life." Troy, N. Y.: "Born lifeless." Boston, Mass.: "Child who did not breathe after birth." Oakland, Cal.: "Born dead at or near full term." St. Louis, Mo.: "Child born dead." Washington, D. C.: "A fetus which after birth does not breathe." Philadelphia, Pa.: "A child born dead." Worcester, Mass.: "Child born dead." Nashville, Tenn.: "One born dead." Chicago, Ill.: "A baby born dead. Without life." New York, N. Y.: "Infant born dead, which has never breathed." Buffalo, N. Y.: "Fetus born dead." Reginald Duffield, M. A., A. B., statistician, Royal Society of England: "A stillborn child means a child whose body at birth measures not less than thirteen inches (thirty-two centimetres) in length from the crown of the head to the sole of the heel, and who, when completely born (the head, body, and limbs of the child, but not necessarily the afterbirth, being extruded from the body of the mother) exhibits no sign of life; that is to say, whose heart has ceased to function, as demonstrated by the absence of pulsation in the cord at its attachment to the body of the child and absence of any heart sounds or pulses." American Public Health Association: "For registration purposes stillbirth should include all children born who do not live any time whatsoever, no matter how brief, after birth."

From a study of these definitions I have formulated the following, which I believe will serve the purpose for which the registration of stillbirths is intended. The term "stillbirth" applies to the birth of the product of human conception, at any period of uterogestation which, when entirely separated from the mother's body (head, body, and limbs, but not necessarily the placenta or membranes) shows no sign of life, sign of life being either cardiac pulsation or sounds, breathing or crying. Later,

under the heading Purpose of Registration, I will give my reason for this definition.

*Frequency of Stillbirths.* The stillbirth rate in 1,000 of the births—living and still—reported in New York city for the period 1906 to 1912, inclusive:

	1906	1907	1908	1909	1910	1911	1912
Manhattan	56.02	50.2	55.0	53.0	50.6	54.0	49.1
Brooklyn	58.6	51.2	40.8	19.2	47.9	59.7	44.4
Brooklyn	50.5	50.2	51.7	50.4	49.4	52.8	48.9
Queens	50.0	50.0	50.2	53.6	40.4	52.1	19.8
Richmond	47.3	49.3	40.4	39.0	44.6	45.3	19.3
C. of N. Y.	50.1	57.4	53.6	51.6	49.7	53.6	47.3

You will notice that the rate is a little lower in 1910, the census year. This is due to an overesti-

Period of gestation.	Not given	3.	4.	5.	6.	7.	8.	9.	Term.	Total.	Ninth months' term.
June	18.42	14.24	12.0	13.33	12.38	16.39	10.89	20.11	10.40	14.88	15.29
July	5.29	17.45	21.33	16.07	15.72	11.27	14.55	13.48	12.84	13.68	13.19
August	13.16	11.11	12.92	10.67	15.72	14.18	17.33	11.95	17.13	14.52	14.34
September	7.88	14.20	9.13	14.0	9.04	10.18	17.22	12.14	17.13	13.02	14.03
October	13.70	10.43	18.06	16.0	13.33	13.46	13.37	11.58	16.82	14.14	14.20
November	28.95	9.82	8.00	18.33	17.15	14.91	12.87	16.13	9.17	14.14	12.65
December	10.54	14.20	8.00	14.0	16.66	19.64	12.87	14.61	16.51	15.42	15.50
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

mation of the population in the previous and succeeding year.

From a study of records of pregnant women who received prenatal care from the Committee for the Reduction of Infant Mortality of the New York Milk Committee, which is conducting an experiment to determine the value of teaching expectant mothers the hygiene of pregnancy and the care of the newborn infant as a means of reducing the number of stillbirths and deaths of early infancy, it is found that one in every twenty-eight pregnancies results in a stillbirth at some period of gestation. And I believe this estimate of the frequency of stillbirths is low, as most of these women are registered after the fifth month of pregnancy. Estimated on the reported pregnancies (births and stillbirths) for 1912 in New York city, one in every twenty-two pregnancies results in a stillbirth. From a tabulation of the last previous pregnancies of 784 multiparæ registered for prenatal care with the New York Milk Committee, I find that one in every fifteen pregnancies resulted in a stillbirth.

*Relation of Sex of Child to Frequency of Stillbirths.* According to Newsholme, the male stillbirths outnumber the female stillbirths, probably owing to the greater difficulty in childbirth. Thus in ten years, 1865 to 1875, they were, in France, 144; Italy, 140; Belgium, 135; Sweden, 133; and Prussia, 129, to every 100 female stillbirths. In Berlin, in 1895, the proportion of males to females among the stillborn was 137 to 100; among the living, 104 to 100. In Hamburg, in 1896, the proportion of males to females among the stillborn was 125 to 100; among the liveborn, 107 to 100. In New York city, in 1911, the proportion was 139 male stillbirths to 100 females; while the proportion in living births was 106 males to 100 females.

*Influence of Illegitimacy.* In his book on *Vital Statistics*, Newsholme states that the proportion of stillborn is greater among the male illegitimate than among the male legitimate children. This is shown by the following figures:

Of every 1,000 births, including stillborn, the number of stillborn or reported as such was as follows, among:

Country.	Period of observation.	Legitimate.	Illegitimate.
France	Countries in which inquiry as to paternity is forbidden.	42	78
Belgium	Period 1878-1882.	43	38
Prussia		39	54
Austria	Countries in which inquiry as to paternity is allowed.	24	38
Hungary		11	30
Sweden	Period 1875-1882	28	37
Norway		12	50

*Influence of Season on Number of Stillbirths.* The following table shows the percentage of stillbirths occurring in each month, from June 1st to December 31st, in the Borough of Manhattan; also month of gestation of occurrence.

This tabulation shows that the third month still-

Period of gestation.	Not given	3.	4.	5.	6.	7.	8.	9.	Term.	Total.	Ninth months' term.
June	18.42	14.24	12.0	13.33	12.38	16.39	10.89	20.11	10.40	14.88	15.29
July	5.29	17.45	21.33	16.07	15.72	11.27	14.55	13.48	12.84	13.68	13.19
August	13.16	11.11	12.92	10.67	15.72	14.18	17.33	11.95	17.13	14.52	14.34
September	7.88	14.20	9.13	14.0	9.04	10.18	17.22	12.14	17.13	13.02	14.03
October	13.70	10.43	18.06	16.0	13.33	13.46	13.37	11.58	16.82	14.14	14.20
November	28.95	9.82	8.00	18.33	17.15	14.91	12.87	16.13	9.17	14.14	12.65
December	10.54	14.20	8.00	14.0	16.66	19.64	12.87	14.61	16.51	15.42	15.50
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

births are most frequent in July and October; fourth month, in July and August, fifth month, July and October; sixth month, November and December; seventh month, June and December; eighth month, August and September; the ninth month and full term predominate in June and December. This table shows that the season of the year bears no particular relation to the frequency of child-births.

*Period of Uterogestation of Occurrence of Stillbirths.* The following table is prepared from 261 stillbirths occurring among 783 previous pregnancies of women now receiving prenatal care from the New York Milk Committee.

#### MONTH OF UTEROGESTATION OF OCCURRENCE.

Number	1.	2.	3.	4.	5.	6.	7.	8.	Ninth and full term.
Percentage	1.15	27.50	30.05	9.2	7.60	1.9	8.1	0.08	13

This table shows that stillbirths are most frequent in the third month of pregnancy, next most common in the second month, and next in order come the ninth, seventh, and fifth months. There seems to be little difference in the frequency of stillbirths in the first, sixth, and eighth months. The logical explanation of the relative high number of stillbirths in the second, third, fourth and seventh month of pregnancy is that the greatest developmental changes of pregnancy occur during these months. The large number occurring in the ninth month are due to abnormal delivery and congenital abnormalities of the child. To prove the accuracy of the foregoing table, I compared it with the figures of the stillbirths occurring in the last previous pregnancy, and found that the percentages for each month of uterogestation were practically the same.

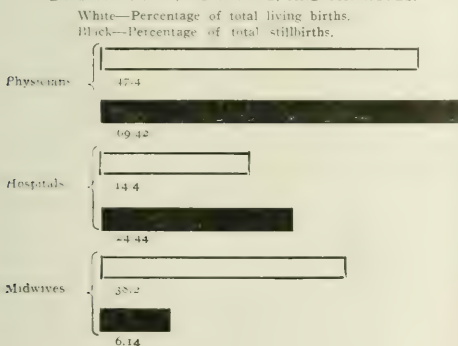
Out of a total of 1,867 stillbirths reported in Manhattan for the period from June 1st to December 31st, 1,331, were reported as occurring during the viable period (seventh month on). This shows that 71.39 per cent. of these stillbirths had a chance



to be born alive had the mother received proper prenatal and natal care. This statement is borne out by the fact that the Committee for the Reduction of Infant Mortality of the New York Milk Committee in its experiment of educating expectant mothers in prenatal hygiene has found among 1,534 pregnancies, a stillbirth rate of 35 per 1,000, as against the Borough of Manhattan rate of 46.5 per 1,000 pregnancies reported during the same period. If the committee's rate had prevailed throughout the entire city, the total number of stillbirths would have been 4,959, as against the actual number of reported stillbirths, 6,614. If these 1,331 stillbirths, born after the viable age, had lived, it would have increased the births one per mille of the population of Manhattan, and added thirty-three births to every 1,000 living births reported for the same period. This, I believe, is a good index to the character of prenatal and natal care that our New York mothers receive, and should awaken all institutions interested in infant welfare and medical work to try to bring about a higher standard of efficiency on the part of those engaged in the practice of obstetrics.

*Attendance at Confinement.* The attendance at childbirth seems to have some relation to the frequency of stillbirth as shown by the following chart:

CHART SHOWING THE PERCENTAGE OF TOTAL LIVING BIRTHS AND OF TOTAL STILLBIRTHS, ATTENDED BY PHYSICIANS, HOSPITALS, AND MIDWIVES.



This chart shows that something is wrong, either in the efficiency of those attending at confinement or else in the system of registration of stillbirths. It will be observed that the physician reports 69.42 per cent. of all stillbirths reported, and only 47.4 per cent. of the living births reported. This means that for every one per cent. of total living births reported, he is reporting 1.5 per cent. of total stillbirths reported. The hospital ratio is even greater, being one per cent. as to 1.7 per cent.

The figures show that the ratio is reversed in the case of the midwife, as for every one per cent. of total living births reported, she is reporting only 0.16 per cent. of stillbirths reported. This would give the reader the impression that the midwives of Manhattan were doing better obstetrics than either the hospitals or the physicians. I do not believe this to be true. Put the physicians and hospitals

are responsible for these figures, and not for the actual conditions, as it is a known fact that physicians do a large consultation practice with midwives and often take the responsibility of reporting stillbirths at which they do not actually attend professionally. The fact remains that, statistically, the physicians and hospitals are charged with a greater proportion of stillbirths to total births than midwives, and if they are willing to remain sponsors for midwives who are not sufficiently well trained to detect abnormalities or conditions which require interference in delivery, we shall have to continue to charge the stillbirths to the physicians; or else conduct a campaign of education among physicians and get them to report these stillbirths as they should be reported, as occurring under the care of midwives and reported by physicians.

The following table shows the

ATTENDANCE AT STILLBIRTH BY HOSPITAL, PHYSICIAN, AND MIDWIFE IN RELATION TO UTERO GESTATION PERIOD

Month of gestation.	Hospital No.	Physician No.	Midwife No.
Not given	6	2	2
Third	16	30	6
Fourth	26	44	3
Fifth	28	102	6
Sixth	35	124	13
Seventh	69	180	11
Eighth	37	135	15
Ninth	78	402	42
Full term	156	341	13
Total	465	1,190	130

In studying the foregoing table one must take into consideration that physicians who do a large consultation practice with midwives are called upon to register stillbirths, although they do not do the actual delivery. This will increase greatly the number of stillbirths reported as attended by physicians in the ninth month. I might mention that it is not an uncommon occurrence for physicians to certify a stillbirth when they have never seen either the mother or the stillbirth. This table shows that the number of cases attended by hospitals and physicians in the ninth month and full term is much greater than that attended by midwives, but in considering the percentage totals of each attended in the ninth month and full term there is very little variation, being: Hospitals, 50.33 per cent.; physicians, 46.46 per cent.; and midwives, 49.56 per cent. It also appears that when comparing the percentage totals attended by each, the midwives attend comparatively more in the third and eighth month of pregnancy than do the hospitals or physicians. The physicians attend more of the seventh month stillbirths. Except for the foregoing facts, this table would lead one to believe that midwives are doing as good obstetrics at all periods of gestation as are the hospitals and physicians. I must confess some disappointment in not finding that the percentage totals of the ninth month and full term stillbirths were not much higher for midwives than for either hospitals or physicians.

*Actual Causes of Stillbirths as Certified to on Returns.* Out of a total of 1,867 certificates of stillbirth examined at the Department of Health of Manhattan, 775, or 41.5 per cent. of the certificates did not contain information as to the cause of the stillbirth. This is due in part to the fact that many

persons reported stillbirths on the old form, which under "cause" reads: "Cause, if known." This common method of reporting was unfortunate. The new form, however, does not contain the words "if known," and the physician or other persons reporting stillbirths are no longer relieved of the responsibility of ascertaining and reporting the cause of stillbirth in each case. The following table shows the negligence of those engaged in the practice of midwifery in reporting the cause of stillbirths:

TABLE SHOWING RELATION OF ATTENDANCE AT STILL BIRTHS TO REPORTING OF CAUSE.

Reported by	Cause given	No cause given	Total reported	Percentage cause not given
Physician	736	433	1,169	37.1
Midwife	309	156	465	33.5
Coroner	35	76	111	68.5
	12	110	122	90.1
Total	1,092	775	1,867	

The table shows that, with the exception of the coroner, the midwife is most lax in reporting causes of stillbirth. This is due to her lack of knowledge of pathological conditions. The physician is next most negligent, and the fact that he reports a large number of stillbirths which occur under the care of midwives may account for this. The hospital has a better chance to study the pathology of cases, and there would seem to be no good reason for its failure to report the cause of stillbirth in thirty-three per cent. of its cases. The table also shows the need of education all along the line as to the importance of accurate and complete vital statistics. The following are the causes, as certified, of the stillbirths occurring in the Borough of Manhattan for a period of seven months, beginning June 1, 1912. These terms were copied from the certificate, and any errors were allowed to remain in order to give the reader a clear idea of the terms used. I have classified these causes, but some may be misplaced, owing to a lack of understanding as to the meaning of the terms used.

CLASSIFICATION OF CAUSES OF STILLBIRTHS FOR THE REPORTED PERIOD JUNE 1, 1912, TO JANUARY 1, 1913.

No Cause Given	No
External causes	775
External cause	65
Accidental kick in abdomen by boy sleeping in bed with mother	1
Excessive heat	1
Fall	21
Fright	2
Hot bath	6
Injury to mother—trauma	1
Shock	14
Strain	6
Labor induced	5
Labor induced	4
Induction of labor	1
Cause Referred to Mother	
Cause having to do with general condition of mother	120
Acute inanition of mother	1
Anemia of mother	7
Debility of mother—malnutrition	11
Exhaustion	1
Exposure	2
Fatigue	1
Infection	2
Infective exhaustive psychosis	1
Overwork	7
Specific	8
Syphilis—lues	76
Serfemia	1
Toxemia	18
Diseases of pregnancy	22
Eclampsia	1
Nephritis	1
Nephritis convulsions	20
Albuminuria	1
Pyelitis in mother	1
Renal insufficiency	1

Diseases of displacement of uterus	No.
Diseased uterus	20
Endometritis	1
Chronic metritis	1
Diseased endometrium	15
Lacerated cervix	2
Retroversio	1
Tumor of uterus	1
Intercurrent diseases—labeled	9
Appendicitis of mother	1
Death of mother	1
Grippe of mother	1
Malaria—quinta	1
Measles of mother	1
Post mortem—Caesarean section	1
Labor pneumonia	3
Cause Referred to Child	
Abnormalities of child	59
Acephalia cephalo	1
Anencephalus	3
Atelactis	1
Cerebral hemorrhage	2
Congenital heart defect	1
Concealed depression	1
Congenital malformation	1
Deformities of child	17
Monstrosity	1
Deformation of fetus	1
Maldevelopment	1
Desquamative dermatitis	1
Hydrocephalus	15
Large head	2
Over long head	1
Large child	2
Megalocephalus	1
Microcephalus	1
Causes Having to Do with Birth	292
Atypical delivery	2
Breech	30
Breech presentation	8
Craniotomy	1
Dry labor	1
Embryotomy	1
Encephaloid	1
Face presentation	2
Footling—difficult after head	1
Flat pelvis	3
Hole in head	1
Instrumental	15
Forceps	1
Postextraction	1
Pedalic extraction	2
Pedalic presentation	1
Impacted shoulder	1
Interlocked twins	1
Mutilation	4
Cephalotomy	1
Obstructed labor	1
Occiput posterior	1
Pelvic labor	1
Pelvis—justo nulli	10
Contracted pelvis	40
Placenta praevia	110
Prolonged labor	1
Protracted labor	1
Difficult labor	1
Hystocia	1
Ruptured uterus	1
Transverse presentation	1
Shoulder presentation	35
Cross presentation	1
Version	109
Asphyxia neonatorum	1
Asphyxia neonatorum	109
Asphyxia of new born	109
Strangulation	1
Causes Attributed to Cord, Placenta or Membrane	156
A—Cord—	
Anomaly of cord	1
Apoplexy of umbilical vessels	1
Cord around neck	11
Knot in cord	1
Prolapse funis	1
Prolapse cord	1
Pressure on cord	71
Cord presentation	1
Compression of funis	1
Traumatosis of cord	3
B—Placenta—	
Apoplexy of placenta	1
Degeneration of placenta	13
Diseased placenta	2
Fatty degeneration of placenta	6
Hemorrhage into placenta	1
Hematoma of placenta	1
Placental hemorrhage	6
Placentalis alcoholica	1
Premature separation of placenta	1
Detached placenta	27
Separation of placenta	1
C—Membrane—	
Hydramnios	8

Reported Causes Which Are Not Reasons for Stillbirths	No.
No Cause	
Accidental miscarriage	1
Death in uterus	1
Fetus mortified	1
Hemorrhage	4
Idiopathic	3
Inevitable abortion	1
Interruption	1
Lack of inherited vitality	1
Maceration	59
Miscarriage	1
Prematurity	1
Repeated miscarriage	131
Recurring abortion	1
Separation of ovum from uterus	1
Spontaneous	1
Unborn pregnancy	3

This needs no comment, and I will pass on to the registration of stillbirths.

**History of Stillbirth Registration.** The following table is taken from the report of the Special Commission on Infant Mortality of the Royal Statistical Society, and gives in succession the dates when different countries and states adopted the registration of stillbirths:

Country	Date.	Country	Date.
1 Sweden	1749	26 Rumania	1893
2 Norway	1801	27 Russia	1886
3 Denmark	1801	28 Michigan, U. S.	1863
4 Prussia	1810	29 Spain	1870
5 Bavaria	1825	30 Switzerland	1871
6 Saxony	1827	31 Rhode Island, U. S.	1870
7 Austria	1827	32 Connecticut, U. S.	1874
8 Holland	1839	33 Hungary	1879
9 France	1849	34 Uruguay	1878
10 Baden	1849	35 Japan	1886
11 Alsace-Lorraine	1841	36 Bulgaria	1881
12 Hesse	1841	37 Servia	1881
13 Wurttemberg	1841	38 Portugal	1886
14 Belgium	1841	39 Maine, U. S.	1895
15 Hamburg	1849	40 Mexico	1897
16 Massachusetts, U. S.	1849	41 Western Australia	1897
17 Vermont, U. S.	1857	42 Argentine Republic	1901
18 Finland	1861	43 Chili	1903
19 Italy	1893		

Registration of stillbirths is not compulsory in England, Wales, Ireland, Scotland, Gibraltar, Cyprus, Hong Kong, Gambia, Orange Free State, Sierra Leone, Jamaica, New Brunswick, New South Wales, New Zealand, Queensland, South Australia, Tasmania, Victoria, Denmark, Mississippi, New Mexico, North Carolina, and Virginia.

**Methods of Registration.** At present there is no uniform method of stillbirth registration. In Spain registration is necessary for burial purposes only. In Italy stillbirths are registered as births, and this method is also used in Sweden. In France and Germany stillbirths are registered as births and deaths; in Austria, Western Australia, and Ontario, as deaths only. In Norway and Denmark they are registered as stillbirths only. In the United States the methods of reporting stillbirths of different cities and States are as follows:

#### Stillbirths Reported as Deaths.

##### Montana.

#### Stillbirths Reported as Births.

Los Angeles, Cal.	Salt Lake City, Utah
Milwaukee, Wis.	Minneapolis, Minn.
Cincinnati, Ohio.	Fall River, Mass.
Iowa.	Idaho.

#### Stillbirths Reported as Births and Deaths.

Oakland, Cal.	Kansas City, Mo.
Grand Rapids, Mich.	Tacoma, Wash.
Grand Forks, N. Dak.	Reading, Pa.
Concord, N. H.	Minnesota.
	Oregon.

#### Stillbirths Reported Separately.

New York city.	Trenton, N. J.
New York state.	Seattle, Wash.
Cleveland, Ohio.	New Bedford, Mass.
Buffalo, N. Y.	Orange, N. J.
Paterson, N. J.	Albany, N. Y.

New Orleans, La.  
Philadelphia, Pa.  
Troy, N. Y.  
St. Paul, Minn.  
Chicago, Ill.  
Asheville, N. C.  
Boston, Mass.  
Pittsburgh, Pa.  
Newark, N. J.  
Omaha, Neb.  
Baltimore, Md.  
St. Louis, Mo.  
Washington, D. C.  
Detroit, Mich.  
Nashville, Tenn.  
Rochester, N. Y.  
Bridgeport, Conn.  
New Haven, Conn.  
Lawrence, Mass.  
Worcester, Mass.  
Indianapolis, Ind.  
Denver, Colo.  
San Francisco, Cal.

Richmond, Va.  
Cambridge, Mass.  
Stratford, Conn.  
Massachusetts.  
Indiana.  
Connecticut.  
Massachusetts.  
Kentucky.  
California.  
New Jersey.  
Colorado Springs, Colo.  
Atlanta, Ga.  
Providence, R. I.  
Hartford, Conn.  
Lowell, Mass.  
Virginia.  
Kansas.  
Wisconsin.  
Texas.  
Ohio.  
\*North Carolina.  
Washington.  
New Hampshire.

\*Registration not compulsory.

The method of registration and reporting is of vital importance in calculating infant mortality. The stillbirth has no direct bearing upon the infant mortality, as the stillbirth has never been a living human, and therefore should not be recorded in either the births or the deaths. But the stillbirth has an indirect bearing upon mortality, as I believe the pathological conditions which are associated with stillbirths are directly responsible for the deaths of infants now reported as dying from congenital and ill defined causes.

**Purpose of Stillbirths Registration.** The registration of stillbirths furnishes statistics for

1. Study of one great cause of depopulation.
2. Determination of the fecundity of the population.
3. Furnishes a source of study to determine the causes of deaths occurring in early infancy.
4. Is a guide to the proficiency of those engaged in the practice of midwifery.
5. Places a higher value on infant life.
6. Removes a motive for infanticide.
7. Acts as a check on the practice of criminal abortionists.
8. Is legal evidence of the productiveness of woman.
9. Is a safeguard to the physician who finds it necessary to induce an abortion or premature labor.
10. Assures the proper disposal of the dead.

These are the most important purposes served by the registration of stillbirths, and they are of vital importance to society.

**Laws Governing Registration of Stillbirths.** In order to obtain the greatest benefit from a statistical standpoint, and also from a social and economic standpoint, it is necessary that all countries, States, and cities should have uniform stillbirth registration laws. The law should contain a clear, concise definition of the term "stillbirth," a statement of the registration act, and a penalty for violation. I take the liberty of presenting a draft of a law which I believe, if enforced, would obtain every item of information for which stillbirth registration is intended.

#### A LAW GOVERNING THE REGISTRATION OF STILLBIRTHS.

The term "stillbirth" shall apply to the birth of the product of human conception, at any period of uterogestation, which when entirely separated from the mother's body (head, body, and limbs, but not of necessity the placenta or membranes) shows no sign of life. Signs of life are cardiac pulsation or sounds, breathing or crying.

It shall be the duty of the parents of any stillbirth in the city (if there are no parents alive who have made such report, then the next of kin of said stillbirth), and of every person present at such stillbirth within forty-eight hours after such stillbirth, to report to the Department of



Health in writing, the date, borough, and street number of said stillbirth; the sex, color, period of uterogestation, time of death (before or during birth of such stillbirth), causes of stillbirth, predisposing and actual; name, residence, birthplace, and age of parents, occupation, maiden name of the mother; number of previous pregnancies, number of living births, and number of children living at present. It shall be the duty of physicians and midwives to keep a registry of the stillbirths at which they have assisted professionally, which shall contain the date of stillbirth, borough, street, and number where such stillbirth took place, the sex, color, period of uterogestation, and time of death of the stillbirth; also the causes of stillbirth, predisposing and actual; the number of previous pregnancies, number of living births, number of children living at present; the name, residence, birthplace, and age of parents, occupation of the father, maiden name of the mother; and to file a copy of the said stillbirth record with the Department of Health in the borough office of the borough where the said stillbirth occurred within forty-eight hours after such stillbirth, upon blank forms furnished by the said department. It shall be the duty of said physicians and midwives to certify that they attended personally at the birth of the stillbirths so reported, and that all of the other facts stated in the copy of the said registry are true to the best of their knowledge, information, and belief.

The penalty for violation of this law shall be the same as for violation of death registration law.

FORM FOR REGISTRATION OF STILLBIRTHS.  
CERTIFICATE OF STILLBIRTH.

The term "stillbirth" shall apply to the birth of the product of human conception, at any period of uterogestation, which when entirely separated from the mother's body (head, body, and limbs, but not of necessity the placenta or membranes) shows no signs of life. Signs of life are cardiac pulsation or sounds, breathing or crying.

To the Bureau of Records,  
DEPARTMENT OF HEALTH,  
THE CITY OF .....

Borough of ..... Registered No. ....  
Date of occurrence ..... 1913. Place, St. .... No. ....  
Character of premises .....  
Color ..... Sex ..... Period of uterogestation (in weeks) .....  
Time of death; before labor ..... During labor .....  
Actual cause of stillbirth .....  
Predisposing causes of stillbirth .....  
Signatures of medical attendants: .....  
Residence .....  
Residence .....  
Residence .....

PARENTAL HISTORY:  
Father: ..... Mother: .....  
Name .....  
Residence .....  
Birthplace .....  
Age .....  
Occupation .....  
Maiden name of the mother .....  
Number of previous pregnancies ..... Living births ..... Children living at present .....  
Date of report .....  
I, the undersigned, hereby certify that all of the facts stated in the above certificate and report are the truth to the best of my knowledge, information, and belief.

Signature of person reporting .....  
Residence .....  
Name and address of undertaker .....  
Manner and place of disposal of the body .....

**Discussion.** The following are items not generally called for in stillbirth certification blanks: Character of premises where stillbirth occurred; time of death of fetus; predisposing causes of death; occupation of father and mother; number of previous pregnancies; number of living births, and number of children living at present; and the status of the attendant and of the person making report. Information as to character of premises where stillbirth occurred is necessary in order to

determine the influence of housing conditions on the frequency of stillbirths; also information as to the stillbirths occurring in hospitals. Insertion of the clause, "time of death of fetus," will give information as to the proficiency of the medical attendant, and partially fix the responsibility for a large number of stillbirths. Predisposing causes of stillbirth should be given, as they furnish information as to the medical and social conditions, which can be corrected by those interested in prenatal work, and allow the mother the opportunity to have normal subsequent pregnancies. Occupation of father and mother should be stated in order to determine the influence of occupational diseases, and the influence of employment of pregnant women upon the causes and frequency of stillbirth. The items "number of pregnancies," "number of living births," and "number of children living at present" will give valuable information as to the individual case needing care and instruction during subsequent pregnancies; also information as to the frequency of stillbirths. The status of the medical attendant and the person making report are necessary to fix the responsibility for stillbirths, and to do away with physicians reporting stillbirths occurring under care of midwives.

**Time of Registration of Stillbirths.** A laxity in reporting stillbirths early puts a low valuation on stillbirth registration and upon the proper disposal of the dead. The following table shows for 1,281 cases the relation of attendance at confinement to the time elapsing between the date of occurrence and date of reporting of stillbirths.

	Three days and under	Five days and under	Ten days and under	Over ten days	Total
Physician .....	79.9	75.8	79.3	2	797
Hospital .....	188	252	308	23	311
Midwife .....	60	75	82	2	81
Coroner .....	39	52	67	2	69
Total .....	1,002	1,117	1,252	29	1,281
Percentage .....	78.2	88.7	97.7	2.3	1.00

In New York city stillbirths should be reported within three days from date of occurrence. You will notice that 21.78 per cent. of the stillbirths are reported after the legal time limit. That physicians and hospitals are most lax in reporting stillbirths within the prescribed time limit. If this condition exists in New York city, where birth and death registration is considered almost perfect, the conditions in other cities, States, and countries, must exert a great influence on the completeness of the stillbirth registration and upon the proper disposal of the dead.

**Disposal of the Remains of Stillbirths.** In investigating the stillbirth records of Manhattan for a period of seven months I was surprised to find that little attention was paid to the disposal of the remains of stillbirths. The coroner reported stillbirths which were found in street cars, ash and garbage cans, in the river, parks, and almost every conceivable place. Certificates stated that the remains had been put in toilets and disposed of in other improper ways. Hospitals generally retain the bodies for anatomical purposes. This all tends to put a low valuation on child life, stillbirth registration, and disposal of the dead. In order to determine the proper method of disposing of the remains of a stillbirth in New York city, I took the remains of

a stillbirth to the registration office and asked permission to retain the body for anatomical purposes. I was immediately confronted with the fact that I had violated the law by removing the remains from the place of death, and that it would be necessary for me to obtain a written permit from the parents in order to retain the body. After presenting the permit at the registration office a regular burial permit was given me, with the warning that I should keep it, so that if occasion demanded I should have evidence to prove that I had disposed of the remains in a proper manner. This procedure is entirely correct, but will hardly gain a complete registration of stillbirths; and I am quite sure it is not the procedure used in cases where persons have answered the question, "Where buried?" in the stillbirth record by stamping with a rubber stamp: "Body retained for anatomical purposes." Perhaps other physicians have had the same experience as I have had, and are avoiding the unpleasantness and loss of time by reporting stillbirths late or not reporting them at all.

*Expense of Proper Disposal of Stillbirth Remains.* The expense of proper disposal of the remains of stillbirths is a hardship which comes at a time when the family purse has already been greatly taxed, and this may also be partly responsible for the neglect of parents and doctor to register the stillbirth. The doctor is often called upon to dispose of the remains. By doing so he is violating the law, but he sees the financial condition of the family and takes the responsibility. But does he in such cases register the stillbirth? I believe not. To correct this unsatisfactory condition the departments of health of cities should have a crematory where bodies of stillborn infants could be disposed of when properly registered and the consent of the parents are obtained. This would mean the saving of thousands of dollars to poor people in a city like New York, and encourage a better spirit of co-operation among physicians with the health authorities in establishing registration, and at the same time promote prompt and complete returns and the proper disposal of the dead.

#### CONCLUSIONS.

The foregoing study presents the following facts: That the definition of the term stillbirth is of great importance from a statistical standpoint, as it may cause to be included or excluded a large number of cases in statistical data regarding births, deaths, and stillbirths.

That stillbirths are far more frequent than vital statistics indicate at present.

That the following factors influence the frequency of stillbirths: The sex and legitimacy of the child, the attendance at confinement, and the period of uterogestation of occurrence of birth.

That the season of the year has little influence on the frequency of stillbirth.

That the number of stillbirths occurring during the viable period is relatively high.

That the high stillbirth rate can be reduced by the systematic education and supervision of expectant mothers.

That there is negligence in reporting causes of stillbirths, and that this negligence greatly lessens the value of stillbirth registration.

That stillbirth registration is becoming recognized in all countries.

That there is need of uniform stillbirth registration laws which shall define the term and establish a standard for registration and reporting.

That the methods employed in the registration and reporting of stillbirths affects the value of the vital statistics of any city, State, or country.

That stillbirth registration is of vital importance from both a medical and social standpoint.

That the methods of disposal of the remains of stillbirths influence the registration of stillbirths.

477 BAINBRIDGE STREET, BROOKLYN.

## REPORT OF AN IMBECILE WITH PARESIS.

By J. ALLEN JACKSON, M. D.,

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The following case is of interest for three reasons: First, because it is the first case of its kind on the records of the Philadelphia Hospital for the Insane; second, because no record of any other case has been found; third, the pathology of this condition would be rather interesting on account of the fact that in paresis the cells of the highest type of development are involved; which cells are lacking in imbecility.

C. O., thirty-six years of age, machinist by occupation, was admitted to the Philadelphia General Hospital January 25, 1909, and transferred to the Philadelphia Hospital for the Insane February 2, 1909.

*Family History:* Patient's father died from senility; mother died as a result of burns. One sister was stillborn; two brothers and one sister living and well. No history of insanity or other nervous diseases in the family.

*Past Medical History:* During his youth, patient suffered from measles and severe attacks of tonsillitis, and about a year and a half previous to admission to the hospital he was kicked in the head by a horse.

*Social History:* Patient was born in this country and received a common school education, but was never bright in school. After leaving school he worked steadily and regularly until about a year and a half previous to his admission to the hospital; at which time he began to drink very heavily and used tobacco excessively. He never married; was a chronic masturbator, and indulged incessantly in this habit for one and a half years; during this time, he was slovenly in his habits and refused to do any work.

*Present Trouble:* Was always kind and generous, and would talk reasonably with his people until one month previous to admission. He suddenly changed all his habits and manners, became very dirty about his person, lost all interest in his surroundings and relatives, would sit for a long time by himself, and would not converse with anyone; he also became very selfish—would take things from everybody and, if he were not watched at mealtimes, would steal food from the plates on the table. He slept a great deal and refused to work. He was arrested once and sentenced to three months imprisonment, but served only two days; was again arrested when he was found attempting to set fire to his house; was finally picked up by the police as a vagrant because he was found wandering about the streets and apparently had no home, and was then sent to the Philadelphia General Hospital.

Initial mental examination made at the time of his admission to the Philadelphia Hospital for the Insane showed that patient was disoriented, confused, and could give no account of himself. He denied hallucinations, illusions, and delusions. He appeared to be happy and contented. The physical examination showed that patient presented many features of a high grade imbecile. His

head was egg shaped; face was asymmetrical. Pupils were unequal, the left was larger than the right; both pupils reacted promptly to light and accommodation; there was internal strabismus of both eyes. Tongue was protruded in the median line and was tremulous. Knee jerks were exaggerated; equal on both sides. Sensation was not impaired; gait and station were normal. Examination of the lungs was negative; there was slight hypertrophy of the heart and slight accentuation of the aortic and pulmonic second sounds.

Five months after his admission to the hospital a diagnosis of paresis was made. At that time there was an impediment in his ordinary speech, slurring on some catch words; there were some tremors of the lips when talking; pupils did not react to light, but reacted to accommodation, and knee jerks were slightly increased. Fifteen months later patient was examined in consultation with Dr. Charles W. Burr. At that time he was grandiose, and made the following statements: "H. C. gave me a million dollars. Mr. C. gives me everything I want and I am getting cigars and tobacco and everything else, and I got pipes and tobacco to give to the boys in the dining room. No sir, I'm not sick at all. I'm going to get people to work at it now. No sir, I'm well and happy. I'm going to give a party here to-night; I'm going to have a full orchestra. I've got a good recommendation here. I fix the tables up in the dining room nice, and everything else. I got everything, and I'm going to give them neckties, pins, and all. I'm going to have some birch beer. You phone to B. and D. and E., and tell them to send me some birch beer. No sir, I love tobacco, and I'm going to get plenty of it, too. I'm going to get everybody a bag of tobacco to-day, etc."

Patient was later confined to bed (date not recorded), and two months later succumbed. Clinically, the cause of death was regarded as pulmonary tuberculosis. Necropsy was not obtained.

## THE PRESENT STATUS OF SERUM THERAPY.

BY WALTER B. JENNINGS, Ph. B., M. D.  
New York.

Serum therapy, as the name implies, means treatment by blood serum and represents one of the recent discoveries of modern scientific medicine.

It has been said that the progress made in medicine (scientific medicines) during the last fifty years (1850-1900) has done more for real advancement than all the work of all physicians from the time of Hippocrates down to Edward Jenner. Since the dawn of medicine great things have been accomplished, but medical science never sprang forth full born as Athene did from the head of Zeus. Each step forward has been a natural and logical growth. Every advance in the progress of mankind depends upon the achievements of experimental science, as well as laboratory research. This is especially true of serum therapy, for without laboratory research, and particularly bacteriology, there could have been no such thing as serum therapy. Without the researches of Behring and of Roux we would not possess the lifesaving antitoxine which has practically robbed diphtheria of its terrors. At the same time, Behring and Roux could not have done their work without the discoveries of the diphtheria bacillus, the work of Klebs (1883) and Loeffler (1884). Yersin, Calmette, and Borrel, in producing an antitoxine serum for bubonic plague, were indebted to Kitasato (1894) for discovering the pest bacillus. In 1884, Nicolaier produced tetanus in mice and rabbits by subcutaneous injections of earth, and

about 1889 Behring and Kitasato were the first to show the possibility of immunizing animals against tetanus infection.

Serum having certain protective properties against some diseases have been used successfully in both animals and man. The serum from the blood of the rabbit, horse, guinea pig, goat, or of man is generally used. Generally the blood serum of an animal which has passed through a certain disease is taken, but in some cases normal blood serum is effective. If the animal has not had a certain disease, it may have been inoculated with certain bacterial products which causes its blood serum to contain some protective substances against that particular toxine of the bacteria used in the experiment.

The chemistry of blood serum is an interesting study. Dr. A. A. Epstein investigated eighty sera: thirty-nine cases from the blood and forty-one from effusions. He says that, normally, blood serum varies but little in its chemical composition in health, but marked variation occurs in many diseases. He thinks the striking feature was the variation of the serum in relation to its globulin content, which was markedly increased in cardiac diseases, pulmonary affections, diabetes mellitus, and parenchymatous nephritis. The globulin content of the serum was normal or below normal in tuberculosis, diabetes insipidus, and chronic interstitial nephritis. He says also that in those diseases in which the globulin was increased there appeared to be an accumulation of water and salt.

### *Theory of Serum Treatment.*

This brings us to the subject of immunity, but so vast is the subject and so many are the theories regarding it that it will be impossible for us to consider it except so far as to present a mere outline which will directly apply to the subject at hand. "The protective substances," says Dr. W. H. Park, "held in solution in the blood serum are clearly apparent in their effects, either in preventing the increase of the bacteria or neutralizing the toxic action of their products; chemically, however, they are but little understood, and although some of them have been shown to be to a large extent specific, still we have no knowledge of any chemical difference between them." In a general way one might think of these substances as globulins, but very complex. As a rule, the serum should be given before the bacteria have multiplied to a very great extent within the body. The immunity from the serum lasts from a few days to several months. The theory of Metchnikoff, or white blood cells (leucocytes) attacking the bacteria, cannot be entirely accepted, and only partially explains the phenomenon. Ehrlich believes the antitoxine to be a part of the cell substance which combines with the toxine and neutralizes it. Another theory is that the toxine in some way is changed in the body into antitoxine. It may be that, with our present knowledge, none of the theories is entirely correct.

### *Specific Serums.*

Under this heading we will divide serums into two classes, 1, normal serum, and, 2, immunized serum.



1. **NORMAL SERUM.** By normal serum we mean the blood serum of man or an animal that has not suffered from any given disease. Normal blood serum has been used in hemorrhagic disease with remarkable success of late. This treatment represents one of the recent advances in the practice of medicine, for many lives have been saved which would undoubtedly have been lost under the older methods of treatment. The use of human or other blood serums in cases of hemophilia has proved to be a measure of great value. Dr. J. E. Welch, in a preliminary report of his work at the New York Lying In Hospital, read before the New York Academy of Medicine a few years ago, proved the value of normal serum in hemorrhagic disease of the newborn, i. e., bleeding of the cord, subcutaneous bleeding, bleeding of the bowels, etc. Barringer reports a case of unilateral hemorrhage of the kidney which was controlled by the injection of human blood serum supplied by the patient's brother. V. M. Reichard reports a case of spontaneous hemorrhage in a child, thirty-six hours old, in which bleeding from the bowels and vomiting of blood were controlled by the use of normal horse serum (dose, fifteen c. c., subcutaneously). The infant fully recovered. M. J. Perkin reports the case of a boy, sixteen years old, cured by diphtheria horse serum. C. Koch and W. Klein (*Gynäkologische Rundschau*, 1912) report the case of a sixteen year old girl whose second and third menstruations pointed to hemophilia. The menses lasted three weeks, with bleeding from nose and gums. De-fibrinated blood from a normal post partum patient was injected, and there was no further bleeding. They think it possible that the physiological leucocytosis in the parturient woman may have aided in the cure. Claybrook suggests that the usually accepted conception of this condition may be wrong; that the trouble is not with the blood itself, but may be due to a condition in the intima of the vessels. He believes the intima secretes a substance that agglutinates and seals up the broken ends of the vessels, and thus stops the bleeding. This theory is not entirely correct, and does not explain the effect of the injected serum. Hemorrhages complicating typhoid fever have been reported in which serum injections controlled the bleeding.

Transfusion or infusion of blood might be briefly spoken of in considering this subject; but it not only makes use of blood serum, but whole blood as well. It has been practised for surgical shock and collapse from hemorrhage, gas poisoning, and septic conditions for as long as one hundred years or more. Tillmann (Leipzig) once said: "I fully agree with Bergmann and others that transfusion is not only a useless, but a dangerous operation." Since Tillmann's time, however, we have made much progress, so that to-day transfusion can be performed safely and successfully. The increased knowledge of the physiology of the blood has shown that the dangerous and often fatal results were due to agglutinins in the blood serum of the donor. It has been found that individuals fall into definite groups in regard to so called isoagglutination, and Dr. M. Fishbein, of Chicago, describes an easy test which takes only half an hour. (*Journal of the American Medical Association*, September 7, 1912.)

2. **IMMUNIZED SERUMS.** (Antitoxines.) It has been found that the normal animal body responds to the injection of very small amounts of certain bacterial toxins by the formation of antitoxines which are antidotes to their respective toxins. This fact led to the production of curative serums.

1. **Diphtheria antitoxine.** Prepared from immunized horses by precipitation and other treatment of the serum albumins, a portion of the globulins and all inorganic salts being removed. It is a solution of the protective substances, together with a portion of the serum globulins. Its use is twofold: First to cure the disease; second to immunize those exposed to the disease. The dose in the first instance is from 3,000 to 6,000 units, in the latter from 500 to 1,000 units, depending upon age. This serum has reduced the mortality enormously, as the following table taken from the New York city health department bulletin shows:

	Number of cases injected	Case fatality
1905 .....	3,458	13.7 per cent.
1911 .....	6,167	5.6 per cent.

2. **Tetanus antitoxine.** This possesses a distinct prophylactic value, but should be administered early, even before symptoms appear, although Dr. Irving S. Haynes reported two cases of tetanus treated with this antitoxine with recovery. The dose is 1,500 units—to combat symptoms, from 1,500 to 3,000 units every six to twelve hours. Dr. F. R. Torres (Buenos Aires) says that 120 c. c. of tetanus antitoxine should be the rule. He calls this the saturation dose.

3. **Antimeningitic serum.** This serum contains opsonins, bacteriolysins, agglutinins, and antiendotoxines developed as the result of injecting sound horses with endotoxines, killed cultures, and finally live cultures of *Diplococcus intracellularis* (Weichselbaum). The medical profession is indebted for this to Dr. Simon Flexner, of the Rockefeller Institute, who first produced this serum (1907). It is for the treatment of cerebrospinal meningitis, and is administered by doing a lumbar puncture, removing some of the cerebrospinal fluid, and replacing it by the serum, in doses of twenty c. c., given early. Under serum treatment in this disease the mortality has been lessened to about one third of what it formerly was. Levy punctured the fontanelle, in a child 3½ months old, and passed a needle into the lateral ventricle. The infant recovered.

Dr. Simon Flexner, in discussing the report of his 1,300 cases of epidemic meningitis, says:

The mortality of this disease can be greatly reduced by the application of the specific serum treatment, and the extent of the reduction is determined by two main factors, the period of the disease at which subdural injections of the serum are begun and the age of the persons affected. In view of the fact that the average mortality during the pandemic was approximately seventy per cent., the gross reduction was somewhat less than two thirds. On the other hand, the statistics presented indicate that general early diagnosis and prompt institution of the serum treatment are capable of still further depressing the mortality.

Although at first regarded as doubtful, it appears that fulminant cases of epidemic meningitis are not wholly without the sphere of beneficial influence of the serum.

4. **Antistreptococcus serum.** This is at present supplied in two forms. The one is obtained from horses which have been treated with numerous strains of the ordinary streptococci, such as are found in cellulitis, erysipelas, and puerperal fever.

The other is a polyvalent serum obtained from horses receiving a typical streptococci from cases of endocarditis, pneumonia, etc. The dose is from twenty c. c. to 50 c. c. hypodermatically.

5. Antipneumococcus serum. This is a polyvalent serum from horses receiving numerous strains of pneumococci. Dose, from twenty c. c. to fifty c. c. F. and G. Klemperer have had promising results in six cases of pneumonia. All the patients had a decided fall of temperature in from six to twelve hours after subcutaneous injection of from four to six c. c. of the serum. E. N. Sill has used this serum in children with pneumonia from two to five years of age. (Dose, ten c.c.). Dr. Rowland G. Freeman, in his paper on Serum Treatment in Pneumonia, says:

As to the effect of the serum, there was in many cases an immediate change in the appearance of the child. Children that looked septic, were apathetic, with anorexia, after the injection, had a good color, were brighter, took the feedings better, and seemed much improved, although the condition in the lungs was unchanged.

In conclusion, he says:

The serum injection while apparently affecting favorably the course of the disease in some cases, appears to have no results in others; that in most cases there appears to be a better reaction on the part of the child after injection than before. It was usually followed by some reduction in leucocytosis, and the percentage of the polymuclear leucocytes was also diminished.

6. Serum for influenzal meningitis (Flexner).

7. Antigonococcic serum. This serum is obtained from the blood of horses that have been inoculated with gradually increasing quantities of a toxine from the most virulent strains of gonococci obtainable. It is not used in acute cases, but is of value in arthritides and other complications.

8. Serums of uncertain value. Under this head we will consider briefly some of the newer serums which have not been long enough used or not used in a sufficient number of cases to judge of their permanent value.

"Fetal serum in the onset of labor" (Rongy). In uterine inertia the serum was effective. Seven out of nineteen cases proved negative. In one case with threatened eclampsia the serum not only caused the onset of labor but all urinary symptoms (albumin and casts) cleared up after the first injection. Best reaction with small injection first, followed by large doses four to five hours later (five c. c., twenty c. c. after five hours) use three, four, five, or six doses. (*New York State Journal of Medicine*, March, 1913.)

E. Benjamin (*Therapeutische Monatshefte*, February, 1913) uses horse serum inactivated at 56° C. in scarlatina. He thinks that it almost invariably mitigated the disease into an abortive type. Dose, from five to seven c. c.; protection lasts from twelve to fourteen days.

Autoserotherapy in Serofibrinous Pleurisy (*Journal of the American Medical Association*, March 29, 1913). Dr. Maurice Fishberg, New York, says that it is devoid of danger. When the contents of the pleural cavity are found to be serous, the needle should be withdrawn completely, but when its point is brought to the subcutaneous tissue it should be injected then and there. Dose, two to five c. c. Re-

lief will come within two or three days. This treatment is worthy of further trial.

Serum in Exophthalmic Goitre (Roger and Beebe).

Serum in Sympathetic Ophthalmia (H. N. Pratt).

Scalvo's serum in anthrax (vaccine is better).

Serum in Toxemia of Pregnancy. A. Mayer (*Zentralblatt für Gynäkologie*, September 16, 1911) used twenty c. c. of normal serum from a pregnant woman in a case of eclampsia with benefit. He gave the second injection after the twenty-first convulsion.

Snake serums, cobra serum, etc. (some of great benefit).

Antiserumanaphylaxis. This is a serum from an animal that has anaphylactic reaction injected into another animal and it produces anaphylaxis.

Coley's serum, so called, for cancer, is not a serum, but a toxine.

Hodenpyl's ascitic fluid, in case of cancer of liver.

### Serodiagnosis.

1. Widal reaction in typhoid fever.

2. Pfeiffer's serum reaction in cholera. The blood serum is feebly antitoxic but strongly bactericidal.

3. Yersin's serum in bubonic plague.

4. Serodiagnosis of pregnancy by epiphanin reaction. (Described by E. Mosbacher, *Journal of the American Medical Association*, January 21, 1911.)

5. Serodiagnosis of cancer (not certain).

6. Serodiagnosis of tuberculosis (not practical). (O. Roepke, Würzburg.)

7. Anaphylaxis in Diagnosis of Cancer. Dr. J. L. Ransohoff, of Cincinnati (*Journal of the American Medical Association*, July 5, 1913) took two series of guinea pigs; one was sensitized with normal blood serum, 0.01 to 0.5 c. c., and the second series with the same amount of blood serum from an individual bearing advanced cancer. After two weeks each pig of both series was given intraperitoneal injections of five c. c. of blood serum from a cancer bearing individual. The results were decisive. The first series had anaphylaxis promptly and severely; the second series had mild symptoms, if any.

8. Wassermann's reaction in syphilis. This depends upon complement fixation. If the case is not specific, the complement is not bound and is available for hemolysis; the mixture becomes red, and the test is negative.

### SUMMARY.

In summing up, the writer would say that he has endeavored to treat the subject of serum therapy from a clinical and practical point of view. Bacterial vaccines have been excluded, as they are killed bacteria and their toxins in suspension; therefore they are not serums. We possess strong evidence of the direct effect of certain antisera upon their respective toxins, and that they have proved their usefulness as a therapeutic agent. On the other hand, we believe that in diphtheria, epidemic meningitis, and hemorrhagic disease there are no other or better means of treatment in combating these diseases within the knowledge of the medical profession at the present time.

## NOTE.

Serotherapy in Nephritis. The December, 1912, number of *Revista de medicina y cirugía prácticas* has an interesting article by M. M. Domínguez in which he refers to J. Tessier's method of serum treatment. He says that serum treatment in nephritis has passed the tentative stage into one that is practical and successful. The treatment consists of the subcutaneous injection of serum from the renal vein of the goat. The blood in this vein must contain the internal secretion of the kidney, if any exists, and clinical experience confirms this. Goat serum is less toxic and less likely to induce serum sickness than horse serum. No case of anaphylaxis has followed its use. Domínguez begins with doses of from ten c. c. to twenty c. c., repeated on the fourth or fifth day. In urgent cases the injection can be given every day.

140 WADSWORTH AVENUE.

## THE MANAGEMENT OF PULMONARY TUBERCULOSIS,

*With Special Reference to Those Patients Who May Be Successfully Treated While Following Their Vocations in the City.*

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Pulmonary tuberculosis, as is well known, is a chronic, infrequently progressive disease, sometimes fatal, in the successful treatment of which the question is how best to avail one's self of the well known natural resistance of the body to the disease in order to overcome the attack of the tubercle bacillus and thus bring about a clinical cure. That this is far from unattainable is proved by the fact that while the great majority of people are pathologically tuberculous, only a very small percentage of the whole actually die of the disease. This being a fact, the problem is how to diminish that small number still more. The rational answer is by following and amplifying Nature's method. As there is no royal road to the treatment of tuberculosis so far, and it is very doubtful whether a specific cure for pulmonary tuberculosis, one that will destroy the germs in the tissues and thereby permit the healing of the lesion, such as mercury or arsenic in syphilis, will ever be found. It is much more logical though less poetic to suppose that tuberculosis will disappear in time just as smallpox and the plague have from civilization, namely by prevention and right living. For one thing, any agent that will kill tubercle bacilli in the body, suitably applied, would surely destroy much less resistant forms of parasitic vegetable life, and it is inconceivable that we shall ever come much nearer to directly antagonizing such a universal means of death as by the various infectious diseases, as well look for the elixir of life.

The diagnosis of clinical pulmonary tuberculosis is, in the great majority of cases, not much more difficult, if one goes about it the right way, than the diagnosis of typhoid fever—the history and clinical symptoms, the physical signs, the proper examination of the sputum, the Röntgen ray, and finally tuberculin injected subcutaneously, will

assist to properly diagnosticate practically all cases; and this diagnosis contrary to the usually dictum is not usually the discovery of a new infection by any means, but that of a first and more often a second relapse of a comparatively long standing clinical pulmonary tuberculosis. The first infection "cured" itself unbeknown to anyone, even the patient. The relapse that followed it consequent on disregard of simple rules of health was probably overcome while the patient was temporarily living a proper hygienic life with regulation of the various bodily functions, while under treatment for whatever was diagnosed as the illness at that time. The present and probably the third clinical manifestation of the original infection brought on by the periodic dissipation of energy in work and play is at last diagnosticated for what it is. Now, just as the first attack and following relapse was "cured," so also could this last one, and with a much better chance of permanence, for the simple reason that now its true nature being known, proper living will often prevent its recurrence. Therefore the treatment of pulmonary tuberculosis as we see it resolves itself into the treatment of its relapses.

Now, while it is impossible to lay down rules to govern every case of pulmonary tuberculosis, yet for purposes of treatment they are best divided into three classes, according to the degree of their resistance, namely: 1. The actively resistant; 2, the passively resistant; and 3, those offering little or no resistance.

Resistance may be approximately measured by the amount of tissue involvement before the patient presents himself for treatment. This will readily explain why one patient will come to us for treatment the first time with extensive lung involvement and even cavity formation, and yet be not much sicker apparently than another one with only slight infiltration at the apices. The difference in tissue destruction as compared with the clinical symptoms is the true index of the individual's resistance to tuberculosis, and forms the logical basis for treatment. Under this scheme a lung involvement of Turban 1, with marked systemic reactions such as daily elevations of temperature, much cough, and expectoration with general weakness, etc., would be classed as passively resistant; and if the condition persists in spite of treatment it would naturally fall in the little or nonresistant class and vice versa.

The treatment of pulmonary tuberculosis in the actively resistant class is very satisfactory. Right here let it be frankly confessed that such patients do well not so much because of the treatment instituted, as because of their great natural resistance to the disease. A good number of these patients, particularly if they are in fair economic circumstances, will do very well right here in the city while attending to their daily affairs. All that is necessary is proper attention to and regulation of diet, elimination, habits, and rest. It is nothing short of mismanagement to send such a patient away among strangers and break up his family, his business, and long established habits of life, merely to carry out what has been dubbed the hygienic dietetic sanatorium treatment, as if a hygienic dietetic régime could only be carried out



in a sanatorium. These patients will do at least as well if left in the city continuing their accustomed vocations in the midst of their families and friends. Most important of all, the improvement in their nutrition will tend to be much more permanent if the same has been gained while in the city, and of course that is the determining factor in tuberculosis of the lungs.

The writer knows numerous instances where definitely tuberculous patients are attending to daily strenuous affairs, and have been doing so for years, with no demonstrable clinical injury, leading lives useful to themselves, their families, and society by simply observing the cardinal principles of a hygienic life. The prognosis in these cases is excellent. No doubt many of these patients live longer by conserving their vitality, than they might have lived without tuberculosis.

The following from the *Journal of the Outdoor Life*, for June, 1913, in the report of the last annual meeting of the National Association for the Study and Prevention of Tuberculosis, is of interest:

One of the most interesting papers presented at the meeting was that by Dr. Edward C. Brenner, attending physician of the Home Hospital in the East River Homes at Seventy-eighth Street and East River, giving one year's results of the work of that institution. The Home Hospital was established a little more than a year ago by the New York Association for Improving the Condition of the Poor.

Under the Home Hospital plan, the family unit is preserved, the afflicted family occupying its own apartment in the hospital, and living under the best hygienic conditions. The patients are isolated as far as possible from the well members of the family, and receive the equivalent of sanatorium treatment.

The results obtained with the adult consumptives compare favorably with reports of the leading sanatoria. Sixty-one per cent. have become apparently cured, twenty-two per cent. have had their disease arrested, and eleven per cent. are much improved. And, these astonishing results have been obtained in the very heart of New York city.

The most careful comparison of the cost of the Home Hospital with various country sanatoria, hospitals, and preventoria, reveals the fact that the Home Hospital treatment costs only from forty to fifty per cent. as much as the ordinary methods of treatment. It would seem, therefore, that the opening of the Home Hospital in New York marks an epoch in the practical and humane treatment of tuberculosis among the poor.

The exact scientific explanation that will account for the relative immunity to the patient's own infection is lacking. Evidently a balance has been struck between the invading organism and the resistance to the same, for physically the patients have just as much lung involvement as ever. It is among this and the next class of the tuberculous (to be described later) that the numerous special treatments, vaccines, sera, and treatments of all kinds that crop up ever so often draw their illustrative cases. The authors of such cases intentionally or wilfully ignore the enormous natural resistance on the part of the human body to the tubercle bacillus and deliberately take whatever credit there is to themselves and their special treatments. It is but natural in reviewing the thousands of deaths from tuberculosis, to overlook the countless millions who have been definitely infected and in whom the infection has been overcome absolutely, and entirely unaided, because unsuspected, by both

the patient and his medical adviser. A few words of caution before we leave the treatment of this class of patients, and that is that the patient is not to be considered as having struck that balance above mentioned until he has reached and maintained the proper body weight for his age and height as judged by his own standard. Also, that his pulse at rest must be below 80. These together form the most delicate index we have of the amount or lack of tuberculous intoxication of the body.

Treatment of the passive resistant cases should be directed toward the end of getting them among the actively resistant above mentioned. This class includes all those who show the effects of the toxemia of tuberculosis such as slight daily elevation of temperature, pulse at rest over 80, and digestive disturbances with subnormal weight. Those are the patients who require absolute rest and supervision with the attention that they could get best only away from their homes and usual surroundings, preferably in a sanatorium in the country. These are typical examples of an acute exacerbation on a chronic process. The great majority of frankly tuberculous patients as we meet them belong to this class. While on the one hand a small but constant number of them eventually get into the actively resistant class above mentioned, a little larger but equally constant number drift into the little or nonresistant class. A good working prognosis of these passive resistant patients is that fifty per cent. of their number will succumb in five years, of the other fifty per cent. one half or twenty-five per cent. will live for a variable length of time beyond that, despite considerable tissue involvement with occasional relapses, while the last twenty-five per cent. will eventually get into the actively resistant class described above and remain clinically cured.

An open man to man talk with these patients telling them the exact facts and carefully explaining how far their future health lies in their own hands will do wonders toward prolonging their lives; a simple and rational explanation of the cardinal facts of right living, which for them means right working, right eating, right resting, above all clearly impressing on their minds that they have none other than the old fashioned form of tuberculosis or consumption of the lungs. As these people do not as readily imagine themselves to be really tuberculous as they imagine others to be so, it is also well to tell them that they are physically a little below par, and that they must not attempt things they know to be beyond them, and that on account of their condition they will probably for the rest of their lives have a certain amount of cough and expectoration which, beyond exercising the necessary precautions in sanitary disposal, etc., need give them no anxiety, unless they become aggravated to the point of keeping them awake of nights or interfering with meals, etc. It is also well to impress on their minds that while one or several thorough examinations of the chest at first are essential to accurately locate the lesion and measure its extent, further frequent examinations are not only unnecessary but even objectionable, as these only serve to keep the patient unduly keyed up about himself to no purpose, as, unfortunately, the lesion in pul-

monary tuberculosis is not one that the physician can directly antagonize. The patient getting tired of what he looks upon as the wilful inaction of his physician, almost pathetically and quite unconsciously presents himself for examination, more for the purpose of offering the doctor a chance to do something for him, if something can be done, than for any other reason. Furthermore, once the lesion is properly diagnosed the best means of determining the patient's condition is by a careful observation of his clinical symptoms, particularly his digestive and assimilative functions as evidenced by his weight. Right here it would not be out of place to warn against waiting for a rise of temperature before considering the patient's condition as having relapsed. Elevation of temperature is not an early sign. It is one of the active symptoms of the system cornered and fighting for its existence, in which, however, it is not as often successful as it might be.

The majority of the passively resistant class do very well on the classical treatment of fresh air, good food in plenty, and rest as the best means of improving their nutrition; once their acute symptoms have subsided, moderate exercise is to be instituted, being gradually increased with the patient's tolerance, as shown by his general nutrition, temperature, and pulse. After these latter have remained normal for a time (not less than six months), the patient may cautiously try to return to his former work and environment. Very often one will find an initial gain in weight on return of the patient to his former life, a most hopeful sign, sometimes there will be a slight drop in weight at first, only to be regained in a few weeks.

The third class, or those with little or no resistance, as manifested by acute symptoms of the disease that does not subside under the continued rest treatment. These must stay under the most favorable surroundings indefinitely, so as to offer the best chance of recovery to the few who are certain to improve and even be clinically cured in time. An institution in the country offers the best solution of the problem of their disposal. Let it be well understood, however, that they they are by no means hopeless. While miracles occur in the course of every disease, they are apparently least frequent in pulmonary tuberculosis. But the rational place for this class is the tuberculosis hospital, where they could receive the attention so necessary to their comfort, and at the same time be removed as a source of infection from the rest of the community.

1041 MADISON AVENUE.

## A MODIFIED DRAINAGE FOR SUPRAPUBIC PROSTATECTOMY.

BY GEORGE H. DAY, M. D.,  
Louisville, Ky.

Given a perfect system of drainage in suprapubic prostatectomy, could we reduce the mortality to that of the perineal?

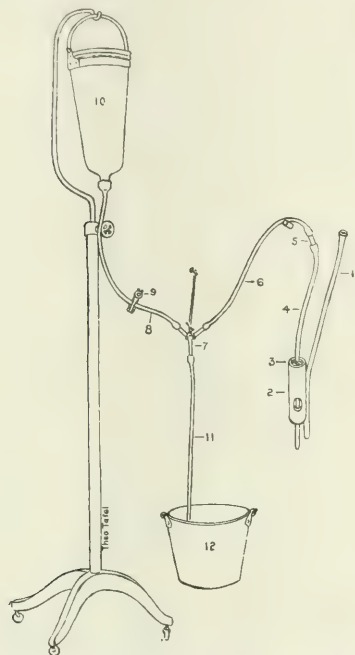
The pendulum of opinion regarding the perineal and suprapubic is swinging, I think, toward the

latter—many disciples of the perineal method are now devoted advocates of the suprapubic operation. It is not my desire to advance arguments in defense of the suprapubic. However, to more intelligently discuss suprapubic drainage I must call attention to one point in the anatomy of the prostate and its annexa. The prostate lies at the base of the bladder, upon the triangular ligament and above the aponeurosis of Denonvilliers. The traumatism resulting from the suprapubic operation is reduced to the minimum as compared with that of the perineal, and so the destructive anatomical changes resulting are not to be compared, as the traumatism of the suprapubic is limited to the abdomen, bladder, and prostate. The greatest argument in favor of the perineal route has been that of drainage, and the greatest argument against the suprapubic, I believe, is also that of drainage. Then, if we have a perfect suprapubic drainage—one that can be depended upon at all times to drain—would it not be possible to lower the mortality to that of the perineal?

In Freyer's reports he enumerates cases by the hundred, describing his operation most minutely, going extensively into the pathology of the gland; but describes no method of drainage aside from that of a goose neck shaped glass tubing to fit into a short heavy drainage tube, and this at all times in my hands has failed to drain. Heretofore the drainage in suprapubic cystotomy resulted in packing heavy layers of absorbent cotton over the abdomen, and allowing the cotton to absorb the overflow—the patient literally floating in his own urine and naturally being anything but comfortable. Several years ago Dawborn introduced a method of siphonage which was the first step in the direction of suprapubic drainage. I have since modified his idea, and for the past four years have had the pleasure of using a system which settles in my mind the very unsatisfactory question of bladder drainage. Numbers of operators have from time to time introduced methods of siphonage, but all were impracticable in my hands because the abdominal end of the tubing of the Dawborn system and others, placed in the bladder cavity, because of the fluid passing down the long arm of the "Y" causes a vacuum. The tubing in the bladder is drawn and twisted about by this vacuum, and the distal end is drawn to the walls or base of the bladder, occluding completely the lumen of the tube—naturally no drainage. Then it was suggested that a glass irrigating nozzle be introduced into the cavity. This procedure had the same fault as the Dawborn plain tube, the bladder tissues always being drawn and occluding the end of the tube.

Adopting the Dawborn system partially, I next introduced into the abdominal cavity the ordinary Marion tube, four inches long, one inch in diameter. This tube is heavy and noncollapsible, and in the vesicle end has two large eyes for the passage of clots and urine. To the outer portion is fastened a small rubber catheter passing from end to end, through which we can pass the different irrigating solutions. At the external opening we have a perforated stopper with a larger centre opening, through which the Dawborn irrigating tube passes. We then have the Marion tube acting as a caisson, the bladder contents passing through the end and

eyes of the stationary tube and being withdrawn through the smaller or inner tube without the lumen of this inner tube being interfered with at all by the vacuum. The siphonage is regulated so that the bladder contents are drawn off as fast as they accumulate.



1, Catheter for irrigating purposes; 2, Marion tube; 3, metal stopper; 4, drainage tubing; 5, glass connecting tubing; 6, soft rubber drainage tubing; 7, glass Y; 8, irrigating tubing; 9, regulating cut off; 10, a large irrigator; 11, irrigating tubing; 12, receptacle for waste.

We now have water passing from 10, through 8, 7, 11, into 12, causing a vacuum in 6, and withdrawing the bladder contents through 4, 5, and 6, into 11 and 12.

We have used Marion tubes of different diameters, the larger being  $1\frac{1}{4}$  inches, the smaller  $\frac{3}{8}$  inch. If city water is obtainable in the patient's room, figure 8 can be connected to the faucet. Then we dispense with the necessity of refilling the irrigator (10), and we have a continuous stream of water passing through 8, 7, 11, and into 12, or, better still, back to the wash stand to be carried off as waste water, the water passing through 8, 7, and 11 of course does not at any time touch the patient and need not be sterile—we simply depend upon this water for our vacuum.

If bladder irrigation or continuous irrigation is desired, the irrigator can be attached to 1, irrigating fluid passing through 1 into the bladder and withdrawn as rapidly as desired through 4, 5, and 6. All that is necessary is to regulate properly 9, and the drainage is continued indefinitely.

THE PAUL JONES.

## A CASE OF ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF PLEURISY WITH EFFUSION.

BY ROBERT M. ALEXANDER, M. D.,  
Wernersville, Pa.

E. F., female, aged twenty-eight years, was admitted to the medical service of Dr. L. Napoleon Boston in the Philadelphia General Hospital, September 11, 1912. The chief complaints upon admission were general weakness, pain in back, distended abdomen, and dyspnea.

**Family History:** There was no history of cardiac, renal, specific, nor malignant disease, nor of tuberculosis.

**Past Medical History:** Patient had the usual acute diseases of childhood, also typhoid fever and diphtheria.

**Social History:** Married; occupation housework; nursed her mother in law in her last illness, who died of pulmonary tuberculosis two years previous to patient's admission to the hospital. Two sisters in law had also died of tuberculosis in the same house where the patient lived until her present illness. The patient used no tea, coffee, alcohol nor tobacco. Her present illness began three months ago by a swelling of the abdomen; later, she suffered from dyspnea, pain in back, and slight cough, accompanied by general weakness and a rapid, progressive loss of flesh.

**Thermic Features:** The temperature upon admission was found to be  $99^{\circ}$  F., and three hours later it rose to  $101^{\circ}$  F. Pulse was 110. The respirations were 30.

**Physical Examination.** The patient was a white woman, rather poorly nourished and anemic, with no appreciable enlargement of the superficial glands. The pulse was rapid (110 to 120), regular, soft, and compressible. The tonsils were small and congested. The pharynx was congested. Anteriorly, the chest was flat, the right apex not showing normal expansion; there was an apparent bulging in the interspaces of the right side. The apex of the heart was displaced toward the left, as far as the midaxillary line. Palpation showed an absence of vocal fremitus below the third rib on the right side anteriorly, and below the angle of the scapula posteriorly. On percussion, flatness was obtained over the right lung below the angle of the scapula posteriorly, and below the third rib anteriorly. Percussion over the portion of the right lung above the third rib, and in the infraclavicular and supraclavicular spaces, gave an overresonant note, or Skodaic tympany. Overresonance was also noted over the greater portion of the left lung. On auscultation, exaggerated breathing was heard over the right half of the chest above the level of the third rib, and the respiratory murmur was accompanied by fine râles. To the right of the spine, and on a level with the third rib anteriorly, the breathing was decidedly harsh, and usually accompanied by fine râles. Over the surface of the chest below the third rib anteriorly there was a total absence of breathing. Vocal tactile fremitus was absent over this area, and there was also an absence of the spoken voice sounds. At the upper level of the flatness anteriorly egophony was fairly distinct, and was equally well heard at a point on the same level between the scapulae. The breathing over the left lung was moderately exaggerated, due to compensatory emphysema, but at no time was there any evidence of disease of the left lung. The heart sounds, in addition to being rather rapid, suggested an appreciable diminution in muscle tone, and the second pulmonic sound was decidedly accentuated. A physical examination of the abdomen revealed the classic signs of ascites. There was no evidence of disease of the pelvic organs.

**Laboratory Examination:** The blood showed evidence of secondary anemia, without leucocytosis. The urine examination was negative for sugar and albumin. The von Pirquet tuberculin reaction was fairly positive.

**Treatment:** One day after admission the right pleural cavity was aspirated, and six pints of straw colored fluid removed. Two days after this operation the peritoneal sac was aspirated, and six quarts of clear, straw colored fluid were withdrawn. Almost immediately following the removal of the fluid from the right pleural cavity there was a reaccumulation, which necessitated its removal at a second sitting; five and one half pints were withdrawn. In all, the chest was aspirated five times at intervals of from seven to fourteen days. At the suggestion of Doctor Boston at the last three times an artificial pneumothorax was produced, when it was found that the



amount of fluid was greatly lessened. Air was introduced by leaving the aspirating needle in the chest with a thumb held over it. Three or four deep breaths were taken with the thumb removed from distal end of needle, and the needle was then removed. With the needle in the chest wall, air could be heard passing into the pleural cavity. All the physical signs of pneumothorax were produced.

The patient was so much benefited by this procedure that I decided to try the same method in the peritoneal cavity. At the second tapping, after the fluid had been removed, the cannula remaining in the abdominal wall, the tissues of the flanks were grasped in the two hands and lifted up. Air could be heard rushing in. When the cannula had been withdrawn the abdomen was gently massaged, so that the air could penetrate, as far as possible, all parts of the abdominal cavity. Tympany over the liver showed the presence of air in the peritoneal cavity. This procedure was practised on two occasions. The amount of fluid was markedly diminished at subsequent tapplings. The fluid from both cavities showed a large number of lymphocytes and a few endothelial cells. No micro-organisms were found. The fluid had a specific gravity of 1.020; albumin 4.77 per cent. The peritoneal cavity of a rabbit was injected with five cubic centimetres of the fluid from the patient's peritoneal cavity, and the rabbit did not die.

X ray examinations by Doctor Manges before aspiration showed no evidence of consolidation in the lung, but did show dense adhesions in the right pleural cavity and a displacement of the heart to the left.

The patient improved under treatment, and went home after being in the hospital two months and five days. She returned for further fluoroscopic examination, nineteen days after her discharge. A pint of dark straw colored fluid was removed from her right pleural and peritoneal cavities, and two days later she was discharged. I saw her seven weeks later, and was unable to detect the presence of fluid in either her pleural or peritoneal cavity. She was able to do her Christmas shopping and later began house-keeping, not requiring a maid to assist her. Soon, however, a cough developed, and eleven weeks after I last saw her, she died in the County Hospital at West Chester, Pa., after the removal of eight quarts of fluid from her abdominal cavity.

## A CASE OF MEASLES COMPLICATING PREGNANCY.\*

BY SAMUEL J. SCADRON, M. D.,  
New York,

Adjunct Attending Surgeon, Jewish Maternity Hospital.

The occurrence of measles during pregnancy and the puerperium is of sufficient rarity to warrant my reporting this case,

CASE. Mrs. R., aged twenty-five years, primipara, pregnant seven and a half months. Family history was negative. Past history: She had had no serious illness, never had had measles nor any other disease of childhood.

Present history: In March, 1912, the patient contracted a feverish cold accompanied with catarrhal symptoms of the respiratory tract—coryza, sneezing, cough, and headache. These symptoms increased in severity, and on March 11th, she was obliged to take to bed and summon a physician; she then had fever, marked headache, cough, redness of the eyelids, photophobia, and reddish blotches on the cheeks and forehead; the fever continued and the symptoms became aggravated.

On March 13th, she began to have abdominal pains, and on examination I found her in active labor; the cervix was sufficiently dilated to admit two fingers, vertex presenting, membranes intact; her entire body was covered with a reddish blotchy rash, and she presented all the other typical symptoms of measles; temperature was 103° F., and the pulse was 110. She continued in active labor, and within two hours was delivered of a three and a half pound child, soon followed by the placenta. The child was perfectly normal and had no rash. One hour after labor the patient

was in good condition. The temperature fell to 100° F., and the pulse to 90. The uterus was well contracted although I did not administer ergot. The puerperium was uncomplicated and I discharged her on the twelfth day in good condition, except for a mild conjunctivitis and a slight bronchial cough. The child was normal, nursed during the entire puerperium, and gained eight ounces.

On March 24th, I was asked to see a niece of the patient, six years old, who lived in the same house and was ill. I found her with a feverish cold, bronchitis, and Koplik's spots. Within twenty-four hours a rash developed over the face and the entire body. This child unquestionably contracted the measles from the aunt.

This case is interesting from both the standpoint of the mother and that of the child. As regards the mother, this complication rarely attacks pregnant women and when it does it usually interrupts the pregnancy. In nine out of the eleven cases of measles occurring during pregnancy, reported by Klotz, there was a premature expulsion of the fetus. Some authorities consider this a very dangerous complication, as it predisposes the patient to post partum hemorrhage and pneumonia.

Hulbert reported two fatal cases. (*St. Louis Courier and Medical Journal*, XVII, 1887, p. 549.) The first patient died on the third day after delivery, and the second patient died on the tenth day post partum. The autopsy on the first patient, two hours after death, revealed the following: No evidence of inflammatory condition of the pelvic organs. The abdominal viscera were congested; the lungs were normal. The heart was arrested in systole. In the left ventricle, intimately interwoven among the chordæ tendineæ, was found a blood clot. It was fibrin and blood mixed, mostly fibrin, or a clot that had been some hours in forming, which formation progressed slowly and steadily. Nothing was found in the veins leading to or from the heart, but fluid blood.

Jardin reported two cases of measles in the puerperium, and in both cases the attacks were mild, and the patients made an uneventful recovery. (*Transactions of the Obstetrical and Gynecological Society*, 1900-1902.)

As regards the child: Cases have been reported where the fetus had been affected in utero and showed signs within a few hours of birth. A case of M. Campbell is interesting. (*British Medical Journal*, February 10, 1905): Mother exposed, January 28, 1905; on February 1st, normal labor; on February 9th, patient had a rise of temperature with catarrhal symptoms; on February 11th, rash developed; on February 15th, child became ill; and on February 17th, rash on child. Another boy of the same mother was exposed at the same time, that is January 28th. The mother, however, had had a previous attack. The symptoms manifested themselves twenty-four hours earlier in the healthy boy. The attack was more severe in the boy than in the puerperal woman. The attack was least severe in the case of the fourteen day infant. In my case, although the infant was exposed especially during nursing periods, the child did not contract the disease.

This case was referred to me through the kindness of Dr. A. J. Rongy.

247 EAST BROADWAY.

\*Reported at the meeting of the Clinical Society of the Jewish Maternity Hospital.

## Therapeutic Notes.

**Salicylate of Iron in Erysipelas and Other Affections.**—M. C. S. Lawrance, in the *Practitioner* for March, 1913, describes the uses of a preparation made by adding to a solution of sodium salicylate and potassium bicarbonate in equal amounts the *British Pharmaceutical Codex* liquor ferri perchloridi. For adults the dose generally consists of  $7\frac{1}{2}$  grains (0.48 gramme) of the salicylate and the bicarbonate, and  $7\frac{1}{2}$  minims (0.46 c. c.) of the iron solution. The latter corresponds approximately to four minims (0.24 c.c) of the liquor ferri chloridi, *United States Pharmacopæia*. The resulting violet colored solution is quite palatable, though, of course, it may be sweetened if necessary. It does not depress or constipate and possesses a well marked antipyretic and sometimes a diaphoretic action.

In erysipelas the author has found the preparation much more effective than any other remedy tried. The disease never lasts more than ten days, and in most instances is cured in three or four days. All pain is relieved. No deaths occurred among the cases in which it was used. With the patient in bed and on a liquid diet, the author applies warm compresses of oatmeal water to affected area, aseptically punctures and drains the blebs should these form, and administers the salicylate of iron preparation every three hours. The treatment should be commenced with a purgative, such as calomel. Where there is well marked delirium, trional is used. When the symptoms abate the salicylate of iron is given at longer intervals and later discontinued. With these measures the temperature becomes, as a rule, normal in twenty-four hours, the disease has ceased to spread, and the patient feels better and is often hungry; solid food is not allowed, however, for the first three days. In cases of great severity the author often adds twice the usual amount of iron to the salicylate solution, thus producing a preparation which is stronger in its action on the disease.

The solution recommended is also remarkably effective in some cases of acute tonsillitis—probably those wholly or partly of streptococcal origin. If, after giving it for three days, there is no marked improvement, it is not worth while continuing with the preparation. Potassium chlorate may be combined with it.

In some cases of cellulitis the iron salicylate solution, used as an adjunct to the ordinary surgical procedures, appeared to do good.

**Treatment of Inoperable Cancer or Recurrences.**—Robert Knox, in the *Proceedings of the Royal Society of Medicine* for March, 1913, states that in slowly growing inoperable cancer he has employed energetic x ray treatment with satisfactory results. The method described may also be used in recurrences of considerable size. The area of healthy tissue is protected by thick lead screens. A circular area is cut out of the screen, exposing the tumor and a margin of healthy tissue. Pastille doses of x rays are given, at first unfiltered, later filtered through one millimetre of aluminum, three

times a week for several weeks. A marked reaction results and the tumor contracts. In one instance radium exposures were made over the central portion of the growth, fifty milligrammes in a filter of 2.50 millimetres of platinum were applied for six hours. The whole of the new growth was ulcerated, leaving healthy tissue behind. The resulting ulcer slowly healed, and a sound scar was obtained after about three months' treatment. This intensive form of treatment is well worth a trial in cases which do not yield to any other measures.

**Electrical Operative Treatment of Small Simple Tumors.**—W. Knowsley Sibley, in the *Practitioner* for March, 1913, points out the utility of electrolysis in the treatment of small superficial lesions such as sebaceous cysts. If the cyst is small, e. g., of the size of a pea or bean, a negative aluminum needle is inserted into its centre and a current of about five milliamperes is applied and continued for one or two minutes, after which the strength is gradually reduced to zero, and the needle withdrawn. No surgical dressings are required. In a few days the whole tumor will have shrunk, and as the cyst wall has been destroyed by the current, it will not recur.

For larger cysts, a few drops of normal saline solution are injected into the centre of the tumor, and both positive and negative needles, made of copper, are then inserted into the centre of the cyst by separate openings, but fairly close together and parallel. A current of from two to five milliamperes is then turned on for from three to five minutes, according to the size of the cyst. Copper salt is rapidly deposited on and about the positive needle, and there may even be difficulty in withdrawing it unless the current is reversed for a few seconds before the operation is completed. Both needles having been withdrawn, the punctures are closed with a drop of collodion. In from four days to a week, the opening through which the negative needle was inserted will have enlarged and joined the other, and if a sufficient amount of current has been used, it will be found easy to enucleate through this opening the whole of the cyst contents together with the cyst wall; or, the contents may have escaped, of themselves, as a congealed necrotic mass. The loose skin over the cyst soon contracts, and little evidence of the previous tumor formation remains.

The tumors formed by *Molluscum contagiosum* are cured by the same process.

The operation can be rendered painless by the local hypodermatic injection of a two per cent. novocaine solution.

Ganglions are cured by inserting the negative aluminum needle into their centres, and using a current of from five to ten milliamperes for from one to five minutes. The treatment may be repeated in a week, if necessary.

Telangiectases are readily contracted and obliterated by the insertion of the negative aluminum needle for a few seconds; freckles and other pigmentary deposits may be dealt with efficiently in the same way.

Boils and carbuncles may be treated by puncture with a zinc electrolysis needle.

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## MISDIRECTED EUGENICS.

The editorial on Clinical Eugenics in our issue of August 2d seems to have coincided with similar expressions, in respect to its allusion to hasty legislation, by numerous medical and lay thinkers. The untimely expression of so called "practical" eugenics in terms of statutes by legislators who know little or nothing on the subject, even though inspired by breeder's associations, statisticians, and enthusiasts, was bound to awaken a reaction among those who habitually consider all sides of a subject, particularly when hardships are to be inflicted upon human society, good as the motive may be. These are beginning to urge that sickly offspring from sound parents and sound children from ailing parents are not uncommon; that genius is not incompatible with certain affections—witness the Darwin and many other family records; that a neuropathic offspring by no means always results from a union in which one of the parents suffered from a neurosis; that many who at one time suffered from diseases now under the ban in many States and had been cured, had procreated normal children; that several of these diseases are increasingly yielding to our therapeutic measures, etc., etc. Right or wrong, these criticisms illustrate the trend of mature analysis.

Suggestive in this connection are the remarks of Professor Benson at the recent International Congress, and which fortunately have been widely disseminated through the lay press: "I should be sorry," said this distinguished investigator, "to see adopted the violent methods put to use in some parts of the United States. It is one thing to check the reproduction of hopeless defectives, but another to organize wholesale tampering with the structure of the population, such as will follow if any marriage not regarded by officials as eugenic is liable to prohibition. Nothing yet ascertained by genetic science justifies such a course, and we may well wonder how genius and the arts will fare in a community constructed according to the ideas of such legislators as we are told propose this measure in Pennsylvania and New Jersey, to which we might add several other States. Legislative tyranny and its handmaiden, brutality, are increasingly holding sway under the guise of applied eugenics.

The outlook is not a promising one. As a result of misdirected—though well meant—laws, a large proportion of our younger population will be reduced, as far as marriage is concerned, to a level approximating that of the leper if, when seeking the holy bonds of matrimony, they answer truthfully all questions concerning their physical condition. But in many instances, they will swear falsely; in others, the truth will be told and marriage prevented or delayed; in others still, carnal union will occur without marriage and common law wives will become as numerous as in those European countries in which official red tape converts legitimate unions into an ordeal. In the end, the true aim of enforced eugenics will have been thwarted: the birth of physically and mentally handicapped children will not have been reduced; they will simply have received the additional brand of illegitimacy.

It is to be hoped that many States will revise their marriage laws in such a manner as to meet the demands of equity to all, while efficiently protecting the innocent, particularly the bride to be and her offspring.

TOXIC AMBLYOPIA FROM TOBACCO  
ALONE.

Many years ago it was learned that certain drugs were able to cause blindness or at least a great impairment of vision, without producing any changes in the eye that were recognized as such at the time, and the name toxic amblyopia was given to this condition. Modern research has shown that all of these drugs do not produce this effect in the same way, and that certain ones induce a degeneration of a certain bundle of fibres in the optic nerve, known as the papillomacular, which supplies the area of



most distinct vision in the retina, manifested by an abnormal paleness of the temporal side of the optic papilla. Such a degeneration is also met with in multiple sclerosis, sometimes in a bad case of diabetes, or as a result of inflammation of the accessory sinuses, but other symptoms of the disease are always present. Drugs produce it only through chronic intoxication, and of these the combination of alcohol and tobacco is the one most often responsible. It has been asserted rather positively that tobacco alone is unable to produce this condition, but the case reported by Dr. M. L. Foster in the *Archives of Ophthalmology* for July, indicates strongly that this assertion is incorrect, and that, in certain individuals, tobacco unaided by alcohol can produce a toxic amblyopia. His patient was a man 65 years old, who had been a teetotaler for over forty years, had been an inveterate smoker for many years, but had developed no symptoms of multiple sclerosis or of any other disease to which the lesion could be referred, and made an excellent recovery under treatment after he had stopped using tobacco.

The writer emphasizes the difficulty of obtaining absolute proof that any man does not drink, pointing out that this requires incontestable evidence covering every moment of the day and night for a long time, but we are inclined to agree with him that no man could succeed in posing as a total abstainer for forty years in a small community where he was well known, and yet drink alcoholic liquor in sufficient quantity, and with sufficient regularity, to produce a toxic amblyopia. We are obliged to believe that this man succeeded in accomplishing this seeming impossibility, and that he stopped drinking and smoking at the same time, as total abstinence from both alcohol and tobacco are necessary in the treatment of an alcohol-tobacco amblyopia, or that his condition was produced by the tobacco alone. The latter certainly seems the more probable.

We cannot help feeling that this case is unusual, that the deleterious effects of tobacco are not apt to be exhibited in this manner; in short, that this patient had a certain idiosyncrasy, and yet it is possible that we have been accustomed to ascribe too subordinate a position to this drug in the production of this disease. We shall hardly feel quite as secure hereafter in the enjoyment of our pipes and cigars.

#### THE TREATMENT OF TETANUS.

There can be little question that as a rule the doses of antitetanic serum have heretofore been entirely inadequate especially when given subcu-

taneously. Of late the tendency has been toward a marked increase in the amount of antitoxine administered in diphtheria, and it would seem that larger doses are even more essential in tetanus. Decidedly of this opinion are Dr. A. P. C. Ashhurst and Dr. R. L. John, of Philadelphia, who contribute to the *American Journal of the Medical Sciences* for July a report of twenty-three cases of this disease. Believing that the first indication in the treatment is the removal of the source of the toxine, the tetanus bacilli, they recommend the open treatment of the wound, with the employment of hydrogen peroxide and a weak solution of iodine, and the avoidance of caustics, which by the formation of sloughs favor the growth of the bacilli. The second indication is to head off and neutralize the toxine already formed through the use of tetanus antitoxine. No matter what the method of injection, the most important thing is to get the maximum amount of antitoxine indicated into the patient's body at the earliest possible moment. If the injections are given subcutaneously, immense quantities are required for an adult, with the usual acute type of the disease, at least 100,000 units within the first twenty-four hours. If given intraspinally, from 3,000 to 10,000 units should be given; this need not, as a rule, be repeated in less than eighteen or twenty-four hours. Intraneural injections should be made in as great amounts as the nerves will absorb. The third indication is to depress the functions of the spinal cord. The drugs most often employed for this purpose are chloral, chlorotone, and similar products, the bromides, physostigma, hyoscine, morphine, and magnesium sulphate. Finally, the patient, as well as the disease, must be treated. This involves the securing of absolute quiet, the most careful nursing, and the administration of food at all hazards, by a nasal tube if necessary. Saline solution by the bowel tends to overcome the dehydration of the tissues produced by the excessive muscular activity. The excellent results reported in some quarters from the use of phenol injections should not be forgotten, as this is a remedy much more readily obtainable than antitoxine.

An outline of the manner in which Ashhurst and John propose to treat the next case of tetanus which comes under observation sufficiently early includes the immediate exposure of the motor nerves leading from the wound, as near the cord as practicable, and the injection toward the cord of as much antitoxine as each will contain; an intraspinal injection of at least 3,000 units, and the injection of from 1,500 to 3,000 units deeply into the muscular tissues around the wound. During the first day a moderate amount of antitoxine (perhaps 10,000

units) will be given intravenously, and the intraneural and intraspinal injections will be repeated daily, under chloroform anesthesia, until marked decrease in spasticity occurs. With such treatment, commenced within twelve hours of the appearance of the first symptoms of tetanus, they believe the mortality should not be over twenty per cent.

### INTERNESHIPS FOR WOMEN STUDENTS.

The status of the woman physician and the superior opportunities for women in the medical profession were discussed at the International Medical Congress. Attention was called to the fact that the number of women entering the profession was decreasing. Referring to this fact one esteemed contemporary draws the conclusion that "the existence of unrestricted opportunity for the woman physician signifies very little." Analysis of the question shows, however, that the opportunities for the woman physician are not unrestricted. Besides admission to the larger medical colleges, women are refused internships in hospitals other than for women. As is well known no amount of dispensary work, or years of conscientious clinical observation, will ever compensate for the lack of training in general hospitals.

Women physicians have now advanced as far as perseverance and devotion to duty can carry them. In hospital dispensaries, where only a few years ago they were reluctantly granted the privilege of working, they are to-day sought eagerly—possibly because of their more faithful attendance. The custom of having women physicians fill the posts of examiners and "medical advisers" for women students in the colleges is gaining ground. In the fields of applied hygiene and of research women are proving their worth. Many more instances could be given illustrating the fact that the services of women physicians are being increasingly valued.

However, as long as they will be debarred from general hospitals, i. e., excluded from the competitive hospital examinations, women will be deprived of one half of their medical education; and of a corresponding degree, therefore, of efficiency as practical physicians. An effort to offset this drawback is to be inaugurated, we hear, by one of the Philadelphia medical schools, that of Temple University, in keeping with the new law in Pennsylvania which requires one year of internship before applications for the State license can be filed. Both hospitals—aggregating two hundred beds—of this institution are to be available for its students, regardless of sex. It is to be hoped that other colleges will follow this laudable example.

### PATHOGENESIS OF EPILEPSY.

A. Pierret, in the *Revue de médecine* for July, 1913, assumes as the basis of epilepsy that many subjects afflicted early in their development with infectious diseases involving nervous tissues become abnormally susceptible to disturbance at the seats of subsequent scarring in these nervous tissues. In these cases an intoxication of any kind is capable of bringing on convulsions, which remain of a local nature either at the beginning or the termination of the attacks. The scope of "idiopathic" epilepsy is becoming more and more restricted. The phenomena arising through the operation of toxic influences on cured or slowly progressive scleroses in the nervous system are not alone of convulsive nature; they may be either motor, sensory, or mental, and are often very transitory. This may explain the various evanescent phenomena witnessed in all patients with old sclerotic foci, e. g. cases of general paralysis, tabes, syphilis, etc. Frequently regarded as hysterical, these manifestations have nothing in common with the neurosis, unless the latter be itself of toxic origin, as is probably the case in many instances. Rational treatment of neurosis, then, consists in the utilization of all measures that will tend to eliminate endogenous or exogenous intoxication.

### THE VICISSITUDES OF SCROFULA.

A. J. Delcourt, in the *New Orleans Medical and Surgical Journal* for August, 1913, having passed in review the conflicting opinions prevailing from time to time regarding scrofula, states that we can now at least identify two kinds of scrofulous affections, according to the presence and the predominating influence of the specific bacilli, viz., a tuberculous scrofula and a pyogenic one. Viewed in its broadest aspect, scrofula may be said to represent a clinical drama in which three personages play successively a specific part, but one of which, the Koch bacillus, in the end fills the chief rôle. This drama is in three acts and many scenes, each one corresponding almost exactly to the chronological subdivision assigned by Bazin. The practical conclusion is that we should put a stop to the long and dreadful pathological drama in its first scene, by attacking the cutaneous and mucous lesions, which represent perpetual foci of suppuration, leading to chronic microbic infection; at the same time exercising a constant, vigilant, and preventive care, aided by good hygienic and restorative treatment.

### THE MODERN HOSPITAL.

Under the title of *Modern Hospital* appears this week the first number of a monthly publication whose purpose is signified by the title. It is the hope of the editors, as stated by them, that the "hospital world may find in the new agent a vehicle of expression that will bring into wider usefulness the experience and the learning of each individual, to the end that these may become the common harvest of all."

## News Items.

**A Pellagra Hospital at Durham, N. C.**—Announcement is made that George W. Watts, the donor of Durham's \$500,000 hospital, has promised a large donation for the erection of a pellagra hospital in Durham, provided the United States Government makes that city the southern headquarters for the pellagra investigation. Surgeon General Blue, of the United States Public Health Service, will go to Durham to make an investigation. Congress recently announced its willingness to spend \$50,000 on pellagra investigation, and the towns of Durham and Raleigh have both been suggested for the government station. The Watts Hospital in Durham bars pellagra patients, but Mr. Watts has declared his willingness to erect a separate building for their care and treatment.

**Child Welfare in Philadelphia.**—A new organization, called the Child Federation, has been organized in Philadelphia, to take the place of the Child Hygiene Association, and a charter for the federation will be issued the first week in September, and an active educational campaign inaugurated to preserve the health of the children and develop them mentally and physically. The incorporators and directors of the new association are as follows: President, Edward W. Bok; vice president, Dr. Jesse D. Burks; treasurer, Albert Pepper Gerhard; secretary, Dr. Howard Childs Carpenter; Dr. Charles A. E. Codman, Dr. C. Lincoln Furbush, Dr. P. Claxton Gittings, Dr. Samuel McClintock Hamill, Dr. Charles J. Hatfield, Dr. Henry D. Jump, Dr. Theodore Le Boutillier, and Dr. Joseph S. Neff. Beginning on October 15th the federation will conduct five baby shows in different sections of the city.

**New Procedure in Relation to Contagious Diseases in New York.**—A circular is being prepared by the Department of Health of the City of New York describing the present procedure in the surveillance of diphtheria, scarlet fever, and measles, and will shortly be ready for delivery and distribution by the nurses and inspectors of the Division of Infectious Diseases, to parents and guardians of children suffering from these diseases. In the meantime, in order that physicians, particularly, may take note of the changes in procedure, the circular is printed in the August 16th issue of the *Weekly Bulletin*. The most noteworthy changes in procedure which are indicated in the new circular are as follows: 1. Insusceptible persons (those who have had diphtheria, measles, or scarlet fever), will not be excluded from school while a case of infectious disease still exists at home, providing isolation is being satisfactorily carried out. 2. Cases of measles will be terminated five days after the appearance of the rash, provided such a course is warranted by the clinical condition of the case. The circular, as prepared for general distribution, will be printed on heavy buff cards, in English on one side and in either German, Italian, or Yiddish on the other side.

**The Pennsylvania Homeopathic Medical Society.**—This society, which is one of the oldest members of the American Institute of Homeopathy, will hold its annual meeting in Bedford Springs on Tuesday, Wednesday, and Thursday, September 2d, 3d, and 4th. The officers and chairmen of the various bureaus are: President, Dr. Harvey L. Nicholson, of Pittsburgh; vice-presidents, Dr. M. M. Feagle, of Hanover, and Dr. J. H. Heinbach, of Kane; secretary, Dr. E. H. Pond, of Pittsburgh; treasurer, Dr. Ella D. Goff, of Pittsburgh; necrologist, Dr. W. F. Baker, of Philadelphia; censor, Dr. R. T. White, of Pittsburgh; chairman of publicity and membership committee, Dr. Charles Ley, of Pittsburgh; bureau of materia medica, Dr. Samuel Hamilton, Jr., of Pittsburgh; homeopathic institute and clinical medicine, Dr. S. M. Reinhart, of Pittsburgh; bureau of surgery, Dr. F. C. Morris, of Pittsburgh; bureau of obstetrics, Dr. E. P. Clark, of Pittsburgh; bureau of gynecology, Dr. G. Wills Hartman, of Harrisburg; bureau of pathology and pathological anatomy, Dr. J. C. Calhoun, of Pittsburgh; bureau of ophthalmology, otology, and laryngology, Dr. J. B. Bryson, of Pittsburgh; bureau of sanitary science, Dr. Anna Clark, of Scranton; bureau of pedology, Dr. Anna Johnston, of Pittsburgh; chairman of exhibit, Dr. J. D. Kistler, of Pittsburgh; and chairman of entertainment committee, Dr. William Joline Martin, of Pittsburgh.

**Personal.**—Dr. Henry L. K. Shaw, consulting pediatricist to the New York State Department of Health, represented the department at the English Speaking Conference on the Prevention of Infant Mortality, held recently in London. Dr. J. W. Kerr, assistant surgeon general of the United States Public Health Service, represented the United States Government at this congress.

Dr. W. A. Bing, bacteriologist in the Division of Laboratory Work of the New York State Department of Health, has been assigned to work in connection with the investigation of the pollution of Lake Ontario and Niagara and St. Lawrence rivers, now being undertaken by the International Commission on the sanitary condition of these waterways, with the cooperation of the State Department of Health.

Dr. G. W. Bower, of Norristown, Pa., has been appointed superintendent of the new Schuylkill County Insane Asylum at Pottsville, Pa. Dr. William Gautner, of Philadelphia, has been appointed assistant to Doctor Bower.

Dr. H. T. Summersgill has retired as superintendent of the City Hospital, Cincinnati, and Dr. A. C. Bachmeyer has assumed charge as acting superintendent, pending the appointment of a successor to Doctor Summersgill.

**Medical Society of the Missouri Valley.**—The twenty-sixth annual meeting of this society will be held in Omaha, Neb., on Thursday and Friday, September 18th and 19th, under the presidency of Dr. H. B. Jennings, of Council Bluffs. The Rome Hotel will be headquarters and meeting place for the society. Twenty papers are listed on the programme, an interesting feature being a symposium on pregnancy, which will be presented on the second day of the meeting. Dr. Charles H. Mayo, of Rochester, Minn., will deliver the oration in surgery, and Dr. Alfred C. Croftan, of Chicago, the oration in medicine. Ample arrangements have also been made for the entertainment of the visiting physicians and their friends. Inquiries regarding the meeting should be addressed to Dr. Charles Wood Fasset, St. Joseph, Mo., secretary of the society.

**Civil Service Examinations in Philadelphia.**—Among the positions for which the Philadelphia Civil Service Commission will hold examinations in the near future are the following: On September 19th, at 9:30 a. m., an examination for the position of first assistant resident physician, medical service, Department of Public Health and Charities, with a salary of \$1,200 a year, with room and board. At the same time an examination will be held for the position of resident assistant physician, in the same service, with a salary of \$600 to \$900 a year, with room and board. On September 24th, at 9:30 a. m., there will be held an examination for the position of assistant bacteriologist in the Department of Public Works, with a salary of \$1,200. Applications must be executed and filed with the commission not later than the third day prior to and exclusive of the day of the examination. Detailed information as to the requirements for the examinations may be secured upon request to the Commission, Room 875, City Hall, Philadelphia.

**Civil Service Examination for Professor of Pharmacology.**—The United States Civil Service Commission announces an examination on September 15, 1913, open to men only, for the position of professor of pharmacology in the Hygienic Laboratory of the United States Public Health Service, Washington, D. C., at a salary of about \$4,500. The position is one of much responsibility and it is desired to secure the services of a man who has had broad training and extensive practical experience in the various branches of pharmacology, physiology, physiological and pharmaceutical chemistry, chemotherapy, etc., as they relate to medicine and the public health, and who is well qualified to undertake work along these lines of a research, cooperative, and supervisory character. Applicants should have had practical experience in the study of metabolism as well as in experimental pharmacology; they should have had some experience in clinical medicine and be familiar with its methods. An educational training equivalent to that required for the degree of Ph.D. from a university of recognized standing, and not less than ten years' experience in pharmacology and closely allied subjects since leaving the university, are prerequisites for consideration for this position. For further information regarding the scope of the examination, apply to the United States Civil Service Commission, Washington, D. C.



## Pith of Progressive Literature.

### CORRESPONDENZ-BLAATT FÜR SCHWEIZER AERZTE

July 5, 1913.

**Treatment with Carbonic Acid Snow.**—E. Sommer says that the factors of chief importance in use of carbonic acid snow are: 1. The duration of its application; 2. the pressure with which it is applied; and, 3. the individual sensitiveness, or the power of resistance of the tissues. Hence the treatment may be regulated by controlling the time of exposure and the pressure in order to produce different degrees of reaction. Carbonic acid snow freezes the tissue in from five to ten seconds so as to produce a dermatitis that lasts several days without a blister, crust, or scar. In from ten to fifteen seconds it produces a redness and swelling which becomes covered by a crust in two or three days, which is thrown off in eight or ten days leaving no scar. After twenty seconds a blister is formed which is followed by a crust that is thrown off in one or two weeks. After thirty seconds this condition is more marked, the crusts fall off in from two to three weeks and, if the pressure is sufficient may leave behind rather insignificant scars. An exposure of fifty or sixty seconds produces a large blister with a crust, and generally leaves a smooth, white, lustrous, superficial scar. The reaction lasts three or four weeks or more. The duration of the application varies with the nature of the affection to be treated, and with the age of the patient. The pressure varies with the depth to which the effect is desired. Some pressure is always necessary, as without it there is no freezing. No effect is obtained deeper than three millimetres. The various skin diseases in which it is of use are enumerated.

### WIENER KLINISCHE WOCHENSCHRIFT.

July 3, 1913.

**Syphilitic and Postsyphilitic Diseases of the Kidney.**—Richard Bauer and Paul Habetin say that chronic diseases of the kidney doubtless exist which can be explained only as results of a previous infection with syphilis and present a characteristic clinical picture. It is still uncertain whether the disease is the result of the action of toxins, or of a settlement of spirochaeta in the kidney. The serum reaction is always well marked. Antisyphilitic treatment is of use and is certainly not harmful. Several cases are reported, which illustrate the clinical picture.

**The Growth Inhibiting Influence of the Spleen upon the Sarcoma of Rats.**—Paul Biach and Oskar Weltmann find that the tissue of the spleen when injected and mixed with the tumor, inhibits the growth of sarcoma in rats. A spleen from a sarcomatous animal exhibits a much stronger inhibitive power than one from a normal animal. This power of inhibition seems to depend on an increase of the natural inhibition and upon the presence of specific substances that are destructive to the tumor cells.

July 10, 1913.

**Experimental Studies of the Delayed Pulse.**—Edmund Hoke and Julius Rihl find this phenom-

enon not increased by compression of the arch of the aorta for an hour, increased by section of the pulmonary nerve, diminished by small doses of digitalis and epinephrin, but increased by large doses of the same drugs, increased by stimulation of the vagus, diminished by stimulation of the accelerating nerves of the heart.

**Biliary Peritonitis.**—Robert Vogel believes that biliary peritonitis is always due to perforation, although this is not always easily found.

### LYON MÉDICAL.

July 27, 1913.

**Embolism of the Anterior Coronary Artery.**—L. Gallavardin and P. Dufourt report a case in which this condition was discovered at the autopsy, and refer to three others previously reported in the literature. In each, the cause of the embolism was the detachment of endocardial vegetations, or of clots, at the ventricular apex. Coronary embolism should be thought of where, in a patient succumbing rapidly, apparently to some cardiac disturbance, there coexists, along with precordial pain, anxiety and progressive collapse, marked bradycardia of sudden advent. This bradycardia may be due to obliteration of the circumflex branch, which can occur more readily through embolism than through thrombosis. Since embolism of the anterior coronary induces death before cardiac infarction can have become established, there is nothing to suggest the propriety of examination of the coronaries at autopsy. From the medicolegal standpoint especially, it is of importance that the coronaries be opened in all cases of sudden or rapid death, even in the absence of fibrous plaques or of recent infarction of the myocardium.

### PARIS MÉDICAL.

July 12, 1913.

**Chronic Parenchymatous Nephritis of Tuberculous Origin.**—Léon Bernard asserts and adduces clinical evidence to the effect, that tuberculosis, e. g., of the lungs, is frequently a cause of chronic parenchymatous nephritis. The lesions produced do not include tubercles. Amyloid change may or may not coexist.

**Dose of Salvarsan.**—G. Milian refers to the fact that most of the instances of the serious untoward effects of salvarsan have occurred where 0.6 gramme of the compound had been given. In patients who have already taken arsenic in other forms, Milian gives four doses of 0.3, 0.4, 0.5, and 0.6 gramme, respectively, at six day intervals, while in those who have never taken it, he begins with only 0.2 gramme, then continues with 0.3, etc., as in the preceding. About ten per cent. of radical cures can be obtained with this method. The course of salvarsan should be followed, however, by intramuscular injections of 0.05 to 0.01 gramme of calomel, four to six times weekly for six weeks; this to be followed, in turn, by twenty days of combined mercury biniodide and potassium iodide internal medication. Then, after ten days' rest, Milian advises twenty successive daily intravenous injections of mercury cyanide in the dose of 0.01 to 0.02 gramme. Finally, another series of salvarsan injections should be given.

## PRESSE MÉDICALE.

July 26, 1913.

**Pituitary Medication as an Intestinal Excitant.**

—B. A. Houssay and J. Beruti maintain that fluid pituitary preparations constitute the most efficient agent now available for bringing about intestinal contractions. That this fact has not as yet been generally recognized is because insufficient doses have been used. The dose given for the purpose mentioned should be larger than that used as an oxytotic. Three c.c. of a twenty per cent. extract of fresh posterior lobe from the ox is the proper dose for adults, and will induce defecation in eighty-eight per cent. of all cases. Within two or three minutes after the subcutaneous injection of the remedy the patient becomes conscious of intestinal movements and almost always, within six to thirty minutes, evacuation follows. Slight pain is often experienced; pallor is also a customary symptom, and the pulse rate increases. The bowel movement may recur on the day of the injection and frequently it remains satisfactory on the succeeding day or two. In fecal impaction the drug may be given in conjunction with mechanical treatment and enemas. In addition to its use as a prophylactic and curative agent in postoperative intestinal paresis, pituitary extract permits of the use of morphine in cases where its employment would otherwise be unjustifiable, counteracting the paralyzing effect of morphine on the intestine and preventing meteorism. In peritonitis the favorable effect of the extract on the intestinal and general circulations and its diuretic action are also of value. A tonic effect on the bowel can be secured by continued use. Small hypodermic doses stimulate gastric motility and increase the flow of gastric juice. Administration by mouth, even in large doses, does not afford results comparable with those already mentioned, and does not appear to be indicated at any time.

July 29, 1913.

**Impaired Resonance over the Right Lower Thorax as a Sign of Typhoid Fever.**

—C. Lesieur and J. Marchand found this sign, first described in 1911 by the former author, positive in eighty-seven out of 114 cases of typhoid fever. Many of the remaining twenty-seven cases were already about to convalesce, while in others additional signs showed that the lung was diseased and therefore probably responsible for the impairment of resonance. Among seventeen cases of benign typhoid fever, the sign was positive in nine instances, while in various non-typhoid conditions, it was only rarely present. Besides its evident diagnostic value, the sign is of use from the standpoint of prognosis, as its reappearance or persistence after the temperature has fallen betokens a relapse, thus suggesting caution in the diet and administration of hexamethylenamine. The impaired resonance at the right base is generally to be explained as the result of hepatic enlargement.

## REVUE DE CHIRURGIE.

July, 1913.

**Treatment of Pott's Disease.**—F. V. Albee describes in full his method of correcting the deformity in this affection and causing the tuberculous process to subside by grafting a piece of the tibia on the posterior aspect of the spinal column. The

paper is based on a series of fifty-five cases, operated in with uniformly gratifying results. Albee's procedure was discussed in this JOURNAL for March 9, 1912, p. 469.

**Treatment of Fracture of the Petrous Bone.**

H. Nimier and A. Nimier adduce evidence to the effect that in the vast majority of skull fractures involving the petrous portion of the temporal bone the tympanic cavity is primarily in an aseptic state, and advise against operative intervention or strenuous attempts at disinfection of the auditory passages in cases of fracture with hemorrhage from the ear, lest infection be, on the contrary, introduced with the fluids used. Merely an absorbent dressing should be applied to the external ear, with perhaps a wick of gauze inserted in the meatus to assist the drainage of blood to the external dressing where hemorrhage is profuse. Dirt seen in the meatus should merely be wiped off with fine tampons of cotton on an applicator. Hydrogen dioxide or boric acid should not be used. When the hemorrhage ceases, the drying of the clots insures their being in an aseptic condition. A few drops of a one in twenty solution of phenol in glycerin might then be placed in the ear, and of a one in forty solution of menthol in oil, in the nasal cavities; hexamethylenamine can also be prescribed in doses of 0.5 gramme four or five times a day. In cases of petrous fracture in persons suffering from chronic otitis media, or where this complication appears after the fracture, neither routine abstention from operation, nor regular intervention, should be made a definite rule, but the case should be managed according to other indications, prompt and complete operation being necessary, for instance, when a focus of osteitis has developed in the depth of the traumatized petrous bone. Repeated lumbar puncture is indicated both for diagnostic and therapeutic purposes in cases where infection is feared. In the presence of an extradural hematoma complicating petrous fracture, it should be exposed and removed through the mastoid. Where there are, on the other hand, signs of an intradural hematoma, which repeated lumbar punctures fail to dispel, the supramastoid portion of the temporal should be opened, incision of the dura in this region permitting exploration of the dorsal aspect of the pyramid, if required.

**Metastatic Brain Abscess Related to Suppurative Processes of the Liver and Lungs.**—Couteaud reports three new cases of brain abscess following amebic dysentery and discusses fifteen cases collected in the literature. Abscesses of this class run a slow, uneventful course, like "cold abscesses." In one of the author's cases brain symptoms did not appear until ten months after an operated hepatic abscess had healed; usually the interval is two or three months. The infective agent causing the abscesses may be either one of the ordinary pyogenic organisms or the dysenteric ameba. In spite of the mediocre results hitherto obtained, exposure of the abscess is indicated in these cases, provided localization is possible. Subcutaneous injections of emetine should be administered from the beginning of the treatment.

**Untoward Effects of Unilateral Section of the Internal Jugular and Pneumogastric.**—Paul Guibal reports the case of a man who, six hours after

the termination of a radical operation for laryngeal cancer, in the course of which the left vagus nerve and internal jugular vein had been cut, showed physical signs demonstrating solidification of the inferior half of the left lung, together with rapid breathing, tachycardia, and fever. Right sided hemiplegia gradually supervened, and the patient remained in a deep stupor until death took place, less than forty-eight hours after the operation. The pulmonary lesion is considered by the author to have been an instance of vagal pneumonia, such as is frequently observed to occur in experimental work after vagus section and also sometimes in man after traumatic—not surgical—section of the nerve. The brain disturbances are ascribed to the section of the vein, nothing else having been done during the operation that could have influenced the intracranial circulation. Although no autopsy could be performed, cases from the literature are cited to illustrate the fact that where there is a difference in size between the jugulars of the two sides, ligation of the larger vessel may lead to untoward results. It is not possible to ascertain by incision and examination of the cervical portions of the jugulars whether one can be ligated without danger, for Rohrbach has shown that the deep portion of a jugular, adjoining the bulb, and the corresponding lateral sinus, may be aplastic in spite of the fact that the cervical portion is of normal size. Unilateral jugular ligation is thus not devoid of risk, and should be practised only where it is absolutely necessary.

#### REVUE DE MÉDECINE.

July, 1913.

**Eruptions Due to Secondary Infection Occurring during the Course of Measles.**—E. Weill and C. Gardère report eight cases of diffuse eruption due to secondary infection in the measles patients of a certain hospital ward. Four rapidly terminated in death. In five the eruptions were scarlatinoid, and these cases occurred in close succession during a period of unusual overcrowding in the ward. Simultaneously, the general mortality from measles rose and septic complications became more frequent. In another patient the eruption was papulopustular, and in the two remaining cases comprised in the series of eight, a typical erythema nodosum was observed. The blood culture was positive in these three cases, the streptococcus being found in one, and a staphylococcus in two. Discussing the secondary eruptions during measles in general, the authors point out that they appear first symmetrically over the limbs, especially at the wrists, ankles, elbows, knees, and upper portions of the buttocks, then sometimes spread to the remaining areas over the limbs or even to the trunk. There is no itching. The mucous membranes are not involved, except in grave cases, when infected ulcers are seen in the mouth and pharynx. The eruption persists only from one to five days, and desquamation is inconstant, though frequent in the scarlatinoid erythemas. On the whole, the prognosis in these cases is grave. Collected statistics show forty-one deaths among seventy-five patients—a death rate of fifty-four per cent. Typical scarlatina can easily be differentiated from the scarlatinoid eruption, but since the symptomatology of the former is

subject to many variations, difficulty may be experienced. As an aid to diagnosis, the blood examination appears of most importance. In the author's cases the degree of polymorphonuclear leucocytosis was inferior to that of true scarlet fever; more characteristic, however, of the scarlatinoid rashes was a distinct increase in the mononuclears and decrease in the lymphocytes. Suppurative conditions in the nose, mouth, and lower respiratory passages invariably accompany the eruptions in question. The treatment of the rashes is largely prophylactic, and consists in care to avoid overcrowding of wards and providing proper ventilation and attendance.

**Sensitization of the System by a Fungus of Pulmonary Origin.**—L. Jannin reports the case of a man aged twenty-nine who suffered from what clinically appeared to be pulmonary tuberculosis, with successive acute exacerbations, but with preservation of a fairly good general condition, and fever rarely exceeding  $37^{\circ}$  C. The patient had been troubled with abundant expectoration since childhood, and at the time of examination, ejected every morning one or two tumblerfuls of mucopurulent sputum. The fungus known as *Mycoderma pulmonum* was always found in copious amount in the sputum, even when the patient's diet was so modified as not to favor the development of the parasite and the mouth and pharynx carefully disinfected. The spores of the fungus were agglutinated by the patient's serum, and intracutaneous injection of soluble toxins from it caused a pronounced general as well as a local reaction, showing that the body had become sensitized to the parasite. In spite of the evident derivation of the fungus from the bronchi or lungs in this case, the author holds that in most instances the mycoderma when found in the sputum (especially in cases of tuberculosis) is not derived from the lungs. The repeated finding of a few tubercle bacilli in the sputum of the author's case prevents him from ascribing the lung cavities noted to the mycoderma. The case permits, however, of classing the fungus in question among the possible microphytic associations of tuberculosis. The development of the fungus in cavities formed through the agency of the tubercle bacillus appears to have imparted special characteristics and a special course to the morbid process present.

#### ROUSSKY VRATCH.

May 11, 1913.

**Experimental Cultivation of Leucocytes from Leucemic Blood.**—P. P. Avroroff and A. D. Timofeerosky cultivated leucocytes from leucemic blood, according to Carrel's method. They found that young leucocytes were capable of energetic multiplication, and by further development might be transformed into giant cells and microphages.

**Headaches Caused by Lowering of Intracerebral Pressure.**—S. D. Tladytchko cites experiments on animals and clinical cases, from other sources as well as his own, to prove that the lowering of intracranial pressure may cause persistent headaches. These are characterized by their constancy and resistance to ordinary therapeutic agents. They occur after a profound emotion of a negative



character, are not caused by defective vision, are not accompanied by increased intraocular pressure, and are relieved only by such measures as eserine, sclerotomy, etc. He explains their origin by the supposition that the change of intracranial circulation changes the normal position of the optic disc and retina, thus acting reflexly on the cranial nerves.

**Bacteriolysins in Woman's Milk.**—P. S. Medovikoff established experimentally the presence of bacteriolysins in mothers' milk, and assuming that these are absorbed by the nursing child, he explains the greater resistance of breastfed babies to infection.

**Abderhalden's Reaction of Pregnancy.**—P. G. Lurje applied the Abderhalden serum test in eighty-four cases, of which forty-seven were of pregnant women, seventeen nonpregnant and eighteen newborn, the blood from the latter being obtained from the umbilicus. In the pregnant women a positive test was obtained in every case. Of the seventeen nonpregnant persons eleven gave a negative and six a positive reaction. Of the latter was one healthy man, one healthy woman on whom a hysterectomy was performed nine years previous, two women with disease of the annexa, one woman with a fibroid, and one with cancer of the uterus. The reaction was also negative in two cases of extra-uterine pregnancy. These results show that the Abderhalden reaction is not strictly specific, a conclusion reached by other authors.

May 18, 1913.

**The Various Phases of the Action of Strychnine on the Isolated Heart of Warm Blooded and Cold Blooded Animals.**—A. A. Tetjeff experimented with strychnine on the isolated hearts of rabbits, fish, and frogs, and found that it possesses a marked and prolonged stimulating effect. In addition a regulating or tonic effect on the heart was observed.

**Experimental Investigation on the Intravenous Treatment of Bacteremia with Bichloride of Mercury.**—E. B. Shklovsky treated rabbits infected with a virulent streptococcus by intravenous injections of solutions of mercuric chloride. In doses corresponding to a nontoxic dose in man, no effect whatever on the temperature or course of the infection was observed. In doses twice the maximum therapeutic dose for man, the temperature curve was somewhat changed for the better, but the final results were the same.

**The Wassermann Reaction in Pathological Anatomy.**—I. S. Galadze applied the Wassermann test to cadavers and found the reaction equally specific. In positive cases, the cerebrospinal, pericardial, pleuritic, and ascitic fluids gave just as satisfactory reactions as the blood. On the other hand, the blood of decomposed bodies could not be utilized for the test. The bodies of persons dead from tuberculosis, septic infections, and malignant growths, frequently give a positive Wassermann.

June 1, 1913.

**The Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax.**—W. F. Orlovsky is of the opinion that the mode of action of artificial pneumothorax is far from being understood and requires further investigation.

**A Method of Counting Red Blood Cells.**—S. Ph. Krotkoff describes a simplified and, what he asserts to be a more accurate, method of counting red cells. It consists of a measuring bulb and a graduated pipette. The mixing of the measured quantity of blood with the diluent is accomplished in the mixing bottle. The mixing is thus much more thorough and accurate than in the usual pipette, and the blood count may be postponed for a day or more without the danger of unequal distribution of the cells. As a diluent he prefers Hayem's fluid.

BRITISH MEDICAL JOURNAL.

August 6, 1913.

**The Treatment of Chronic Progressive Diseases of the Spinal Cord by X Rays.**—F. Hernaman Johnson reports two such cases which do not fit into any particular diagnostic group both of which improved greatly under the long continued use of small doses of x rays. It has been shown that the effect of small doses of the rays, or of radium, is to stimulate the growth of healthy adult cells, whereas the same doses may have a destructive or inhibitory action on proliferating and embryonal cells. The author suggests that the beneficial effect of the rays in his cases may be explained on the basis of destruction of unhealthy neuroglia cells, together with stimulation of those neurons which were not too greatly injured to respond. Whether this explanation is correct or not, the mode of treatment seems to be the only one at present holding out any hope of relief.

**Veronal Rashes; with a Note on Luminal.**—Both of George Pernet's patients seemed to be abnormally susceptible to veronal for each responded to a small dose with the appearance of a diffuse, blotchy erythema in one, and a severe bullous eruption in the other. Each had taken the drug before and had had previous attacks of eruption. In one the eruption (bullous) came on within ten minutes after taking one small tablet. Her first sensation, about five minutes after swallowing the tablet, was of tingling in the mouth and a sensation of heat in the head. Her lesions were about the face, on the lips and hands, and were accompanied by general swelling of the head, orbits, and nose. In a third patient a morbilliform erythema developed as a result of taking three grains of luminal a day. Luminal and veronal differ only in the substituted alcohol radical. Pernet suggests that all three cases were anaphylactic to a portion of the common molecule.

**The Nature, Varieties, Causes, and Treatment of Lupus Erythematosus.**—J. M. H. MacLeod does not believe in the necessary relation of the disease to tuberculosis, and he points out that tubercle bacilli have never been demonstrated in the skin in lupus erythematosus. Opposed also to the contention that the toxins of tuberculosis may be the causative factors, he cites the fact that the disease has never been recorded as occurring from the use of the several tuberculin and tubercle vaccines. He holds that, apart from the probable causative factor being tubercle toxine, there is reason to believe that other toxins, at present unknown, may cause certain cases, especially of the acute, disseminated type. The tendency to the symmetrical distribution of the lesions; their similarity, often, to the toxic erythemas;

the histological similarity between the lupus lesions and those of the toxic erythemas; and the not infrequent association of lupus erythematosus with some of the more or less severe general toxemias, such as those of cirrhosis of the liver, renal diseases, alcoholism, etc., support the general toxic etiology. In all cases there are usually also some evidences of circulatory defects, such as cold hands and feet, moist palms, etc. Lupus erythematosus, therefore, seems to be "a persistent erythema, followed by atrophy and scarring, due to a variety of causes in a predisposed individual. The circumscribed cases have probably a different etiology from those of the acute disseminated type, and even different circumscribed cases, clinically closely resembling each other, may vary in their causation."

#### LANCET.

August 2, 1913.

**The Value of Tuberculin in Pulmonary Tuberculosis.**—James K. Fowler's wide experience in the treatment of pulmonary tuberculosis in several sanatoria leads him to the conclusions that: 1. The use of tuberculin in any form in the treatment of the disease is not free from danger. Even with extremely small doses, gradually increased, the limit of tolerance may be reached suddenly and a reaction may occur. 2. In any case in which there is fever its use is absolutely inadmissible. 3. Fever is the guide to the activity of the disease, and, therefore, a remedial agent which can be used in afebrile cases only is, of necessity, of very limited usefulness. 4. General reactions are to be avoided, and if one occurs treatment must cease at once. 5. Focal reactions are dangerous also, for they cannot be controlled. They may occur in the region of an obsolete lesion and lead to its reactivity with a resulting increase in the activity and severity of the disease. Such focal reactions have been known to cause the coughing up of calcareous masses and lung tissue with the development of a secondary cavity. 6. The most successful treatment should be on the lines of rest and exercise as originated by Walther.

**Theses on Tuberculin Treatment.**—Sahli holds opinions almost diametrically opposed to those of Fowler's just recorded. He says that all the various tuberculins are identical, the apparent differences being due to admixed impurities. To prevent disastrous mistakes in therapeutic doses, Sahli advocates the providing of the practitioner with tuberculin in suitably graduated dilutions. He believes the use of tuberculin is unreliable both positively and negatively for diagnostic purposes. Treatment with tuberculin is free from danger only if the more obvious clinical reactions are avoided, in which case it is harmless. Tuberculin treatment is valuable chiefly in incipient cases. Its action is favorable only in cases not already sufficiently under the influence of absorbed tuberculin, generally, therefore, the slightest cases. There is an individual optimum dose which should not be exceeded, and it is not necessary to push the tuberculin to the greatest limit of tolerance. Tuberculin treatment is not a true immunisation, though it produces immunisatory effects in the organism. The production of a state of immunity is impossible in tuberculosis, and in tuberculin treatment all that is sought is a stimulation and activa-

tion of the counteractions of the body at each injection. All localized tuberculosis is suitable for tuberculin treatment if the patient's system is not already overloaded with his own tuberculin. As a rule acute cases cannot be treated by tuberculin.

**The Albumin Reaction in Sputum; Its Significance and Causation.**—Percy B. Ridge and H. A. Treadgold conclude from examination of 2,164 cases that: 1. Practically all cases of active pulmonary tuberculosis contain albumin in the sputum. 2. Where tubercle bacilli are absent, a negative albumin examination on three successive occasions is strong evidence against active tuberculosis. 3. In doubtful early cases of pulmonary tuberculosis the presence of albumin lends support to the diagnosis. 4. In cases of chronic tuberculosis and emphysema a positive test is of considerable value as evidence of active disease. 5. There is definite evidence that the number of ordinary alveolar cells is greatly increased in sputa that contain albumin.

**Basophile Patches in the Protoplasma of the Neutrophile Polymorphs.**—A. Roemmele and R. Sweet saw many cells which contained from one to five of these patches in a case of acute infection with very high leucocyte count. The patches were irregular in form and took up the stain as well as the nuclei of the cells. Some were attached to the nucleus by fine basophile tendrils. As the disease retrogressed and the leucocytes decreased in number they became more typically normal and the patches were less frequently seen. They disappeared completely in about five days. The authors believe that these patches possibly indicate an early stage of the cell, for many immature polymorphs and marrow cells were present in the films at the same time that the patches were seen in the cells. Both Jenner and Giemsa stains were used.

#### CHINA MEDICAL JOURNAL.

July, 1913.

**The Sanitary Organization of China.**—Arthur Stanley says that from an administrative point of view the sanitary organization of China presents a fascinating problem. A colossal country with more than a quarter of the population of the world, quite devoid of all public effort to prevent disease, where evolution, operating through the survival of the fittest, has had full play; and, as a result, it is probably as eugenically sound as any country in the world. China may, however, justly be considered the fountain head of epidemic disease and, in the absence of modern hygienic methods, remains a danger to the world. The pandemics of plague, cholera, and influenza had their origin there. The comparative absence of rickets, gout, rheumatic fever, scarlet fever, and insanity is more than counterbalanced by the prevalence of smallpox, tuberculosis, the septic infections, plague, and cholera. There can be no doubt, the author thinks, that China is the finest field extant for the modern sanitarian. There are many interesting problems connected with its sanitation. As to the present position of sanitation in China, it may be summed up somewhat as follows: The prolonged national life of the Chinese and their great population constitute an unanswerable argument to show that there is nothing radically wrong with their methods

of living. From the sanitary viewpoint many of these are sound, such as their dietary of sterilized food, disposal of waste for the benefit of agriculture, clothing, and comparative absence of alcoholism and prostitution. In a country like China, which is throwing off a civilization in which science formed no part at all, it appears desirable that sanitation should be organized from above downward. The first essential is considered to be the establishment of a central health office, whose business it would be to study comparative sanitation as applied in various other countries and in the places in China where modern sanitation has been put into practice under foreign control. An essential part of this central office would be a laboratory for the practical study of disease prevention. Little progress can be made without the organization of an adequate system of vital statistics, and without skilled medical attendance the requirements of sanitation cannot be met. The organization of medical practice by the government will come sooner or later. The head of the government medical service would have to be a statesman of the highest rank, as statesmanship of the finest type would be required to organize such a service to deal with disease in all its aspects among all classes, with compulsory powers scarcely dreamed of at present.

**Results in Thirteen Cases of Dysentery Treated with Emetine.**—A. C. Hutcheson records the following conclusions from these cases: 1. Emetine in amebic dysentery is simply wonderful in its efficacy. 2. In undiagnosed cases of chronic dysentery it will succeed in the majority, as most of these are amebic. 3. In double infection of ameba and schistosomum it will kill the ameba and probably stop the dysentery. 4. In pure schistosomum cases it is at least worth trying. In seven of the thirteen cases the ameba was found on examination. One case was apparently amebic, though examination of the stools failed to show the presence of ameba. The patient left the hospital on the seventh day cured of symptoms. In two cases there was infection with both the ameba and *Schistosomum japonicum*. In three cases the infection was with schistosomum alone. All three were chronic cases. In two, blood had disappeared from the stools on the sixth day, under emetine. In the third case the patient left after seven days, showing no improvement. In this case the author found an active miracidium at the end of the treatment, which he thinks would rather argue against the efficacy of emetine, at least as far as affecting the eggs is concerned. The emetine in these dysentery cases was administered in one third grain doses of the hydrochloride, twice daily, by hypodermic injection.

#### INDIAN MEDICAL GAZETTE.

July, 1913.

**Note upon Some Unusual Forms of the Parasite of Pernicious Malaria, Found at an Endemic Blackwater Fever Centre, in Blood Smears from Children.**—N. P. O'Gorman Lalor describes his findings with illustrations that vivify the text. They are freehand drawings of the originals as seen under a Leitz 1/12, an oil immersion objective, and a No. 4 eyepiece (Leishman's stain).

The earliest form consists of a spore surrounded by a thin, darkly staining blue envelope. The cytoplasm of the spore is stained blue, stippled with spots of a darker color, and the spore contains at first a single chromatin mass laterally situated, which is replaced later by three or four chromatin rods, surrounded by an unstained area. These spores have been observed, their envelopes having been ruptured and discarded, to become incorporated with the nuclei of certain large mononuclear cells, apparently of endothelial origin. In a single instance one of the spores was found in a red cell. After this incorporation the spore grows within the nucleus and becomes covered with accretions of nuclear material which appear to be derived from the nuclei of broken down white cells. These accretions cause the nucleus of the cell host to stain a very deep and opaque purple color, which obscures all but the earliest and latest development of the intranuclear parasite. Eventually six large spores are seen to separate from the nucleus, each covered by an envelope derived from the nuclear accretion, and each is seen to have divided into two within its envelope. In such a cell the large, faintly staining red nucleus affords an excellent background to the deep purple rosette stage of the dividing parasite, the central area of which is seen to consist of an amorphous mass of smoky appearance surrounded by the six double spores into which the parasite has divided. These deeply staining spores become free in the blood through the rupture of their nuclear sac and eventually appear either as typical malignant plasmodia in the red cells of the blood, or as malarial crescents of typical appearances, except as regards the cytoplasm of the male crescent, which takes on a pinkish coloration, and the deeply staining purple envelope of definite organic nature which surrounds crescents of both types and seems to be the remnant of the envelope of the original spore from which each was derived. The parasite itself in its early stages in the red cell appears intensely malignant. The containing cell is small and shrunken, and either heavily marked with Maurer's clefts, or stippled over with pale pink patches of circular or irregular shape. The cytoplasm of the parasite is coarser, stains a deeper blue, and is much more pigmented than is usual with the ordinary parasite of malignant fever. Both have been found associated in some specimens and comparison between them seems to render it certain that though they may have a common origin as well as a common association, they constitute not one, but two different and distinct types of malarial plasmodium.

#### BOSTON MEDICAL AND SURGICAL JOURNAL.

August, 14, 1913.

**Diagnosis of Typhoid Fever on Admission to a Hospital.**—George Cheever Shattuck and Charles Henry Lawrence have tabulated the facts from the records of a series of 231 cases, in the Massachusetts General Hospital, in which the diagnosis of possible typhoid was made, and for which precautions were ordered at the time of entrance. Their conclusions are as follows: 1. When patients suffering from febrile conditions which have lasted from a few days to a few weeks enter a hospital for



treatment, typhoid fever should be suspected until some other diagnosis seems reasonably certain. Meanwhile, these patients should be treated under precautions to prevent the possible spread of infection. If this is done it is possible to avoid risk of spreading infection in nearly all instances. 2. In a series of 100 nontyphoid patients of fourteen years of age or older, in which typhoid fever was suspected, bronchitis, bronchopneumonia, and influenza represent twenty-nine per cent., or nearly one third of the whole, undiagnosed fevers fifteen per cent., and gastroenteritis, diarrhea, and colitis twelve per cent. 3. The importance of these diseases in the differential diagnosis from typhoid has not been fully appreciated. 4. Absence of rose spots at the first examination has little weight for diagnosis. The same is true of splenic enlargement when not demonstrable by palpation, and of the Widal test when negative. 5. A positive Widal test is of the greatest importance. Typical rose spots are very important, and a palpable spleen is a valuable indication of typhoid, but is common in various conditions simulating typhoid. 6. Atypical rose spots are valueless for diagnosis. 7. Absence of leucocytosis in a febrile disease strongly suggests typhoid. A white count below 5,000 is a valuable indication of typhoid fever, and is unusual in conditions simulating typhoid. 8. A white count above 9,000 is presumptive evidence against typhoid. 9. Bronchitis has no weight *per se* either for or against the diagnosis of typhoid fever. Patients with ordinary bronchitis entered the hospital during the first week, and with typhoid with signs of bronchitis generally during the second week of illness. 10. Congestion of the bases of the lungs, when present in febrile disease uncomplicated by cardiac insufficiency, points to typhoid. 11. The temperature in typhoid fever seldom is below  $101^{\circ}$  F., whereas, in other conditions simulating typhoid, the temperature is commonly below  $101^{\circ}$  F. 12. In typhoid the pulse rate is more apt to be low in proportion to the temperature than in other diseases.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

August 16, 1913.

**The Local Specific Therapy of Infections. 1. The Biological Basis.**—Simon Flexner, in the first of two lectures, presents the main facts which have to be taken into account in the working out of a system of specific therapy of the infectious diseases, and states that from these it must be evident that the solution of this problem is bound up in no small way with the problem of the segregation of the parasitic causes of infection in relatively inaccessible portions of the body. Hence, the recommendation which he brings forward is that of a more direct mode of attack on the local processes of infection that are not readily, if at all, to be reached by the introduction of curative agents into the blood. It is patent, he says, that a method enabling the healing substances to be delivered in and about the seat of disease and made to exercise their effects on the parasites, not through a diluted lymph secretion, but in such a state of concentration and combination as experiment and experience prove in

given instances to be useful, offers high hopes of success. So far as the surfaces of the body are concerned the method of local treatment, generally considered, is time honored; but even with the injections of these surfaces it has been too little practised.

**Overresponse to Affective Stimuli from Stationary Cortical Lesions.**—G. W. Robinson reports this case, that of a house painter who came under observation in February, 1913, complaining of partial paralysis of the right side, morphia habit, and occasional epileptic seizures. Eight years previously he had received a fracture of the skull from a fall from a scaffold and was operated upon immediately. Soon afterward he suffered from a cerebral abscess, which was drained, and a considerable quantity of brain tissue removed with the curette. After this he had convulsions at frequent intervals. In 1911, in an attempt to cure the convulsions, another operation was done, and a considerable amount of skull and brain tissue removed. The author states that the lesion was so extensive and penetrated so deeply into the cortical structures as to interrupt the corticohalamic fibres and interfere with cortical inhibition of thalamic activity. In interpreting the symptoms met with in this case he suggests that perhaps the rather frequent attacks of Jacksonian epilepsy and occasional general epileptic attacks produced the unstable nervous state to which Monakoff applied the term diachesis, and that this state was responsible for the overresponse to the various forms of measured stimuli employed. During many examinations he found no variability or inconstancy of response.

**Cloudy Swelling,** by E. T. Bell.—See this JOURNAL for June 28, p. 1371.

**Experimental Cirrhosis of the Liver,** by A. L. Grover. See this JOURNAL for June 28, p. 1371.

**Attempts to Transmit Poliomyelitis by Means of the Stable Fly.**—The following conclusions were reached by W. A. Sawyer and W. B. Herms: 1. In a series of seven experiments, in which the conditions were varied, they were unable to transmit poliomyelitis from monkey to monkey. 2. Further experimentation may reveal conditions under which the stable fly can readily transfer the disease, but the negative results of their work, and of the second set of experiments of Anderson and Frost, lead them to doubt that the fly is the usual agent in spreading this disease in nature. 3. On the basis of the evidence now at hand we should continue to isolate persons ill with poliomyelitis, or convalescent, and we should attempt to limit the formation of human carriers and to detect and control them. Screening of sickrooms against the stable fly and other insects is a precaution which should be added to those directed against contact infection, but not substituted for them. 4. The measures used in suppressing the house fly are not applicable to the control of the stable fly, owing to its different breeding habits and food supply.

**Rest and Repair in Pulmonary Tuberculosis.**—J. W. Flinn believes that although much good work has been done in the last ten years in the way of serums, vaccines, and other special treatments, so

much has been written along these lines that we are apt to forget that fresh air, good food, and rest are still the *sine qua non* of treatment in this disease. The truly wonderful effects of fresh air and good food have long been known to the profession, but rest, he says, is an agent the use of which the profession has been slow to recognize. As all three are of such importance, it is difficult to compare them, but perhaps one cannot better express their relative importance than by a paraphrase. "In the treatment of pulmonary tuberculosis there now abideth fresh air, good food, rest, these three; but the greatest of these is rest."

**Epididymotomy; the Radical Operative Treatment of Epididymitis.**—L. S. Eckels expresses the opinion that epididymotomy should be the treatment of choice in all cases of epididymitis, due to whatever cause, and for the following reasons: Relief from pain is instantaneous; internal administration of sedatives and opiates and loathsome external applications are unnecessary; the abatement of fever takes place in from twenty-four to forty-eight hours; pus and abscess formation are prevented; swelling, tenderness, and other symptoms rapidly disappear; there is no tendency to relapse; it insures a minimum of time lost from usual activities; there is probably a smaller proportion of sterility following the disease.

**Symptomatology of Multiple Sclerosis**, by L. H. Mettler.—See this JOURNAL for July 5, p. 47.

**Some Nervous Symptoms of Pernicious Anemia**, by C. E. Riggs.—See this JOURNAL for July 5, p. 47.

**The Serodiagnosis of Pregnancy**, by Henry Schwarz.—See this JOURNAL for June 28, p. 1369.

#### MEDICAL RECORD.

August 16, 1913.

**The Wassermann Reaction in Cancer.**—F. J. Fox reports a series of 215 cases, which are presented in two tables. Table No. 1 is made up of 210 cases, all of which gave negative results. Forty-nine were epithelioma; seventeen, sarcoma; 141, carcinoma; one, cerebral glioma; one, malignant papilloma of tongue; and one, papilloma of chest. In table No. 2 are placed five cases (four of carcinoma and one of sarcoma) which gave positive reactions. The technic employed is described, and it is stated that with each series tested the following controls were made use of: 1. Antigen control; 2, serum control; 3, hemolytic system; 4, known specific serum, with and without antigen; 5, known negative serum. The series was further controlled, in a measure, by 1,300 reactions done in the same series as those on cancer cases. The author regards it as fair to conclude, from the results in his cases, that cancer rarely, if ever, gives a positive Wassermann reaction under a technic like that employed, and that, in the presence of a positive finding, a coexisting luetic infection should be suspected.

**Specifics in the Treatment of Tuberculosis.**—G. R. Pogue states that "our first aid to Nature," the use of tubercle vaccine, can be effective only when the lesions are open and tubercle bacilli are free in the tissues, and then only when the total

sum of the open and closed lesions is not great enough to overwhelm the tissues with toxic products, or when other factors which might lower the reactive powers of the tissues are absent. In speaking of the use of tuberculin, "our second aid to Nature," he says that if the dose is kept down to such an amount as to cause only a slight focal reaction, and all of each dose neutralized or taken up by the antibodies in the tuberculous tissue, there will be no excess of tuberculin or antigen left free to stimulate extra antibodies. In so called closed tuberculosis it is this local reaction which we wish to produce, so that we may get more blood supply to the focus. Tuberculin does its work only when properly administered and when proper conditions are present. Later, the author takes up the pyogenic bacteria occurring in tuberculous lesions. Laboratory and animal experiments do not give much information regarding the part played by these in tuberculous lesions, but clinical experience and specific therapy directed against such mixed infections have proved that associated bacteria do play a large part in producing the symptom complex of the disease. Against these, autogenous, and not stock, vaccines should be used; for any antibodies which may be produced in the tissues are specific for the offending organism. It should be understood that the specific treatment of tuberculosis and its associated infections is not advocated to the exclusion of other known and tried therapeutic measures. All other measures known to have a favorable influence on the disease must be employed to suit the individual case.

**Pathology and Treatment of Appendicitis.**—B. S. Purse says that of the conditions causing appendicitis, the overloaded colon and cecum are the exciting factors. The opening from the cecum is usually patent and free, though at times a fold of mucous membrane presents a more or less rudimentary valvular formation here. The open or normal condition is the safeguard of the appendix, because its contractile fibres are thus enabled to reject any offending matter which has been crowded into it. In an appendix with the valvular formation, appendicitis cannot occur unless this resisting power of the appendix has been overcome by repeated attacks of constipation. In that case dilatation of its lumen takes place, and we have abortive attacks which can be readily relieved by purgatives. Where simple and conservative medical treatment is neglected the retained organic contents of the dilated appendix, decompose, cause inflammation of the mucous lining and adhesion of the outlet, and give us a typical abscess cavity. The folds of the peritoneum act as a defence against the entrance of any intestinal matter through a ruptured appendicular abscess into the general peritoneal cavity. The contiguity of the inflamed surfaces of the appendix with these peritoneal surfaces produces an adhesion which retards the escape of the appendicular contents, and by the rapid secretion of lymph a new cavity, with thick walls, is formed which, through its connection with the intestinal canal, becomes temporarily a part of that canal, taking the place of the appendix. As

to the treatment, it is first necessary to eliminate the cause, namely, the accumulated and hardened contents of the cecum and colon which block up the appendicular opening, and thus facilitate the reflow of the appendix's contents back into its natural channel. The treatment recommended, the author states, is simple, and usually successful in all stages of the disease: Empty the intestinal tract by purgatives; feed the patient with such food as will leave the least residue; and make constant application of hot poultices backed up with hot water bags.

**The Etiology of Blackwater Fever.**—George Richter proposes the following theory, based, he says, on many well known facts, to explain the symptoms of this disease. Material derived from the decomposition of "aged" erythrocytes is converted in the liver into bile pigments. These are changed by bacterial action in the intestine into urobilin, which is in part reabsorbed and through the portal circulation enters the liver, to be again transformed into bile pigments. The source of bile pigments is therefore hemoglobin derived from the circulating blood and urobilin derived from the portal circulation. When either source supplies an excess of material, urobilin will pass through the capillaries of the liver unchanged, enter the general circulation, and be excreted by the kidneys; the result is urobilinuria. In malaria erythrocytes are destroyed by the plasmodia, and as long as plasmodia are present we always find a urobilinuria. A coincidence of insufficiency of the liver (perhaps heretofore occult and also due to malaria infection), of malarial blood, and, eventually, of the toxic effect of quinine upon enzymes (bile forming), will have the effect that not only portal urobilin is not converted into pigments, but that the free hemoglobin in the plasma (derived from destroyed red cells) is not transformed in the liver, but arrives in the kidneys, giving rise to hemoglobinuria (blackwater fever).

#### AMERICAN MEDICINE.

July, 1913.

**The Production of a Safe Municipal Milk Supply.**—G. G. Nasmith, who is director of the laboratories of the Department of Health of Toronto, Canada, states that the following are the observances demanded by the Toronto health department, as essential for the safety and purity of the milk supply: 1. Washing and sterilization of all bottles and cans after use in city delivery, and of all cans before being returned to producers. 2. Sealing all empty returned cans. 3. Milking from cows with washed udders, in clean stables. 4. Milking into clean, preferably small mouthed, sterilized pails, by clean milkers. 5. Immediate chilling of milk, and keeping it below 50° F., in clean milk houses, until collected. 6. Rapid delivery of the milk to the city in sealed cans, with some mark of identification on the seal. 7. Holding the milk below 50° F. at the dairies in the city until pasteurized and bottled. 8. Using of utensils and machinery thoroughly washed with water and sterilized by steam. 9. Pasteurizing all milk to destroy pathogenic organisms, which, in spite of all precautions,

will gain entrance to the milk. 10. Allowing only bottled milk to be sold, and thereby obviating all possibility of contamination subsequent to pasteurization.

**Tuberculosis of Bones and Joints.**—C. L. Starr says that, in his experience, glandular enlargement of the mesenteric glands, with or without tuberculous peritonitis, in children, is not common, as compared with infection of the cervical, bronchial, and mediastinal glands. Also, a careful study of the morphological character of the bacilli from a large number of abscesses and broken down tissues reveals very few of the bovine type. Thus his experience would suggest that the bulk of the infections take place through the respiratory tract (the tonsils being responsible for a fair proportion of these), and that the infections from tuberculous milk or meat are uncommon. In the treatment the author emphasizes the point that the main feature should be the endeavor to increase the resistance of the patient, who should be given the advantages of fresh air, sunshine, the best hygienic surroundings, and good food, as in the treatment of tuberculosis elsewhere. The mechanical support of the affected part should, as a rule, be so applied as to limit the movement of the part and, at the same time, allow the child the advantage of exercise. An acute abscess should never be opened if it can be avoided.

**The Use of Tuberculin.**—E. S. Harding sums up an article on the use of tuberculin in pulmonary tuberculosis by saying that sanatoriums are essential for training the febrile patients, and for the leisure class with means. The universal treatment of patients, however, must be done at the dispensary, and the most efficient dispensary treatment is with the aid of tuberculin. At the Royal Edward Institute in Montreal he has been largely using *bouillon filtré* (BF), but for the past five months has employed *Persucht tuberculin original* (PTO) almost exclusively on new patients, and found it less liable to intense reactions. In regard to reactions, he is rather particular in using B F to avoid anything in the nature of a reaction, but in using PTO generally disregards slight reactions.

**The Diagnosis and Treatment of Eclampsia.**—The following is a summary of a paper on this subject by G. W. Kosmak: 1. The diagnosis of the toxemias of pregnancy should be made with certainty in every case, especially in the presence of convulsions. 2. Treatment should be governed by the signs and symptoms presented by the individual patient; thus far no specific therapeutic measure has been found. 3. When labor is imminent especially at term, it may be completed by rupture of the membranes, manual dilatation of the cervix, version, or forceps, unless some indication is present for a more radical operative delivery. If the patient is not in labor, or pregnancy is not more advanced than the seventh or eighth month, conservative, mainly sedative and eliminatory measures should always be instituted before resorting to any radical operative procedures. 4. The presence of a single convulsion should never be accepted as the criterion for radical surgical interference.



## ARCHIVES OF OPHTHALMOLOGY

July, 1913.

**Parinaud's Conjunctivitis; a Mycotic Disease Due to a Hitherto Undescribed Filamentous Organism.**—F. H. Verhoeff states that he has discovered masses of a filamentous microorganism in the focal areas of cell necrosis characteristic of Parinaud's conjunctivitis in eleven out of twelve cases. He fixes the tissue with Zenker's fluid, places it when hardened in absolute alcohol over night; he then places it on a cover slip kept wet with absolute alcohol, and scrapes its cut surface with a knife. The scrapings are allowed to dry on the cover slip and may then be stained, or sections may, however, be made of the tissue and then stained. When hematoxylin and eosin, the ordinary Gram stain, or the tubercle bacillus method is used, the microorganism is invisible. Carbolthionin gives fairly satisfactory results, but inferior to those obtained by the modified Gram method. Wright's modification of Leishmann's stain enables the microorganism to be recognized. The best results are obtained by a modified Gram stain, in which the essential difference from the ordinary Gram lies in the preliminary treatment of the sections with xylol balsam. Paraffin sections are preferable. They are first immersed in xylol balsam in the usual way and left for five minutes or longer, then treated rapidly in succession with xylol, chloroform, 95 per cent. alcohol and water, and then stained as follows: Aniline gentian violet, five minutes; water, Lugol's solution, thirty seconds; water; 95 per cent. alcohol until excess of color is removed—about one minute; chloroform to differentiate and dehydrate—about ten seconds; wash thoroughly in xylol; xylol balsam. Remove balsam as before and repeat staining process. The microorganisms occur in irregular masses from ten to sixty micra in diameter, but isolated individuals are also seen. The masses are composed of extremely delicate filaments intertwined together. The individual filament is extremely delicate, stains faintly, and has a single contour. It may be apparently straight, but is more often irregularly curved. Intensely stained round dots occur along the filament at almost regular intervals, never exactly centred in the axis of the filament, but projecting above its surface. As no branching could be made out he thinks they belong to the class of leptothrix. The absence of any other demonstrable microorganisms in the lesions, the unusual character of the microorganisms found, their great abundance, and the fact that they were so situated as to explain the lesions, leave no doubt in the mind of the writer that he has discovered the hitherto unknown agent of this disease.

**Toxic Amblyopia Due to Tobacco Alone.**—Matthias L. Foster reports a case in which toxic amblyopia developed in a man, sixty-five years of age, who had been an inveterate smoker for many years, but had maintained the reputation of a total abstainer from alcoholic liquors for over forty years in a community in which he was well known, and had no symptoms of multiple sclerosis, or of any other disease of the central nervous system. The difficulty of proving that any man does not drink is admitted, but the writer thinks the reputation borne

by this man for so long a time is the best negative evidence possible that he could not have indulged in alcoholic beverages in sufficient quantity, and with sufficient regularity, to excite a toxic amblyopia. An almost perfect recovery followed total abstinence from tobacco and treatment with strychnine for a period of eleven months. Almost all cases of this disease have been due to the combined action of tobacco and alcohol, but this one case the writer thinks enough to prove that it may be caused by tobacco alone.

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## Proceedings of Societies

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### MEETING OF THE NEW YORK NEUROLOGICAL SOCIETY.

*Held at the N. Y. Academy of Medicine, June 3, 1913.*

The President, Dr. SMITH ELY JELLIFFE in the chair.

**Brain of Patient with Cortical Astereognosis.**—Dr. LOUIS CASAMAJOR and Dr. SMITH ELY JELLIFFE. The patient from whom this specimen was obtained was a woman, forty-three years old, a housewife, born in this country. On June 3, 1912, she was suffering from paralysis of the right side of the body and inability to recognize objects in the right hand. Her father died, at the age of fifty-one, of asthma; her mother, at the age of fifty-nine, of apoplexy. There was no history of neuroses nor psychoses in the family. The patient had been married for twenty-four years, and was the mother of two children, one living and one dead. She also had two miscarriages. The history obtained from the patient was that she had enjoyed good health until July, 1910, when she began to suffer from severe headaches, which were almost continuous. After improvement under treatment, the headaches returned in May, 1911, and were continuous and severe. About two months after this the right arm began to feel weak, and later the corresponding leg was similarly affected. At that time she consulted Doctor Jelliffe, and he made a diagnosis of brain tumor in the left supramarginal gyrus. The weakness and stiffness in the arm and leg continued, and in November, 1911, both of these extremities became paralyzed, so that the patient could not get out of bed and was unable to hold objects in her right hand. At this time an operation was advised, but refused. The patient was given a course of mercury and iodide. Examination showed a spastic hemiplegia, with marked astereognosis in the right hand, and sensory aphasia with paraphasic speech. The fundi were normal. Under mercurial treatment, the patient improved considerably: the headaches disappeared, the weakness was less pronounced, and she was able to walk about the house and go on the street. Her skin had a distinctly bronze color, which came on rather rapidly about two years ago, but which she thought had not progressed much of late. On account of the bronzing of the skin, together with the x ray findings, an exploration of the kidney region was made; the supra-

renal body was found to be normal, while the kidney itself was the seat of a chronic nephritis. The patient returned to the hospital on August 9, 1912, with the statement that she had been entirely well until the previous day, when she was taken with a severe headache, with involuntary twitchings and spasms of the right side of the body, but most pronounced in the right leg. At this time she also developed an internal strabismus. An examination of the eyes, made on August 29th, showed that the pupils were small and reacted normally. The ocular movements were slow, but complete. There was no nystagmus; no facial paralysis; sensation was normal. The right upper extremity was more spastic than at the time of her former stay at the hospital. The astereognosis in the right hand was unchanged. During the summer of 1912 the patient grew progressively weaker; she seemed confused and at times almost comatose. The ocular movements varied from day to day; sometimes there was double internal strabismus; at other times only weakness of the external rectus. Death occurred in November, 1912. The patient's brain had not yet been examined, and the report thus far was to be regarded as only preliminary. The pathological findings were a depressed area of softening just above the supramarginal gyrus on the left side, and a general atrophy of the convolutions of the left hemisphere.

**Cortical Astereognosis from a Cyst: Operation, with Improvement.**—Dr. J. ARTHUR BOOTH presented a young man of twenty-two, who was a perfectly healthy and intelligent lad until July 12, 1906, when he met with the following accident: He was on a spiledriver and attempted to descend to the dock by sliding down a rope. When about thirty-five feet from the ground one of his companions jerked the rope and he fell, striking on his head and right arm. He was taken to the hospital, where an examination revealed a compound, comminuted fracture of the right parietooccipital region and of the right forearm. He was unconscious for five days, but finally made a good recovery, and, after a period of seventeen days, was discharged as cured. After his return home it was noticed that he was dull and stupid and quite changed from his former self. A year later he had what was called one or two "sinking spells," without any spasmodic movements of the muscles. He had one attack in 1908, another in 1909, a third in 1910, a fourth in 1911, and two in October, 1912. In March, 1913, he had three attacks, and during the following month he had two, which he described as follows: "I feel a tingling and numbness in the right hand; it is then drawn up and I feel my head turning to the right; then I lose myself." His mother stated that he then became stiff all over, and that on one occasion he had bitten his tongue. Besides these epileptoid attacks he frequently had severe headaches, limited to the left frontoparietal region, the pain being so severe at times that he had been noticed to pound his head with his fist. Examination by Doctor Booth, April 15, 1913: From a bright, intelligent schoolboy, standing at the head of his class, he was now apathetic and dull; all mental processes were slow, with a very faulty memory both for recent

and past events. He answered questions slowly and hesitatingly, but there were no motor speech defects. The superficial and deep reflexes were present and normal, excepting the knee jerks, which were exaggerated: there was no ankle clonus nor Babinski. The tongue was protruded in a straight line, and there was no paralysis of the facial muscles. The equilibrium was fairly good. There was no marked ataxia. He was right handed, and the right upper extremity was weaker than the left, though it must be remembered that the right forearm was broken at the time of the accident. There was a decided loss of sensation over the right upper extremity, and to a lesser degree on the right side of the face, as compared with the left. The same applied to the right thigh, as compared with the left. The patient was unable to write anything but his name, which he did slowly and with difficulty. He could, however, write from copy. There was no transposition nor misuse of words. He was able to count up to 100, and recognized figures when they were placed before him. He was unable to recognize but two letters of the alphabet, namely, A and P, and he could not read the simplest word nor sentence. When blindfolded, he failed to recognize a bottle, knife, watch, coins of different denomination, chain, key, or pipe with the right hand, but readily did so with the left. The pupils were widely dilated, but reacted slowly to light and accommodation. The fundi were normal. Taking into consideration all these findings, a diagnosis was made of a cyst in the left angular gyrus, the result of a former hemorrhage. An operation for its removal was advised. The cyst found upon operation was about the size of a silver half dollar, situated over the left angular gyrus, extending forward and bound down with adhesions. These were freed and a drain placed in the cyst cavity after it was completely emptied of about two drachms of clear fluid. On June 3rd, when Doctor Booth saw him again, the patient had gained ten pounds in weight. Mentally, he was much brighter and there was a marked improvement in his memory. He had had no further convulsive attacks and no headache. There was still slight weakness of the right hand, with marked astereognosis. He could recognize a majority of the letters of the alphabet, and could read a few simple words and two short sentences.

Dr. WILLIAM M. LESZYNSKY said that in connection with these two cases with astereognosis he wished to report briefly a case that was recently under his observation. An examination of the patient revealed complete astereognosis in the left hand, and, in addition, a typical Babinski plantar response on the same side. There were practically no other symptoms. No rigidity; nothing in the eye grounds. Within a week, rigidity began to develop in the left lower extremity, followed by partial paralysis. Subsequently, these symptoms extended to the left upper extremity, and about a week later the first eye symptoms appeared in the shape of a slight papilloedema. A subcortical lesion originating in the upper gyrus of the parietal lobe was diagnosed. An operation was advised. Before it could be undertaken, however, the boy became comatose and died. An autopsy was re-

fused. In this case, the lesion apparently developed in the parietal lobe and extended to the leg and arm centres.

Dr. I. ABRAHAMSON said that in the case reported by Doctor Casamajor and Doctor Jelliffe, the condition simulated a tumor. The speaker said he had seen four cases during the past year, where choked disk and the other symptoms that were present were strongly indicative of a tumor of the brain, but eventually they all proved to be cases of nephritis, and no tumor was found.

Doctor JELLIFFE, speaking of the patient with cortical astereognosis reported by Doctor Casamajor and himself, said that for a long time they were in doubt whether or not they had to deal with a brain tumor, but in view of the very gradual extension of the process, it was decided that if there was a new growth in the brain, it was of such a nature that its removal would be practically impossible—that if it was a new growth, it was probably of an infiltrating nature. The result showed that it was an infiltrating process in the nature of a diffuse atrophy, with specially intense development in one area; the true nature of the atrophic process had not yet been determined.

**A Case of Myotonia Atrophica.**—Dr. FOSTER KENNEDY said the rarity of this curious muscular degeneration was his excuse for the report of a single case. The patient was a male, single, forty-six years old, a native of Switzerland, who was admitted on March 17, 1913, to hospital. The patient's parents had both died in old age. He had three brothers and three sisters in good health. One sister, a resident in the United States, had arthritis deformans. There was no neuropathic family history; neither the patient nor his sister knew of any near or collateral relative affected in any way similarly to the case under consideration. For fourteen years the patient had been employed as a farmer in New England. His habits were regular and his general health good. His consumption of alcohol was limited to two or three glasses of beer a day. He denied venereal disease. His previous health had always been good. In 1893 his left cornea was injured by a burning spark falling on it from a passing engine. In 1887 his hands and feet were said to have been frostbitten. In November, 1911, after hard work in harvest time, he began to suffer from cramplike pain in the lumbar region. These pains were at first intermittent and rare, but later became more frequent, so that at the time of examination he complained constantly of their presence. He could recall no injury to account for these pains, which were more severe when he worked in a bent posture. He strenuously denied having had any difficulties in his gait or in the use of his hands, and gave no history of sphincteric trouble. He had not worked for a year, but was never confined to bed. His facial appearance was quite strikingly characteristic, and was the result of an incomplete ptosis of both eyelids, with marked hollowing of the temporal fossae, and flattening of the masseteric region on each side. The orbicular muscles of the eyes were very weak, and there was no movement in the temporal or masseter muscles. The left pupil was hidden by a corneal scar, the result of the injury just related. The reaction of

the right pupil was normal. A well marked and advanced cataract was present on each side; that on the left side might have been thought traumatic in origin had not that in the right lens been so obviously otherwise. A slight, bilateral divergent strabismus was evidently a result of defective vision. The patient's articulation of both English and French was slurred and difficult to follow: no structural defect was found which could account for this symptom. The sternomastoid muscles were completely atrophic, and there was some wasting in the extensor muscles of the forearms. The position of rest of both hands was one of slight flexion, the thumbs being strongly adducted. All movements were present, but it was found that after making a strong grasping movement with either hand, he was unable quickly to again extend his fingers, the involved muscles, apparently, being in a state of cramp. If the grasping movement were frequently and quickly repeated, this cramp became less and less noticeable, until after perhaps a dozen efforts it would completely disappear. This phenomenon was not present in any other muscle or group of muscles. The abdominal muscles and those of the back and chest were normal, as was also the spine. The vastus internus and externus of the right thigh were diminished in bulk, though no change was found in the intervening rectus femoris muscle. The knee jerk on the right side was difficult to obtain—a reduction in response directly proportional to the reduction of the muscular mechanism involved. There was almost complete atrophy of the anterior tibial and peroneal muscles, with complete bilateral foot drop as a result. The ankle jerks and plantar reflexes were absent. The abdominal and arm reflexes were normal. The gait was of the steppage character peculiar to paralysis of the dorsiflexors of the feet. There were no sensory changes. No reaction to faradism or galvanism in the orbicular eye muscles, the temporals, masseters, or sternomastoids, and almost complete loss in the anterior tibial groups of both sides. In the muscles of the forearms and in the intrinsic hand muscles, the reactions were strong, but enormously prolonged. There were no pathological changes in either the blood or urine. The Wassermann test of the blood serum and of the cerebrospinal fluid was negative. The combination of premature bilateral cataract with atrophy of the temporal and orbicular eye muscles, and of the masseters, sternomastoids, vasti, and anterior tibial muscles, together with a sharply contrasted myotonia in the hands occurred too infrequently to be ignored, and most probably pointed to a deficient hereditary endowment as the approximate cause of the disease.

Dr. I. ABRAHAMSON referred to a typical case of myotonia atrophica: The patient had bilateral cataract and there was a congenital absence of certain muscles, such as the sternal portion of the pectorals. In another case, now under observation, the symptoms were strongly suggestive of myotonia atrophica, the patient presenting a fibrillary twitching of the tongue, etc., with weakness of one sternomastoid; yet, owing to the fibrillary twitching, etc., it was most likely not a case of myotonia.



Doctor KENNEDY said a peculiar feature of myotonia atrophica was the extraordinary uniformity in the appearance of these patients. They all looked as though they belonged to the same family—like brothers and sisters. There was more uniformity in their symptoms than in other forms of dystrophy. The electrical reactions showed a quantitative change in the atrophied muscles, but in the forearm there was increase in the reaction to both galvanism and faradism, and the reactions were very long drawn out. The muscles easily went into a tetanoid condition, which was at complete variance with the action of the atrophied muscles.

**Cauda Equina Neuritis.**—Doctor KENNEDY presented an Italian, forty-nine years old, who was admitted to his care on May 8, 1913, with the history that five years ago he developed a severe pain in the middle of the back, subsequently extending to the left leg and later to the right. It was shooting in character, and after persisting for several months it was said to have disappeared after the injection of morphine. Later, he noticed a "dead" feeling in both legs: this progressed, and walking became more and more difficult until he was bedridden. There was no history of incontinence, but he stated that since the onset of his illness he had to strain before passing urine. He was bedridden for two years, when he began to regain power in the legs, and the improvement slowly continued until he was able to walk. He now walked fairly well, but was handicapped by double dropfoot. The upper extremities had never been involved. There was now no pain, but occasional pin and needle sensations in the feet. Examination showed marked atrophy of the tibialis anticus and peronei muscles, and the symptom complex was referable to a lesion of the cauda equina, which at one time we might have attributed to the presence of a tumor in that region, but in the cases which the author had reported at the recent meeting of the American Neurological Association in Washington they had found no tumor, but a congested appearance of the nerve roots. In this case the patient, after being bedridden for two years, had gradually improved, which we would not expect to find with tumor, and we were therefore justified in believing that these cases were due to a lesion which was not luetic, nor to the presence of a new growth, but rather to an infective, inflammatory state of the cauda equina, possibly a neuritis.

Doctor LESZYNSKY said that in certain cases of this type, in which the patients presented symptoms of tumor of the cauda equina, puncture of the spinal canal had failed to give any fluid, and this might serve as a differential point between neuritis and neoplasm.

**A Case of Multiple Sclerosis Treated for Incontinence.**—Dr. I. STRAUSS reported this case. The patient was a man, forty-seven years old, who was admitted to the hospital on December 5, 1912. His family history was unimportant. The patient was a moderate user of alcoholics and gave a history of gonorrhea and syphilis twenty years ago. Two years ago it was noticed that the patient had difficulty in remembering things, with slowness of speech and motor aphasia. Eight months ago he

complained of weakness in the legs when walking, and two months later he developed vesical incontinence, with occasional rectal incontinence. There was also diplopia and loss of weight. An examination at the time of his admission to the hospital showed, in addition to the above symptoms, nystagmus, tremor of the head, exaggerated knee jerks, slight Romberg, slow speech, and diminished abdominal reflexes. A cystoscopic examination showed a trabeculated bladder, with a mild cystitis. The Wassermann test at this time was negative. Under repeated injections of salvarsan and epidural injections of sterile petrolatum, the patient gradually regained control of his bladder function, and he left the hospital, on May 1, 1913. He was urinating about five times in the course of twenty-four hours, and was able to retain urine from six o'clock p. m. to six a. m. without discomfort.

**Hysteroepilepsy (Piblokto) among the Eskimos.**—Dr. A. BRILL presented a paper on this subject, in which he said that while reading Peary's fascinating book, "The North Pole," he was especially interested in what Peary called a peculiar form of nervous affection found among the Eskimos of the Western Coast of Greenland from Cape York to Etah which they called piblokto and which he designated as a form of hysteria. Peary stated that he had never known a child to have piblokto, but that some of the adult Eskimos would have an attack every day or two, and that one day they had five cases. Concerning the attack proper, Peary spoke as follows: "The patient, usually a woman, begins to scream and tear off and destroy her clothing. If on a ship, she will walk up and down the deck, screaming and gesticulating, and generally in a state of nudity, though the thermometer may be in the minus forties. As the intensity of the attack increases, she will sometimes leap over the rail upon the ice, running perhaps half a mile. The attack may last a few minutes, an hour or even more, and some sufferers become so wild that they would continue running about on the ice perfectly naked until they froze to death if they were not forcibly brought back." Peary goes on to say that when the attack takes place indoors, nobody pays much attention to it unless the sufferer should reach for a knife or attempt to injure someone. The attack usually ends in a fit of weeping, and when the patient quiets down, the eyes are blood-shot, the pulse high, and the whole body trembles for an hour or so afterward. It was also remarkable that the Eskimos dog suffered from a morbid condition by the same name. Peary stated that it did not seem to be infectious, though its manifestations were similar to those of hydrophobia.

For diagnostic purposes, Doctor Brill said he tried to ascertain whether these attacks of piblokto were accompanied by a loss of consciousness. Professor Donald B. MacMillan, an anthropologist, and one of Peary's trusted lieutenants during the successful quest of the North Pole in 1908 to 1909, was certain that all of the cases he saw showed a loss of consciousness, and that they were all in a confused state. Thus, they were perfectly harmless when left to themselves, but showed a blind resistance if prevented from following out their individual vagaries. Granting this loss of conscious-

ness to be so, it would not simplify matters as regarded diagnosis. Loss of consciousness might be a concomitant symptom of hysteria or epilepsy. So far as could be ascertained, none of those afflicted ever showed a typical *grand mal attack*. On the other hand, everything pointed to hysteria. The disease was almost exclusively confined to the female sex: Professor MacMillan quoted Peary as saying that in twenty years he saw only one man who had what he thought was piblokto, and the disease was practically unknown in children. Of the twenty women aboard the "Roosevelt," eight had piblokto. The Eskimos themselves thought that the disease had something to do with the evil spirit, and for that reason they were reluctant to touch the afflicted during the attack. The only probable cause of this affliction mentioned by Peary was of a psychogenetic nature. He said: "The immediate cause of this affection is hard to trace, though sometimes it seems to be the result of a brooding over absent or dead relatives, or a fear of the future." In other words, in the ultimate analysis, it was love and hunger. Professor MacMillan believed the attacks were caused by abuse. Most of the Eskimos women who had this disease were of a jealous disposition. They either imagined themselves illtreated, or they actually suffered abuse at the hands of their husbands, who beat them with their fists. Many Eskimos were cruel to their wives. Speaking of the attacks, he said they reminded him of a little child discouraged and unhappy because it imagined that no one loved it nor cared for it, and therefore ran away. This plainly showed, Doctor Brill said, that as in civilized people, it was hunger and love—especially the latter—that played the great part in the causation of hysteria. It was also interesting to note that it was not the lack of the gross sexual, but the ungratified desire for love that was the determining factor.

In closing, Doctor BRILL said that these attacks resembled the "running amuck" of the Malays, but that it was difficult to say whether there was really a total loss of consciousness or not. He saw no objection to calling such an attack a peculiar psychical manifestation, but he saw no reason why one should think that these attacks showed any resemblance to manic depressive insanity or to catatonia. There was absolutely nothing in these attacks to suggest these diseases.

**Some Notes on "Transference" in Psychoanalysis.**—Dr. SMITH ELY JELLIFFE read a paper on this subject, in which he said that as yet, the whole psychoanalytic situation, so far as successful therapy was concerned, was intimately bound up in transference, and one whose purpose it was to attempt to get at the causes for good or bad therapy, must needs view this situation as comprehensively as possible. Stated categorically and baldly, it might be said that without proper transference, a successful therapy for the psychoneuroses was impossible. In speaking of rapport or transference, it was well known that we were not dealing with any new phenomenon: it was older than the Mosaic law, and, like other old truths, it was constantly being stated and re-stated from epoch to epoch, in new forms and at recurring times with sharper and sharper differentiation. The psychoanalytic method fortunate-

ly enabled one to deal with the subject of transference much more definitely than ever before. It afforded positive criteria whereby one was enabled to watch its development, realize its tendencies, guide its directions, and, at times regain its losses for the sake of the patient. At the same time it provided the most exquisite sensitizer which, rightly used, compelled the psychoanalyst to search his own resistances, and forced him to keep clearly the goal in view, i. e., the patient's best interest, and not his own gratification or glorification. If psychoanalysis, as a method, really permits any great advance over earlier methods of handling the psychoneuroses, it must in some measure be through its better knowledge of and modes of dealing with transference.

Dr. A. A. BRILL said he appreciated the truth of Doctor Jelliffe's remarks, but he could readily understand how they might fail to impress one who had done no actual work in the field of psychoanalysis. He believed that every physician, consciously or unconsciously, came in contact with these cases of transference, which played an important part in the success of his practice. We knew that certain drugs were effective in the hands of one man, while they were inert in the hands of another, and that the impression made on the patient often depended more on the personality of the physician than on the drug he prescribed. This was only another phase of transference. Hysterical accusations not infrequently made against physicians were often due to an overtransference and subsequent transformation into hatred. A general knowledge of this subject might prove of great value to every physician.

### Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

**Freud's Theories of the Neuroses.** By Dr. EDUARD HITSCHMANN, of Vienna. Authorized Translation by Dr. C. R. PAYNE, of Westport, N. Y. With an Introduction by ERNEST JONES, M.D., M.R.C.P., of London. Nervous and Mental Disease Monograph Series No. 17. New York: Journal of Nervous and Mental Disease Publishing Company, 1913. Pp. x-154. (Price, \$2.)

The publication of this work signalizes an authoritative presentation in English of a comprehensive review to date of all of Freud's views concerning the psychological mechanisms of the neuroses, and the application of psychotherapy in their recognition and treatment. The author's extensive experience as well as his personal association with Freud renders him especially capable of presenting this subject, a task by no means easy. The first chapter is devoted to Freud's classification of the neuroses which he divides into the "true neuroses" including neurasthenia and anxiety neurosis, and the "psychoneuroses" which include hysteria and obsessional neurosis. According to his view the true neuroses are dependent upon somatic etiology, while the psychoneuroses represent a translation of painful affects or complexes into symptoms through unconscious psychic processes. The analysis of the sexual instinct and of the far reaching influence of the sexual experiences, perversions, and phantasies of childhood; the psychology of suppressions or purposeful forgetting; and the rôle of the unconscious in determining normal as well as abnormal mental states and actions are extensively discussed. Of particular importance is the chapter on dreams

of which Freud has been the first to offer a definite detailed psychological interpretation. Due consideration is given to the psychoanalytic method of investigation and treatment, and several pages are devoted to answering some of the criticisms which have been made of Freud's work. While the impartial reader may not be able to either accept or reject all of the views presented, he cannot but be impressed by the fertility of the mind which has conceived them, and convicted of the deep significance of much that is given. The subject matter is often difficult to follow, on account of the intricacy of the argument as well as the long involved sentences which are probably traceable to the German text. The book is without question the best presentation available in the English language of Freud's theories which represent the most elaborate attempt to produce a rational, practical psychology as a basis for the scientific treatment of the neuroses.

*Mind and Health. With an Examination of Some Systems of Divine Healing.* By EDWARD E. WEAVER, Ph. D., Sometime Fellow in Clark University. With an Introduction by G. STANLEY HALL, Ph. D., LL. D., President of Clark University. New York: The Macmillan Company, 1913. Pp. xv-500. (Price, \$2.)

This book is written from the nonmedical standpoint, reviewing with impartiality the different theories of psychology which concern the influence of mental states and processes on the health of the individual, and discussing at length the problem of Divine healing. The author shows great versatility, and quotes extensively throughout the work. In Freud's method of psychoanalysis he sees much that is valuable. For Christian Science he is an apologist, deploring its "negations" but admiring its "affirmations." For him Dowdism has failed from the fact that it has neglected the study of psychotherapeutic principles! He quotes *ad libitum* from nearly 300 references including nearly every writer of importance on psychology and allied subjects, and credulously cites instances of patients who suffered from embolism, and pneumonia, whose lives were despaired of by their physicians but who were cured, inferentially as a result of prayers of pastors, in one case "telepathically" by absent treatment when the patient was unconscious! The professed aim of the book has been to further the adoption, by the church, of the function of mental healing, advocating the training of ministers in scientific psychology. Although a great amount of valuable material is presented, the prevailing atmosphere of religious mysticism, and credence of the actuality of Divine healing detract from the scientific value of the work.

*The Relations of the Lachrymal Organs to the Nose and Nasal Accessory Sinuses.* By Prof. Dr. A. ONODI, Director of the Rhinological Clinic in the University of Budapest. With Photographic Reproductions in Natural Size of Forty-five Preparations. English Translation by Dr. DAN MCKENZIE, London. New York: William Wood & Co., 1913. Pp. 66. (Price, \$4.25.)

Professor Onodi's book is a monograph of 23 pages; it is presented in the original German with translation into both French and English. There is a good bibliography added, and forty-five reproductions of dissections, showing in an admirable manner the anatomy of the parts studied. The question of the development of the parts, together with operative relief for lacrymal obstruction, is carefully considered. The translations make the book valuable for those not using German. The English one faithfully follows the original, while the French translator has seen fit to omit small parts of the text, without, however, vitiating the meaning. The French text has a very considerable number of typographical errors—due evidently to carelessness in the proof reading. Professor Onodi has brought together the material on the lacrymal organs in small compass and in a usable form.

*Sterility in the Male and Female and Its Treatment.* By MAX HÜHNER, M. D., Chief of the Genitourinary Department, Harlem Hospital Dispensary, Formerly Attending Genitourinary Surgeon, Bellevue Hospital, etc. New York: Rebman Company, 1913. Pp. xvi-262. (Price, \$2.)

The author gives in his preface his object in writing the book. First: "It will present the results of original and

systematic study on the subject of sterility, . . . and secondly, it will present a practical method of the treatment of sterility in the male and female based upon a scientific investigation and accurate preoperative diagnosis." He assumes that a postcoital examination of the fluid in the cervical canal gives more precise information than the examination of a condom specimen; and he infers that a precoital alkaline douche is useful in certain cases of sterility to help preserve the vitality of the spermatozoa. The statistics of the author's cases unfortunately prove nothing. The effect of an alkaline douche causing the cervical secretion to become alkaline, and therefore prolonging the life period of the spermatozoa, does not seem to be any guarantee that pregnancy will follow as some of his cases will demonstrate (p. 143, Case, Mrs. A. D.). "The new method of treatment" which the author has devised is not new. This method is the injection into the cervix of the aspirated testicular fluid mixed with a warm solution of bicarbonate of soda. But this conception of a "son of a gun" remains a fantastic aspiration.

*Insurance Medicine, Being Suggestions to Medical Examiners.* By HENRY H. SCHROEDER, M. D., Medical Director, Mutual Life Insurance Company of New York; Editor Insurance Department, Medical Record. New York: William Wood & Company, 1913. Pp. v-150. (Price, \$2, net.)

As the chapters of this book were running serially in the columns of the *Medical Record*, the reviewer's thought was that they were too valuable to be lost and were well worthy of presentation in more durable shape. The long experience of Doctor Schroeder as a life insurance examiner is a guarantee of the general correctness of his findings and advice. The reviewer, however, would take exception to one statement in the description of Heller's test for the detection of albumin: "When albumin is present in small amounts, it is imperative for the tube to be set aside carefully for at least fifteen minutes in order to get a positive reaction with traces of albumin." In the reviewer's experience, after fifteen minutes, a trace of albumin would have disappeared, the small amount of albumin being dissolved by the excess of acid acting upon it through the law of diffusion of fluids, whereby after a certain period the acid and the urine become a homogeneous mixture and precipitated albumin previously located at the point of contact of the two fluids would be dissolved by the excess of acid.

On the whole, the book is a very valuable addition to the literature of life insurance examinations. It contains so much valuable information that it should be in the reference library of every examiner for life insurance.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending August 20, 1913:*

**Banks, C. E.**, Senior Surgeon. Granted two days' leave of absence from August 16, 1913, under paragraph 193, Service Regulations. **Brown, B. W.**, Surgeon. Leave of absence for one month during the year ending June 19, 1913, revoked; granted one month's leave of absence during the year ending June 19, 1913, to be taken when most convenient. **Clark, T.**, Surgeon. Directed to proceed to Arundel Cove, Baltimore, Md., for the purpose of vaccinating officers and crews of the Revenue Cutters and the station force, against typhoid fever. **Frost, W. H.**, Passed Assistant Surgeon. Authorized to visit Indianapolis, Ind., Columbus, Ohio, Springfield, Ill., and such other places on the Ohio River Watershed as may be necessary to collect data, make sanitary surveys, and establish laboratories in connection with the investigation of the pollution of the Ohio River. **Gochicoa, A. E.**, Acting Assistant Surgeon. Granted thirty days' leave of absence from May 17, 1913, thirty days' extension of annual leave on account of sickness, from June 16, 1913, and five days' leave of absence, without pay, from July 16, 1913. **Hollman, H. T.**, Acting Assistant Surgeon. Leave of



absence for thirty days from July 18, 1913, amended to read "thirty days' leave of absence from July 14, 1913." **Kolb, L.**, Assistant Surgeon. Granted fifteen days' leave of absence from September 6, 1913. **Lumsden, L. L.**, Surgeon. Detailed at the request of the secretary of the Committee on Public Instruction of the Medical and Chirurgial Faculty of Maryland to attend a public meeting to be held at Cumberland, Md., in connection with a public health exhibit and to deliver an address on the prevention of typhoid fever. **McIntosh, W. P.**, Surgeon. Granted one month's leave of absence from September 1, 1913. **McLaughlin, A. J.**, Surgeon. Detailed to represent the Service at the Fourth International Congress on School Hygiene, to be held in Buffalo, N. Y., August 25 to 30, 1913. **Mathewson, H. S.**, Surgeon. Detailed to attend the convention of the American Hospital Association, to be held in Boston, Mass., August 26 to 29, 1913. **Nydegger, J. A.**, Surgeon. Detailed to represent the Service at the Fourth International Congress on School Hygiene, to be held in Buffalo, N. Y., August 25 to 30, 1913. **Schereschewsky, J. W.**, Surgeon. Detailed to represent the Service at the Fourth International Congress on School Hygiene, to be held in Buffalo, N. Y., August 25 to 30, 1913. **Schug, F. J.**, Acting Assistant Surgeon. Granted six days' leave of absence, without pay, from August 11, 1913. **Stevenson, J. W.**, Acting Assistant Surgeon. Granted four months' leave of absence, without pay, from August 4, 1913. **Walkey, W. S.**, Acting Assistant Surgeon. Granted one day's leave of absence, without pay, August 21, 1913. **Warner, H. J.**, Passed Assistant Surgeon. Granted four days' leave of absence en route to station. **Watson, H. J.**, Acting Assistant Surgeon. Granted twenty-six days' leave of absence, without pay, from August 19, 1913. **Wilson, J. G.**, Acting Assistant Surgeon. Leave of absence for ten days from August 1, 1913, amended to read "two days' leave of absence from August 1, 1913."

#### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending August 22, 1913:*

**Baker, C. R.**, First Lieutenant, Medical Corps. Detached from duty at Fort Jay, N. Y., on August 15th, and ordered to Fort Niagara for temporary duty. **Beaven, C. L.**, First Lieutenant, Medical Reserve Corps. Ordered to Fort Hancock on August 28th for temporary duty. **Blanchard, R. M.**, Captain, Medical Corps. Left Fort Strong on August 15th for temporary duty at Fort Niagara, N. Y., until October 1st. **Carswell, R. L.**, Captain, Medical Corps. Granted four months' leave of absence en route from the Philippine Islands. **Connolly, P. B.**, First Lieutenant, Medical Corps. Relieved from duty at Camp Perry, Ohio, and will return to his proper station. **Davis, A. D.**, Captain, Medical Corps. Left Fort Riley on August 16th on two months' leave of absence. **Ferenbaugh, T. L.**, First Lieutenant, Medical Corps. Reports arrival at Fort St. Michael, Alaska, on July 28th. **Fielden, J. S. C.**, First Lieutenant, Medical Corps. Ordered to Fort Totten on August 28th for temporary duty. **Gregory, J. C.**, Captain, Medical Corps. Left San Francisco on August 10th, on three months' leave of absence (under orders to Fort Screven). **Kremers, E. D.**, Captain, Medical Corps. Left Department Hospital at Honolulu on August 5th on one month's leave of absence in the United States. **Magee, J. C.**, Captain, Medical Corps. Granted two months' leave of absence. **Meister, W. B.**, First Lieutenant, Medical Corps. Reports arrival at Fort Davis, Alaska, on July 31st. **Mills, Raymond W.**, First Lieutenant, Medical Corps. Special Orders No. 171, dated July 24, 1913, pertaining to First Lieutenant Mills, revoked. The resignation of Raymond W. Mills, First Lieutenant, Medical Reserve Corps, of his commission as an officer in the United States Army, has been accepted by the President, to take effect on November 20, 1913; leave of absence granted him in Special Orders No. 171, July 24, 1913. War Department, is extended to and including November 20, 1913. **Reasoner, M. A.**, Captain, Medical Corps. Granted leave of absence for twenty-four days. **Russell, F. F.**, Major, Medical Corps. Relieved from

duty at the Army Medical School and as curator of the Army Medical Museum, Washington, D. C., to take effect on or about October 15, 1913, and will then proceed to New York city and report to the commanding general of the Eastern Department for duty as attending surgeon in that city. **Shook, Jay R.**, Major, Medical Corps. Will proceed from Fort Logan, Colo., to Denver, to represent the Medical Department of the Army at the annual meeting of the Association of Military Surgeons in that city, September 16 to 19, 1913. **Vedder, Edward B.**, Captain, Medical Corps. Relieved from duty at the Rockefeller Institute, for Medical Research, New York, N. Y., effective October 1, 1913, and will repair to Washington, D. C., and report for duty as assistant professor in clinical microscopy and bacteriology, Army Medical School. **Waring, J. B. H.**, Captain, Medical Corps. Relieved from treatment at the Walter Reed General Hospital, District of Columbia, from duty with the Second Division, and from further duty at Fort Leavenworth, Kansas, and will proceed to Fort Logan, Colo., and report in person to the commanding officer of that post for duty. **Whitmore, Eugene R.**, Major, Medical Corps. Relieved from duty as attending surgeon, New York, N. Y., effective on October 1, 1913, and will proceed to Washington, D. C., for duty as professor of military and tropical medicine, Army Medical School. **Wickline, W. A.**, Captain, Medical Corps. Left Walter Reed General Hospital on August 8th on one month's leave of absence.

#### Births, Marriages, and Deaths.

##### Married.

**Morgan—Lindenmuth.**—In Reading, Pa., on Thursday, August 15th, Dr. David W. Morgan, of Auburn, and Miss Edna C. Lindenmuth.

##### Died.

**Blount.**—In Evansville, Ind., on Saturday, August 16th, Dr. Joseph F. Blount, aged eighty-six years. **Boden.**—In Oneida, N. Y., on Saturday, August 16th, Dr. Edwin R. Boden, aged fifty-four years. **Davis.**—In Camden, N. J., on Sunday, August 17th, Dr. William Albert Davis, aged sixty-two years. **Ferris.**—In New York, on Thursday, August 21st, Dr. Cleveland Ferris, aged thirty-five years. **Fisher.**—In Zion, Pa., on Tuesday, August 19th, Dr. Philip S. Fisher, aged sixty-seven years. **Fletcher.**—In Glacier Park, Mont., on Tuesday, August 19th, Dr. Calvin Ingram Fletcher, of Indianapolis, Ind. **Gayley.**—In Hazelton, Pa., on Saturday, August 16th, Dr. William C. Gayley, aged fifty-four years. **Greene.**—In Dayton, Ohio, on Sunday, August 17th, Dr. Duff W. Greene, aged sixty-two years. **Guernsey.**—In Los Angeles, Cal., on Thursday, August 14th, Dr. George S. Guernsey, aged ninety-one years. **Huck.**—In Baltimore, Md., on Wednesday, August 13th, Dr. John George Huck. **Ladd.**—In Milwaukee, Wis., on Friday, August 15th, Dr. George Dutton Ladd, aged sixty-two years. **Lordly.**—In Chester, Nova Scotia, on Wednesday, August 20th, Dr. James E. M. Lordly, of New York, aged sixty-seven years. **Middleton.**—In Camden, N. J., on Thursday, August 21st, Dr. Melbourne F. Middleton, aged seventy-one years. **Miller.**—In St. Paul, Minn., on Tuesday, August 12th, Dr. Clinton Clarence Miller, aged fifty-nine years. **Overstreet.**—In Baxley, Ga., on Friday, August 1st, Dr. James E. Overstreet, aged forty years. **Ryder.**—In Roxbury, Mass., on Wednesday, August 20th, Dr. Emily Brainard Ryder, aged eighty-four years. **Swigart.**—In Hastings, Neb., on Tuesday, August 5th, Dr. Henry M. Swigart, aged sixty-four years. **Turner.**—In Washington, Conn., on Saturday, August 16th, Dr. Henry Cushman Turner, of Brooklyn, N. Y., aged sixty-eight years. **Vander Veen.**—In Grand Rapids, Mich., on Saturday, August 9th, Dr. Christian Vander Veen, aged forty years. **Van Reimpst.**—In Saranac Lake, N. Y., on Thursday, August 21st, Dr. Theodore Schaepkens Van Reimpst, of New York. **Wells.**—In Binghamton, N. Y., on Thursday, August 21st, Dr. Emily H. Wells, aged seventy-one years.

# New York Medical Journal

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### Original Communications.

#### ORTHOPEDICS IN GENERAL PRACTICE.\*

*Emphasizing the Importance of Early Diagnosis.*

By CHARLES OGILVY, M. D.,  
New York.

The general practitioner is the first to be consulted about acquired deformities, and it is therefore of the greatest importance to him that he recognize these conditions in their earliest incipency. Acquired deformities, if recognized in their earlier stages, can be intelligently treated by the general practitioner. If this were done many deformities which would otherwise develop would be prevented, and we should not then see so many cases which have gone on to the later stages of development. These are much more difficult to treat, and they present the marked deformities only because they have not been previously recognized. Associated with these deformities are many indefinite pains which are referred to the feet, to the knees, to the lumbar spine, and to the dorsal spine, and have special significance as regards standing and walking.

That you may be enabled to recognize a number of the conditions which are responsible for these indefinite complaints, and that you may be able to obtain some practical information that will be of material value to you in your practice, is the object of this paper. The subjects which we shall at this time consider are those of: 1. Weak feet. 2. Weak anterior arch. 3. Hallux valgus. 4. Anteroposterior postural deformity.

#### I. WEAK FEET.

Note the term "weak feet," and not "flat feet"; for the condition of weak feet should be recognized long before the flattening or lowering of the long arch of the foot has developed. The importance of the care of the feet cannot be overestimated. Seldom is a weak foot recognized before flattening has developed, and a long train of symptoms have followed in its wake. The general practitioner is constantly consulted for indefinite aches and pains of the feet and legs, and, too frequently, indeed, are such complaints regarded as symptoms of chronic rheumatism—whatever that may be.

If a patient complains of continued discomfort or constant pain in the feet or ankles, and in these joints only, from a period of time ranging from weeks to months, with a negative history of any

other joint involvement, almost invariably will you find that the trouble is caused by weak feet, and an examination with this view should in every case be made. Do not examine such patients in a sitting posture with the feet raised toward you. The feet were made to stand upon and to walk upon, and therefore they should be examined while so functioning. Here we learn the importance of the meaning of a correct relationship of the foot to the leg in its capacity of a body weight bearer. The body weight normally passes through the centre of the knee joint, a little to its inner side, down the leg through a line represented by the crest of the tibia, through the centre of the ankle joint and over the dorsum of the foot to the second toe. When we find the foot everted (Figs. 1, 2, and 3) (rolled outward) this relationship is immediately changed, and the body weight no longer passes over the dorsum of the foot to the second toe, but down to the inner side of the foot, to a point corresponding to the astragaloscaphoid articulation. Just as soon, then, as this abnormal relationship is established, just so soon is there demanded of the long arch of the foot the sustenance of the body weight bearing down upon its highest point. It is then simply a matter of time before it gradually gives way. Symptoms of discomfort, and subsequently pain, develop (sometimes associated with backache), and later there presents itself to us a typical flat foot (Fig. 4). This could have easily been prevented by the recognition of the eversion and its correction.

*Treatment.*—The proper treatment of weak feet, or even flat feet, is by no means an insertion of plates or foot supports which the patients are usually advised to procure at some near by shoe store. Such arch supports do more harm than good. The proper foot plate is one which supports the foot anteroposteriorly, and also laterally when the foot is performing its function of weight bearing. Such a plate can only be made from a plaster model of the foot; which plaster cast is further remodeled to complete the correction of the deformity desired. Furthermore, *the employment of any arch support is detrimental to the well being of such feet unless the eversion, which has already been noted and which is always present, is first corrected.* This is really the most important point in the treatment of weak feet. It can be corrected and controlled by elevating the inner side of the heel of the shoe and extending the heel forward on the sole some three quarters of an inch. This should be done in every case.

In the milder cases this alone will be found all that is necessary, provided the shoe chosen is built on proper lines—with a straight line on the inner

\*Read before the Westchester County Medical Society, March 18, 1913, and, in part, before the Bronx Medical Society, May 13, 1913.

side of the sole, etc., to obtain proper foot balance. In addition, we must, by foot exercises, strengthen the muscles which control the position of the foot in its relation to the leg, and so enable us to retain our corrected position. It is difficult to control some patients in this regard, and one sometimes has these patients returning after two or three years of such treatment with the criticism that though the symptoms have been relieved, the correction of the position of the foot cannot be maintained and will relapse immediately the plate and shoe are removed. For this reason the writer has advised an operation by means of which a fixation of the astragaloscaphoid joint is procured by an arthrodesis. At the same time the direction of the astragalus is corrected, and inversion of the foot obtained, and a subsequent flattening of the arch, as otherwise follows, is prevented. (Fig. 5.) In none of the cases operated on has it been necessary to use plates subsequent to the operation. I wish to emphasize the importance in performing this operation of changing the direction of the head of the astragalus from an inward to an outward position.

*Operation.*—An Esmarch bandage is applied immediately above the knee joint. This is not removed until the complete dressing is applied after the operation has been performed. A curved incision is made from above downward, immediately over the astragaloscaphoid articulation. The incision is made through the skin and subcutaneous tissue, down to the astragaloscaphoid ligament, and through this ligament to the joint itself. The head of the astragalus is now brought prominently into the field of operation by forcibly everting the foot. The articulating surface of the astragalus is removed, and likewise the articulating surface of the scaphoid. The field of operation is then irrigated with a normal saline solution, and the wound closed with a deep interrupted and continuous superficial catgut sutures. Generous shaken out gauze dressings are applied, and the forefoot is drawn inward and downward in marked inversion. Plaster of Paris bandages complete the dressing, which is allowed to remain on for five weeks. (Fig. 6.)

## 2.—WEAK ANTERIOR ARCH.

A patient consults you with the following symptoms: A pain of severe character referred to the head of the second, third, or fourth metatarsal bone, frequently very severe; symptoms coming on suddenly while walking, and necessitating removal of the shoe and rubbing the foot. After this massage the pain is relieved; the foot is replaced in the shoe, and comparative comfort is established until, at some subsequent date, the same symptoms recur. In the meantime the pain is not entirely relieved, but is not sufficiently severe to demand a call on the physician.

The diagnosis of this condition, which is that of anterior metatarsalgia, is not difficult. (Fig. 7.)

The cause is that the anterior arch breaks down and allows the heads of the metatarsals to drop; thus straining the ligaments and stretching the tissues. Contrary to what is usually done in these cases, the arch should be supported by a pad of felt, one and a half inches wide by two inches long, which is strapped in position over the heads of the meta-

tarsal bones. This reestablishes the natural position of the forefoot and immediately relieves the symptoms. Permanent support of this kind may be built within the shoe.

## 3.—HALLUX VALGUS.

So often is hallux valgus associated with the conditions already mentioned that I wish to *emphasize the importance of its correction before one can obtain good results in the treatment of either weak feet or weak anterior arch.* (Fig. 8.)

The reason of this is obvious, as the direction of the great toe is changed from an anterior to an internal direction, with an associated broadening of the forefoot, due to the head of the metatarsal bone of the great toe being driven outward as the point of the great toe is brought inward. As long as this relationship is allowed to remain it is impossible to permanently strengthen the anterior arch. This is due to the fact that the direction of the weight strain through the foot is altered. For this reason it is essential, for the proper care of the foot, to have a shoe with a straight inside sole, and not one which is pointed and crowds the great toe toward the median line.

*Treatment.*—There is but one satisfactory line of treatment for hallux valgus, and that is operative. The operation consists of making a semicircular incision around the prominence, with the convexity of the curve anteriorly. The flap of the skin is laid back, exposing the bursa, which is removed. When this is removed the metatarsophalangeal joint is exposed, and the head of the metatarsal bone chiseled away. This wedge of bone which is removed has its base toward the inner border of the foot, and its apex extends directly across the joint to its opposite side. Upon the direction of this bone incision will depend the position of the great toe when the operation is completed, and therefore it will vary—being dependent upon the degree of the original deformity. The incision is closed by deep interrupted and superficial continuous catgut sutures. A dressing is applied which holds the great toe in its corrected position, and a plaster of Paris bandage guarantees secured fixation in this position.

The results of operation are most satisfactory, and, provided the foot is subsequently properly shod and firmly supported, one can promise not only relief of the symptoms complained of, but also a prevention of any subsequent trouble of a similar nature.

## INTOEING.

So frequently are you consulted about the intoeing of children that a word on this subject will not be amiss. The natural position of the foot in walking is not that in which the toes point outward, but one in which the foot is directed straight forward with a slight inclination to intoeing. This is the position of strength, and it denotes a strong foot and ankle. Walking with the toes turned outward tends to weakness, rather than strength, and should not be encouraged. A moderate degree of intoeing, on the other hand, should rather be encouraged than discouraged, as a child who toes in is assured of a strong foot without the fear of any subsequent flat foot.



## 4.—ANTEROPOSTERIOR POSTURAL DEFORMITY.

The subject of anteroposterior postural deformity is one which, up to the present time, has not been sufficiently emphasized. (Figs. 9 and 10.)

If we could but have these cases recognized early we would not see so many of the marked deformities of rotary lateral curvature which are constantly being referred to us. The class of patients which are here referred to are characterized by very definite and constant peculiarities. They are those who lack muscle tone. These are the children whom you see lagging behind in their romp and play, tiring very easily, refusing to continue the game with the other chil-

dren, hanging back when any active exercise is being enjoyed. They run clumsily, they walk with an ungainly gait—with rounded shoulders and head forward. In the standing posture the abdomen is prominent, the shoulders are rounded, the chest is sunken (retracted), and the head is protruded. When sitting down they may best be characterized as those who "flop over," either upon their back or upon the table before which they are seated.

The symptoms complained of in such cases are very indefinite. Often they complain of a tired feeling in the back, and sometimes in the lumbar region. These pa-



FIG. 1.—A typical case of everted feet (weak feet); diagnosis clearly made at a glance.



FIG. 2.—The feet of a child four years of age, who complained of being unable to walk without tiring, and had the general symptoms as described in the text.



FIG. 3.—F. P., aged twelve years; typical weak feet before operation.



FIG. 4.—Showing marked eversion with subsequent typical flat feet.



FIG. 5.—F. P., showing post-operative result. The patient broke the record for high jumping in public school sports seven months after operation.



FIG. 6.—Postoperative dressing for weak feet.

tients are very often subject to weak feet. They are pale and languid. Poor appetite and general debility complete the picture. Tonics are prescribed and prove of little avail. Such a condition is found more frequently among girls than boys; the reason for this being that boys are naturally more inclined to the muscular activities of outdoor sports and games.



FIG. 7.—Weak anterior arches. Note the bulging of the forefeet and the cramping of the toes.



FIG. 8.—Typical hallux valgus. Note associated spreading of the forefeet, producing weak anterior arches. Subsequently operated on with complete relief of symptoms.

The difficulty of diagnosis from the indefiniteness of the symptoms is counteracted by the ease with which the condition is recognized *when the clothing is removed* and the patient is made to stand before the examiner. One recognizes at a glance the ab-

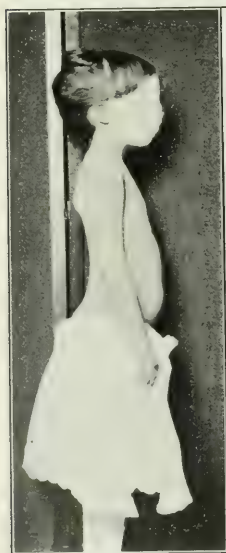


FIG. 9.—P. E., aged five years. Typical anteroposterior postural deformity.



FIG. 10.—P. E., aged five years. Anteroposterior postural deformity, with a tendency to subsequent deviation of the spine.



FIG. 11.—E. K., aged twelve years. Anteroposterior postural deformity.



FIG. 12.—E. K., aged twelve years. Showing a slight lateral deviation of the spine.

normal posture, and the diagnosis should immediately be made. (Figs. 11, 12, and 13.)

There is no structural change in this deformity, mark you. The position is entirely due to habit. This postural deformity can be voluntarily corrected by the patient. The condition can be cured by properly directed breathing exercises, light calisthenics, and good hygienic and dietetic care.

Why then, you ask, should so much emphasis be laid upon a condition which can be so easily corrected and in which there is no structural deformity. And in the answer to this question lies the salient point of importance in the recognition of these cases at this stage of development. If proper treatment is not advised or followed we see, in such cases, slight lateral deviation of the spine gradually develop, which, at first, is hardly recognizable, but which slowly increases.

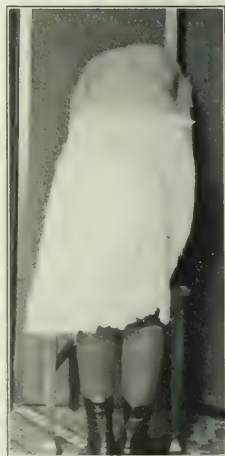


FIG. 13.—E. K., aged twelve years. Showing beginning rotation associated with anteroposterior postural deformity.

And with this we find an associated rotation of the spinal column. With this lateral deviation and rotation of the vertebrae a change takes place in the contour and structure of the vertebrae. These are no longer symmetrical, but change in form to a greater or less extent, depending upon the length of time and progress which the deformity has made. This we term rotary lateral curvature of the structural type; by which we mean that there has developed a fixed rotary lateral curvature which is impossible to correct by any voluntary muscular effort of the patient. The symptoms of this condition are much more severe than those of the anteroposterior postural deformity cases. The treatment is also much more difficult, and the prognosis regarding deformity much more grave. Thus you see how important it is to prevent such a sequence of events. Many cases of structural rotary lateral curvature could readily have been prevented had the first symptoms of anteroposterior postural deformity been recognized.

40 EAST FORTY-FIRST STREET.

## VACCINE TREATMENT OF TYPHOID FEVER; REPORT OF CASES.\*

BY B. M. RANDOLPH, M. D.,  
Washington, D. C.,

Professor of Materia Medica and Therapeutics, Medical Department  
of George Washington University.

I think it has been pretty well demonstrated, first by Dr. Sterling Ruffin, of Washington, D. C., that cases of typhoid which have an unduly prolonged febrile period (the cases of delayed resolution) are promptly brought to a favorable termination by the use of the vaccine. It seems, too, that the vaccine is very effective in cutting short relapses, though the varying duration of relapses makes it more difficult to assign the subsidence of the fever to the treatment. This is one of the questions that can only be answered by the controlled observation of a large number of cases. I have used the vaccine in several cases of relapse and delayed convalescence, with what appeared to be prompt and satisfactory results. I do not include these in this report, except to furnish examples. It was my original purpose to select for the experiment only severe cases, seen early in the disease. I have adhered to the factor of severity, but have employed the vaccine in a number of cases where the disease had been established for two weeks or more. This is because hospital patients come under observation at a much later date than those seen in private practice. Often their treatment has been undertaken at home, where they have become so ill that the facilities for dealing with

them are overtaxed, and they are then brought to the hospital. Ordinary mild cases have been excluded, and it may be assumed that every case here reported is one of severe intoxication, unless the contrary is stated.

The cases fall naturally into four groups:

- (a) Those in which the treatment was begun early in the infection.
- (b) Those in which the patients have been ill ten days, or more.
- (c) Terminal cases.
- (d) Cases of relapse or delayed resolution.

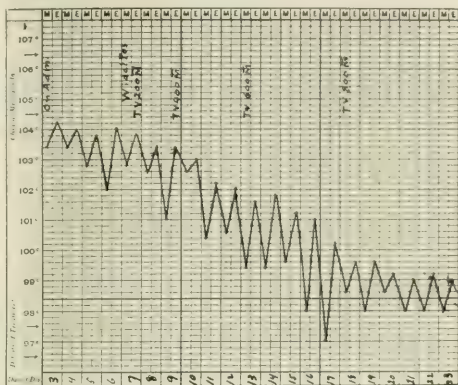


CHART 1.—Case I. Mrs. A. G.

Of the last two groups examples only will be shown.

CASE I. Mrs. A. G. (George Washington Hospital, 11,844); white, aged twenty years, married. Had taken to bed two days before admission, but had had headache

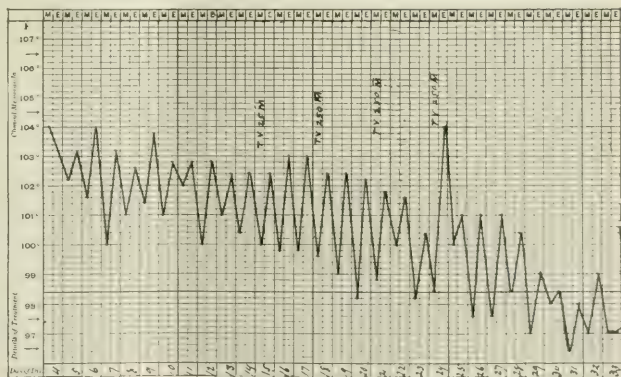


CHART 2.—Case II. R. H.

and malaise for a week or ten days previously. On admission temperature was 103.4° F., pulse 128, respiration 38. Typical picture of severe intoxication; great apathy; muscular tremor on motion. The Widal test was positive on the seventh day, and 200,000,000 typhoid bacilli were injected subcutaneously in the arm. Three other injections were given on the ninth, thirteenth, and seventeenth

\*Read before the Medical Society of the District of Columbia, February 5, 1913.



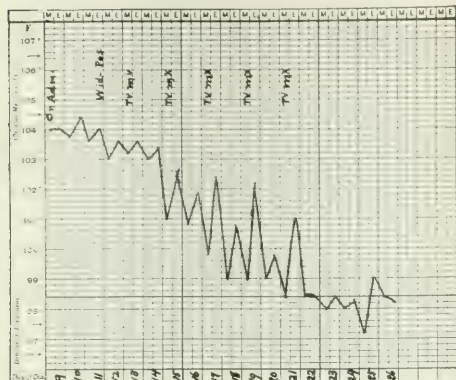


CHART 1—Case III. L. B.

days respectively, the dose being increased by 200,000,000 at each injection. Patient also had sponge baths during the first week of her stay in the hospital. The temperature became permanently normal after twenty-one days stay in the hospital. The patient was slow in regaining her vigor, and remained in the hospital forty-three days. Several weeks after returning home she had, after exertion, a sharp attack of syncope. I mention this to show the severity of the intoxication.

CASE II. R. H. (George Washington Hospital, 15,135); white, male, aged nineteen years. Admitted on fourth day of disease, after five days of prodromes, in a delirious state, with all the evidences of an intense typhoid intoxication: dilated pupils, tremor, hebetude alternating with delirium; a profuse eruption over entire trunk, almost as thick as that of measles; moderate abdominal distention with tenderness; scanty urine; seven or eight stools daily; pulse dicrotic, temperature  $104^{\circ}$  F., pulse 96, respiration 28. Widal test was negative. Owing to some confusion in the communications with the laboratory, a positive blood culture was not obtained until the patient had been in the hospital eleven days. At the beginning of the administration of the vaccine there had been no improvement in his condition. Through a misunderstanding of an order, the first dose of bacilli was twenty-five million, instead of 250 million. 250 million was injected on fifteenth, eighteenth, twenty-first, and twenty-fifth days. Marked improvement, consisting in an improved character of the pulse, and subjective sense of well being, while an access of appetite began on the sixteenth day. The total febrile period in the

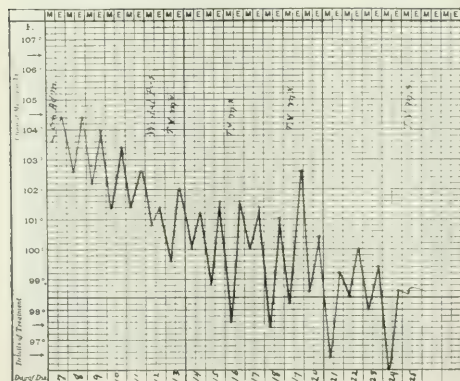


CHART 2—Case IV. M. L.

hospital was twenty-seven days; rapid convalescence. In addition to the vaccine, small amounts of whiskey were given during the period of dicrotism of the pulse. In hospital thirty-five days; febrile period twenty-four days.

CASE III. L. B. (Garfield Hospital, 29,535); colored, female, aged nineteen years. Admitted on ninth day of the disease with severe typhoid intoxication: headache, nausea, anorexia, diarrhea, abdominal distention, with severe pain and tenderness; very apathetic; complained constantly and bitterly during the first week of her stay in hospital. Widal test positive on eleventh day. One third billion of bacilli injected on the thirteenth day, and two thirds billion on the fifteenth, seventeenth, nineteenth, and twenty-first days respectively. Marked subjective improvement after the second injection, which continued throughout. The patient changed from a very querulous person to a contented one. Temperature became normal after she had been in the hospital fourteen days. Out of bed in twenty days, and on house diet in twenty-two days. During convalescence she began to have a slight afternoon rise of temperature, which was found to be associated with the physical signs of an apical tuberculosis. In hospital twenty-two days.

CASE IV. M. L. (Garfield Hospital); colored, female, aged thirty-six years. Case of severe typhoid intoxication; condition too apathetic to obtain history. Admitted on seventh day of the disease. Widal test positive on

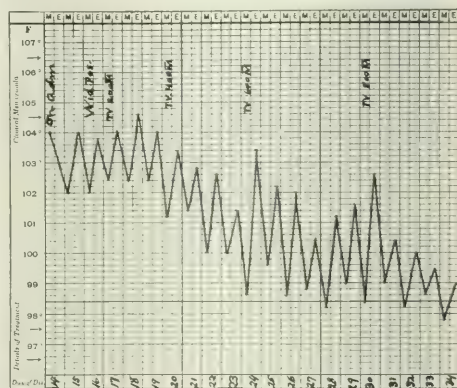


CHART 3—Case V. R. M.

fifth day after admission. One third billion bacilli given on the thirteenth day, and two thirds billion on the sixteenth, nineteenth, and twenty-fifth days respectively. Pronounced subjective improvement followed the second dose; rapid recovery. Duration of febrile period in the hospital twenty-three days; in hospital thirty days.

CASE V-R. M. (Garfield Hospital); colored, male, aged twenty-five years. Admitted to the hospital on sixth day of the disease with severe toxic symptoms: great distention and severe and persistent abdominal pain and tenderness; nausea, anorexia and profuse diarrhea; delirious; pulse dicrotic. Complained of numbness of the right hand; profuse sweats day and night; annoying cough. This seemed to me to be undoubtedly one of those cases associated with extensive ulceration of the colon. Widal test positive on seventh day. One third billion bacilli given on eighth day, one half billion on eleventh day, and two thirds billion on the sixteenth, nineteenth, twenty-second, and twenty-fifth days respectively. The only other treatment, beside good nursing, was daily colon irrigations, small doses of turpentine while the distention lasted, and small amounts of whiskey while the pulse was bad. The temperature became normal on the twenty-sixth day, twenty days after admission; total stay in the hospital thirty-seven days. During convalescence a painful localized periostitis developed on the extensor side of the right forearm, just above the wrist. This vanished in twenty-four hours under the application of a fly blister. (No chart.)

CASE VI. P. T. (Garfield Hospital, 27,617); colored, female, aged twenty-six years. Admitted on fourteenth day of the disease. Brought in on stretcher in a delirious condition. History of onset with chills, fever, headache, anorexia; cough for the preceding four or five days; urine contained albumin, and hyaline and granular casts. Case complicated by gonorrhea. Widal test positive on sixteenth

patient received no vaccine. The temperature, which had been steadily declining, remained stationary a few days, and then began to rise. Two thirds billion bacilli were again given on the thirty-third and thirty-sixth days, and one billion on the thirty-ninth and forty-third days. The temperature became normal on the forty-first day. The rise on the forty-second day was coincident with an accumulation of feces in the lower bowel. After a colon irrigation, which was followed by two liberal bowel movements, it dropped promptly, and did not rise above normal thereafter. Total febrile period in the hospital twenty-six days.

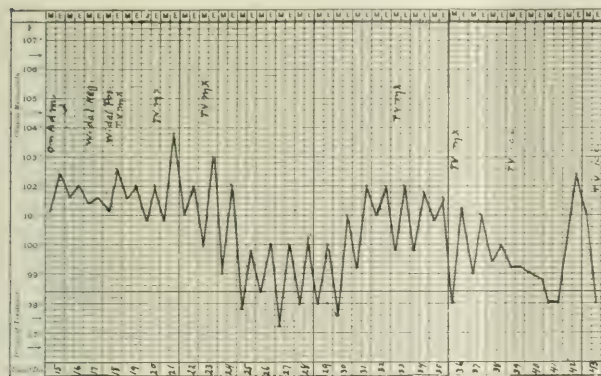
CASE VIII. M. N. (Garfield Hospital, 27,724); colored, female, aged twenty-one years. Admitted to the hospital in advanced stage of the disease. Brought in on a stretcher; delirious, so that restraint was necessary to keep her in bed. Widal test positive on third day after admission: 200 million bacilli given on fourth day and continued in increasing doses (see chart). Death occurred after the patient had been in the hospital eighteen days.

There was no apparent effect from the vaccine. I am in doubt whether this was a pure typhoid infection, the temperature suggesting that there may have been some other factor present.

CASE IX. M. W. (Garfield Hospital, 27,685); white, female, aged twelve years. Admitted seventh day of disease.

High temperature, rose spots, enlarged spleen; the child did not seem very ill. Her serum gave the swiftest and most complete clumping and immobilizing reaction I have ever seen. Five days after admission her temperature became normal, where it remained a week. During this time she was permitted to sit up in a chair. On the nineteenth day the temperature began to rise. We put her back in bed, and waited until the twenty-fourth day to assure ourselves that the fever was not a transitory recrudescence. On the twenty-fourth day she received 200 million bacilli, and on the twenty-sixth day her temperature was again normal. The same dose was repeated on the twenty-seventh day, and the child had no further interruption to convalescence.

CASE X. A plethoric woman was brought into the hospital in the beginning of the third week of the disease, with an overwhelming typhoid intoxication, accompanied by double pneumonia. An unfavorable prognosis was





I have also used the vaccine in two cases of typhoid brought into the hospital in a moribund condition. Further than a rise of temperature following the injection, there was no result, the patients dying promptly, as would have been otherwise expected.

*Vaccine.* The vaccine used in these cases was the same as that used by the United States Army for prophylaxis against typhoid fever, and was supplied me through the courtesy of Major F. F. Russell. I am also indebted to Major Russell for valuable advice on the administration of the remedy. The vaccine is put up for hypodermic injection in one c. c. ampoules, each containing one billion bacilli. It will be easy to interpret the dose entries on the accompanying charts by estimating one billion bacilli to each fifteen minims.

*Dose.* It will be seen that there is considerable variation in the dose and intervals of administration. This is due to the fact that I was trying out the remedy, in order to find the best method of giving it. In the more recent cases I have begun with one third billion bacilli, given a second dose of two thirds billion, and repeated this dose two to four times, until the temperature was normal. I have generally employed a three day interval, but am not convinced that a two day interval would not be better. I hope to work this question out in the future.

*Reaction.* The local reaction is about the same as the average local reaction seen with the prophylactic injection. There is a red, bluishlike areola about the size of a quarter of a dollar, accompanied by some induration, pain, and tenderness, and a slight aching on motion. It has never been greater, and often less than this. The inconvenience is insignificant, passing off in twenty-four hours, and is generally not alluded to by the patients, unless they are asked about it. A febrile reaction is not produced in the height of the disease, nor is there any added malaise caused at this stage by the injection. As the temperature begins to decline, there follows the injection, usually a sharp increase that lasts from twelve to twenty-four hours. This is followed by a further and somewhat more precipitate decline. The cases of delayed convalescence and relapse have exhibited a much sharper reaction, both local and general, to even smaller doses of the vaccine than have those in the acute stage of the primary infection. In my judgment this disposes of the fear that we may add to the toxic state by giving the vaccine in the acute stage.

*Diagnosis.* With the expectant and symptomatic treatment of typhoid fever that has prevailed, the practical importance of an early and positive diagnosis has not been very great. If, however, we are to employ a specific immunizing remedy, the diagnosis must be established without question before the treatment is instituted. If it should be established that the vaccine treatment is effectual, and the more so, the earlier it is begun, the importance of the earliest possible diagnosis becomes imperative. The Widal reaction, upon which the positive diagnosis has rested for the past fifteen years, is a fairly satisfactory criterion under expectant methods of treatment. We rarely get a positive Widal

test before the seventh day of the disease, and it may be delayed till the twentieth day, or longer. McFarland, from the analysis of a large number of cases, places the average time of its appearance at the eleventh to twelfth day. In blood culture we have a means of establishing the diagnosis in the first week, and at the same time of differentiating it from paratyphoid organisms without repeated observations. If we are to use specific immunizing treatment in this disease it will be necessary to resort to a routine blood culture method of diagnosis, rather than to wait for the Widal reaction.

One word concerning the technic of procuring blood for culture purposes. Physicians seem to regard it as a formidable procedure, and are apt to refrain from undertaking it. When they do undertake it they often impress the idea of a major operation on the patient and his family, and the latter are alarmed by the elaborate preparations and the apparatus assembled. This is unnecessary. With ox bile as a culture medium, from two to five c. c. of blood is all that is required. An ordinary all glass hypodermic syringe, with a sharp needle from three quarters to one inch long, is needed. A constricting bandage above the elbow, and iodine sterilization of the skin over the vein, complete the preparation, except boiling the syringe. The requisite amount of blood can be withdrawn from the vein with exactly the same amount of inconvenience to the patient that is associated with giving an ordinary hypodermic injection. A little more skill is needed to insert the needle into the lumen of the vein.

*Duration.* The duration of the disease in the cases here reported is estimated from the day the patient took to bed. While, properly speaking, the onset of the disease is earlier, patients are so vague about the duration of the prodromal period that little reliance can be placed on their statements regarding it. The time of taking to bed can generally be exactly determined, though even about this very sick patients are often inaccurate.

*Diet.* These patients, on admission, have been started on a liquid diet consisting of milk, albumen water, and broths. I always make it a point to ascertain whether a patient likes milk, and whether it agrees with him in health. If this is not the cause, milk is not given. Buttermilk is often substituted with advantage. I begin to increase the diet as soon as the patient asks for more, commencing with toast, and gradually adding eggs, cereal, rice, junket, ice cream, baked apple. Oranges are given in moderation throughout the illness if the patient desires them. I have made no effort to feed on the basis of caloric estimates, having found that there is generally much difference between what is written on the bedside notes and what a very ill patient will eat and digest. I have found that, within reasonable limits, the patient's preference and appetite is the most satisfactory guide in feeding.

#### CONCLUSIONS.

As to the conclusions to be drawn from my observations, it is difficult to make a satisfactory statement. The number of cases reported is too



small, and the manifestations of this disease too irregular, to permit of a final opinion. Satisfactory conclusions can only be drawn from a comparison of a large number of carefully studied cases treated by vaccine with a similar number of like cases not so treated. I may say; however, that I have at this time a strong clinical impression that the vaccine treatment has a beneficial effect in the acute stage of typhoid, and that this effect is better the earlier its administration is begun. This impression is founded on two things—first on the almost invariable testimony of the patient that he feels better. If this were purely psychic cooperation, it would manifest itself after the first injection. As a matter of fact, it has always come after the second. The patient in Case VI, who gave the strongest testimony to the improvement she felt, opposed the second injection, because of the soreness occasioned by the first. In the second place, it has seemed to me that defervescence has proceeded more surely and rapidly than with cases not so treated. Cases I, III, IV, and V, those in which the treatment was instituted fairly early in the disease, all became afebrile in twenty-five days or less from the onset of the disease. Cases I to VI became afebrile in nine to eighteen days after the treatment was begun. It will be offered that the normal duration of typhoid is from three to four weeks, and that a similar course would have been followed by these cases without the vaccine. In my experience the cases that run a three to four weeks course have been the mild ones; the severe intoxications rarely terminate so soon, and are more apt to run a febrile course of from five to seven weeks. All of my first six cases were severe, and in none of them would one have felt reasonably sure of a favorable outcome. Cases I, II, and V looked especially grave.

Case VII presents some interesting points for speculation. In a case of two and a half weeks' standing the vaccine was begun. Typical reactions followed the injections, as we saw in other cases late in the disease. There is a rapid tendency to defervescence, beginning after the second dose. The day after the third dose the minimum temperature reaches normal. The administration is interrupted for ten days. The temperature ceases to decline, and after five days begins to rise. What appears to be a mild, but typical, relapse appears to be instituted. The vaccine is resumed, and after three doses the defervescence is complete. Three questions present themselves:

1. Is this an ordinary relapse, presenting a temperature curve that was unaffected by the vaccine?
2. Did the vaccine produce the first decline in the temperature, and did its discontinuance account for its recrudescence?
3. If no vaccine had been given, would the temperature fall of the twenty-fourth to twenty-seventh days have been absent, and the defervescence have continued regularly to the time the disease finally terminated (forty-first day)?

Any one of these is a possibility, and an attempt to decide on which is correct would be guesswork. This case is the only one in which a relapse occurred where the vaccine had been used previous to the relapse.

TWENTIETH AND P STREETS, NORTHWEST.

## THE FOUNDATION OF EDUCATION.

### *A Suggestion to Those Having Authority.*

BY HENRY JONES MULFORD, M. D.,  
Buffalo, N. Y.

Never before has the educational cauldron been in such a turmoil; never before has the pot contained such a seething, bubbling, boiling, incongruous mass. Every passerby tosses something into it, hence the "double, double toil and trouble"; the uneasy mass has no opportunity for resolving itself into something definite, something worth while. Each addition but adds to the complexity, thereby increasing the agitation and delaying the termination of the process. Is it not too bad that the cauldron does not boil over, and, in so doing, boil itself dry? For, if a new start might be made with a clean pot, putting into it only selected materials, the resulting broth would be, not only palatable, but rational. It is with soup as it is with houses, the foundation is the main thing.

And so it is, too, in the matter of education, the foundation is the main thing. Of the structure reared by education the foundation is more important than the superstructure, for the strength of the superstructure depends upon the strength of the foundation. If the foundation is not carefully laid the superstructure will be a poor thing, wobbly and insecure, swayed by every passing breeze.

Now, we all know that education has to do, primarily, with the brain; that all education is brain education. The brain, of a truth, is the *all* of man: his past, his present, and his future; within this small mass of living tissue, weighing three pounds, more or less, are contained all of man's achievements, not only that which he has accomplished, but, also, that which he is to accomplish. It will be very obvious here, unless one possesses the mentality of an idiot, that the brain is an organ of very great importance. If the brain is the seat of education, then it is in the brain that the foundation of education must be laid; and it is the laying of the foundation that determines the strength of the brain, the value of the brain to the individual, and the value of the individual to the world.

And this foundation, this wonderful thing that is to lie at the bottom of each human brain and determine what the individual is to be, how shall it be fashioned? Shall there be just one general plan according to which all individual foundations are to be laid down? or shall there be a separate plan for each individual structure? That is, shall our children be dumped into a common hopper and ground out all alike, as sausages are ground out? or, shall we take each one by himself and develop his own individuality? There is danger in each method, even more, perhaps, in the latter than in the former; but, even with its greater menace, the last would seem to be the better one to follow. The fault of the first lies in the possibility that the individual would suffer from repression, that he would not attain to full development; the fault of the second, in the possibility of overdevelopment, of too much individuality. We surely need individuality in this world, and we need to encourage it; but, while we need to encourage it, we must not exalt it. If the individual is retarded there is no progress;

if he is urged beyond his powers he either breaks down or gets beyond his own control. Retarded progress, through a slowing of the machinery, may be remedied, but an absolute derangement of the mechanism completely shuts off all advance.

It is obvious, then, that all education must be individual, for no general plan can be adapted to individual variation; there are as many educations as there are individuals. Each foundation, laid within the individual himself, must fit the requirements of that individual, but it must follow rational lines. We must adjust to the individual, but we must not allow the individual to dominate. He must be neither underdeveloped nor overdeveloped; stupidity must be avoided as well as exaltation. The laying of an individual foundation, therefore, is no small task. The brain of man is a highly specialized organ which has developed in its own peculiar manner, and, in laying plans in regard to it, the manner of its development must be considered. It is only through a knowledge of brain evolution that we shall be able to understand individual variation.

"The brain is a highly specialized organ which has developed in its own peculiar manner." I repeat this, for therein lies something of our argument. In considering foundations we have to go to the bottom of things, to the beginning, and this is especially the rule in matters pertaining to the brain. In order to understand the human brain we must begin at the beginning of that brain; but there is only one way of getting at its beginning, and that is through evolution. The evolutionary history of the brain gives us the hint for the proper conduct of modern brain education. In tracing this history step by step, through one long epoch after another, we learn how the brain of man has grown, and how its many sided function has developed.

The human brain has to do with man. it is the organ of control; it is the centre for all nerve impulses, sensory, motor, and intellectual, and is composed of two kinds of brain tissue, gray and white. The gray substance, the cortex, is a cellular mass covering the surface of the brain, and is the active portion; the various "centres" controlling the body functions being located therein. This cortex is about one eighth of an inch in thickness, and, so far as weight is concerned, is but a small proportion of the brain mass. The entire brain weighs three pounds, more or less, the central mass composed of the white fibres which conduct the nerve impulses, making up the greater part of it. If the surface of the brain were just smoothly round, like that of a ball, there would be comparatively little of the gray matter. Its development would be limited, for the unyielding bony walls of the skull would not permit its further spread. But Nature has met the situation very cleverly; more cortex has been needed in the man brain and more cortex has been provided, in spite of limiting bony walls. The demand for more of the gray matter has caused the surface of the brain to develop into folds, known as convolutions, these convolutions being separated one from the other by fissures, more or less deep. In its development the gray matter has, as it were, dissected out these convolutions; dipping down from the surface, it covers every side of each convolution

to the depth of the surrounding fissures. This arrangement has increased the area of this vital portion of the brain substance many fold, and has made the man brain possible.

A moment ago I stated that the centres of control were situated in the cortex. So well do we know this that we can point out the greater number of these centres. The centres for the special senses, smell, taste, hearing, sight, and tactile sensation, are well known, as are, also, the motor centres, those controlling muscular action. The intellectual centres cannot be so readily located, as must be obvious; but, although there is some doubt in regard to them, we have well founded suspicions as to where they are situated.

Now, it seems fairly apparent that the ape is man's immediate ancestor in the evolutionary series; but, whether he is or is not, a study of the ape brain will help us to an understanding of the brain of man. The brain of the chimpanzee closely resembles the brain of man, both macroscopically and microscopically. There is, in fact, a startling similarity between the two. For instance, in each there are the centres of the special senses occupying the same relative positions in the brain cortex; there are the same motor areas; and that area having to do with intellectuality in man has a silent counterpart in the chimpanzee brain. The arrangement of the convolutions is the same in both brains, except that, in the brain of man, they are more numerous and more complicated. In the chimpanzee the brain mass is smaller, weighing not more than six hundred grammes, while the brain of man may weigh as high as eighteen hundred grammes. One can understand that the brain of six hundred grammes cannot be the brain of eighteen hundred grammes; it may resemble it, but it cannot approach it functionally. Being so much smaller, the area of each centre will be smaller, and the centres, lacking in development, will not have the vigor that the centres of the larger and better developed brain will have. The smaller the brain the less its influence, and the less manlike its possessor. We are not surprised at the lack of intellectuality in the chimpanzee. We know that he belongs to the lower animals, and, consequently, we do not expect him to possess any of the special attributes of man. Nor does he give any evidence of possessing them. He is merely an animal, with the animal's five senses at his command, but beyond that he does not go. He is a primitive animal, and the primitive animal had nothing to concern him except that which came to him through these channels. The round of his daily life was limited by his activities; his experiences came to him through his activities, he was not able to sit down and to imagine things. He had action, but it was action that did not need the assistance of thought; it was brute action, not man action.

And here an interesting, if not significant, fact becomes apparent. If the thought area is present in the chimpanzee brain, why is there no thought there? Why is this area inactive? Why should it be there at all if it is not active? Why should there be any structure in the animal organism that is not in active function? There can be only two reasons for this: either the inactive part is a vestige of something once used by the organism and now disap-

pearing through disuse; or, it is something in the process of development, something that is to be of future use to the organism. Is this inactive portion of the chimpanzee brain a vestige of a once active tissue? Is it probable that tissue as important to the individual as this is would ever descend to inactivity? How could it? How could the organism do without this tissue once its importance had been established? Would it not be more reasonable to suppose that the reverse was the case? Might we not infer, with more probability of being right, that this portion of the chimpanzee brain is in the developmental stage? Might it not be developing after the manner of the man brain? and might it not, in fact, give us a hint as to the development of the prehistoric man brain? It may, too, offer some suggestion as to the further development of the chimpanzee brain. Might it be possible to develop the chimpanzee into a reasoning animal? The brain cortex is there, in lesser degree, to be sure, but it is there. All that is needed is a higher development, cultivation, and, given the proper conditions, why could not this be brought about? But its accomplishment would require a long, long, period of time, so long a period that many, many generations would have to pass before any result would be obtained.

We do not know how long the brute animal existed before the man animal came upon the scene, nor can we determine just when, or how, the man animal began; but there does seem to be some evidence accumulating to show that the two are inseparably connected, and that the one is the outcome of the other. From time to time human bones have been exhumed from prehistoric layers of the earth's crust that tell us something of prehistoric man's physical condition. Through these we can trace man back through periods of descending skull capacity. His brain, according to this evidence, grows smaller and smaller as we get closer to the ape, until, at last, we get to where its weight lies at nine hundred grammes, or less. Recalling that the weight of the chimpanzee brain is in the neighborhood of six hundred grammes, we perceive that the two are really very close together; so close, in fact, that the interval might easily be bridged by the evolutionary process.

If we possessed the brain of a primitive ape and one of a primitive man, and could compare the two, and these again with the brain of modern man, we would have no difficulty in perceiving the differences in the three. We have not the primitive specimens, of course, but we can supply the deficiency, after a fashion. For an example of the primitive ape brain we can go to the chimpanzee of to-day. This brain is, probably, about the same as that of the primitive chimpanzee. With the aid of the chimpanzee brain and imagination we may obtain some idea of the brain of prehistoric man. In order that the appearances of, and the variations in, these brains may be the more apparent, I have had paintings made to show the characteristics of each. Each picture, reproduced here as a photograph, shows only the lateral aspect of a portion of the brain, the cerebrum, which is enough for our purpose. The dark areas in each indicate the area of what I call the primitive centres; that is, the first

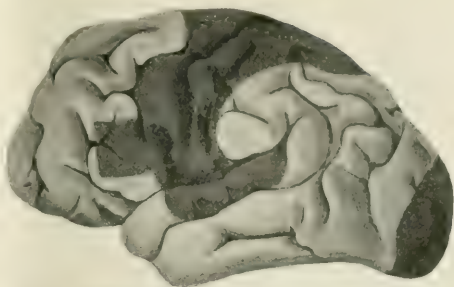


FIG. 1.—The left hand side of the cerebrum of the chimpanzee.

centres of the animal brain, those of the special senses, and those of the motor area. These, having existed from the very beginning of the animal brain, certainly may be named primitive.

Figure 1 shows the left side of the cerebrum of the chimpanzee, this picture having been made from the brain of a once living, adult chimpanzee of to-day. It will be seen that the cerebrum is small,

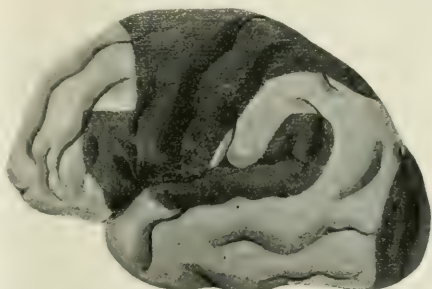


FIG. 2.—The cerebrum of prehistoric man

and that the area of the primitive centres occupies about one third of the lateral surface. The balance of the surface here shown corresponds to that of the higher centre area in the brain of man.

Figure 2 shows the cerebrum of prehistoric man, as it might have been. Imagination has of necessity been drawn upon in the making of this, but I do not believe that imagination has led us so very far astray. Here the brain mass has increased, as has, also, the area of the primitive centres; but the area of the primitive centres seems to have in-

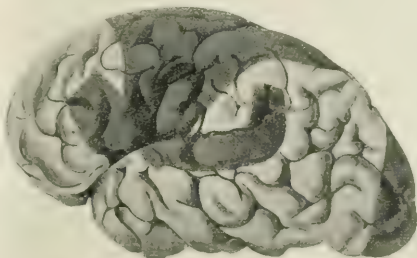


FIG. 3.—The cerebrum of man as it is to-day.



creased in a proportionately greater ratio than the area of the higher centres.

Figure 3 represents the cerebrum of man as it is to-day. Here the brain mass has attained its maximum weight, and the relative proportion between the area of the primitive centres and that of the higher centres has returned to that in the chimpanzee brain. This brain is nearly three times the weight of the first, and, while the proportion between the areas is the same in each, the areas of the man brain are much more extensive than those of the chimpanzee brain; that is, they occupy more cortex.

These pictures seem to suggest a regular sequence in the development of the animal brain. The chimpanzee brain is merely a primitive brain; there are no active areas beyond the primitive centres. The brain of prehistoric man is larger, and the higher centres are coming into function; as the brute began to ascend in the scale his primitive centres developed the adjacent cortex. And then, as the new function grew stronger and stronger, additional portions of the cortex were developed; thought and reason came into existence, and the brain of modern man was the result.

We now can understand how the brain began, especially that part of it relating to man; we see how it has been built up through the demands of the organism, and from this we may determine how the brain cortex may be further developed. We have, in short, reached to the very foundation of the brain itself; and this brain foundation is nothing more than education foundation; the one is developed through the other. If we wish to develop the brain of an individual we must begin at the beginning of that brain, just as the evolutionary brain began. Now, the individual brain begins before the individual is born, but does not become a working instrument until some time after birth. For a number of years it is in the developmental stage, just as the evolutionary brain was for so long; only the brain of to-day accomplishes within a very few years that which required uncounted centuries in the other. But, as in the older, so in the new: the same process must be gone through with, the development must follow the same method. The child brain cannot develop except as the evolutionary brain developed. And so, in the teaching of children, the teaching must be along developmental lines, for teaching is nothing more than brain development; and unless we know how the brain has come to us, our teaching will be a failure. The points to be remembered in this connection are these: That the primitive brain was a brain of action; that, in the development of new cortex, the new centres came through the primitive centres; and that the child brain, having the physical characteristics of the brain of primitive man, is, for the time being, a primitive brain. We must, in short, remember that the higher centres were developed through the primitive.

In the beginning the brain was developed because the organism needed it; this collection of organs of different function required a harmonizing agent, and the brain was the result. Its growth began through action, and so continued. The brute brain was developed through the activities of the animal. As the animal got higher and higher in the scale his activi-

ties became more and more complicated, more and more manlike, and his brain area increased accordingly. This increase began in the primitive centres, and, then, as the demand became greater and greater, new areas began to push out from the old. The new demand arose through the accumulation of experiences, and was for a place to store and to classify them. And it was through this that thought and reason began. Thought is only the recalling of the experiences of the individual in logical sequence, and reason would be but a farther step in the process, the weighing of these experiences one against another. Before thought could begin, experience was necessary, and the brain needed to accumulate its store of experience through long, long epochs before that experience became available as thought material. But, after this accumulation had reached a certain stage, the impulse to push out was irresistible, and the further development of the cerebral cortex began.

The daily life of primitive man, like that of the primitive ape, was a life of action, just a certain round that varied little from day to day. Man was then but little better than the ape, but his progress had begun. Thought was coming, but its development was slow, for, although his life was an active one, the action almost always was along the same lines; there was little to vary the thought impulse. It was only an unusual occurrence that would break the monotony and give to the brain a new sense impression, but these unusual occurrences did not come often. They were very rare at first, and, as more than one impulse was needed to make the brain impression permanent, to create new cortex, the process was, of very necessity, a long one. For illustration, let us trace the origin of the spear, one of the primitive weapons. No doubt the club was the first weapon used by man. Now, suppose, in a battle with another, some one of the first primitive men, in using his club, split it, leaving in his hand a fragment with a sharp end. In the frenzy of combat this was unnoticed until, thrusting it fiercely about, he pierced the body of his adversary, killing him. What would happen then in the mind of the first man? His curiosity would be aroused, and, wondering, he would approach his victim and look at the wound. Then he would glance at the stick in his hand, and the shadow of a thought would flit across his mind. The association of the facts of the wound and of death, the idea of which already was in his mind through previous experience, with the fact of the new weapon in his hand, an alteration of the club idea already in his mind, aroused a vague impulse within his brain in which the old ideas and the new were mingled. And then he thrust his hand against the end of the stick and felt its sharpness. At that instant the spear idea crystalized. An entirely new idea would demand a new spot in the cortex, but a new idea growing out of an old would find a place partially prepared for it. In this case, because the spear idea was an offshoot of the club idea, it would secure a lodgement within the area of the club idea. This lodgement would be insecure because of the element of newness therein, and because, also, only the one impulse had been received. But the first impulse would mark the path, and, other impulses following later, would fix the path as

a permanent way. In this manner would new areas be brought into development, but this development would be, not the event of one day, but the events of a hundred days, perhaps of a thousand days. The brain cortex does not develop instantaneously. It is a slow process at its best; and how slow it must have been in the brain of primitive man! But the task was accomplished, and the brain of action brought forth the brain of thought. The brute brain was a brain of action, the brain of primitive man was a brain of action, and the brain of modern man, while not entirely a brain of action, still is dominated by the primitive centres. These centres lead, have control, and, if we wish to understand the brain of modern man, or to attempt anything with it, we must approach it from that direction. Another important fact becomes visible here. That is, that the modern brain is an organ of comparative youth. It is, actually, from the point of view of evolution, the youngest of man's organs. It has been the last organ to develop, for it has been the last for which the organism felt the need; and, beginning as a mere controller of animal activity, it has developed into an organ that not only controls animal activity, but one, also, that controls the destiny of its possessor.

Teaching has to do, mainly, with the child brain, and the child brain is, essentially, a primitive brain. Action is the main spring of each. In the child, activity brings experience, and his experiences are stored within his brain centres for future use, for the development of thought. It must follow, then, that the child's thought will be of no greater value than the value of his experiences. It is surmised that the human brain at birth possesses all the cortical cells it ever will possess, that no more will be developed during the life of the individual; but these cells, in the child, are not yet all in full development. As the child grows, the brain grows, and, as the organism needs them, the cells comprising the various centres come into function. Repeated sensory impulses cause the cells to increase in size and to become active. The brain centres come into activity in the following order, smell, taste, sight, hearing, tactile sensation, and thought. That is to say, the centres of the special senses become active first, then the motor centres, and then the higher centres. Of the white fibres constituting the central portion of the brain mass there are three kinds: The afferent, which carry impulses to the cortical centres; the efferent, which carry impulses from the centres; and the association fibres, which cross from one centre to another. Of these, the afferent, transmitting sensory impulses, develop first; the efferent, transmitting motor impulses, second; and the association fibres last. In the special sense centres the afferent fibres predominate, as the impulses here are mostly sensory; these centres having little or no use for motor impulses. In the motor area the two sets of fibres are about evenly divided, for here each sensory impulse demands an answer.

It is through this sequence of development that we begin to understand how to approach the brain. The sensory fibres, being the first in commission, are the first to transmit impulses, and these impulses are received through a period of time before the motor fibres are ready to respond; and still later

comes the interchange of impulses between the centres. No centre is ready for real function until the sensory impulses have established themselves and the centre has been taught its function. No centre is ready for full function at once. It needs experience; that is, development through activity, before it can give its full service. It is this experience that teaches it, that arouses its latent function; and it is only through experience that the full power of the centre can be brought out. And then, when the centres are all in full function, the association fibres make possible the interchange of impulses, of ideas, between the centres. The human brain does not attain its full weight until about the eighth year of its existence, and therefore it cannot be of full value to the individual before then. Up to that time there is only, as it were, half a brain in function, for, up to that time the dominant part of the brain, just as in the primitive brain, is the primitive area. Real thought does not exist for such a brain, for thought cannot exist until the thought mechanism can act; and the thought mechanism will not act until the centres have stored up enough experience to give them a basis upon which to act.

The foundation of education, then, must be laid through the primitive centres; there is no other way by which we may approach the higher centres, no other way properly to develop thought. After the centres have developed, after there are enough stored up experiences, thought comes. After that the individual can think without the aid of action, but action is ever an aid to thought; for that which has become a habit, a fixed method, in the brain cells never loses its control there. So we see how important this matter of the foundation is. The mere laying of it establishes a habit. That is, the manner in which a fact is acquired determines the manner of its use later; it also determines the manner of acquisition of other facts. If we wish to learn something we must learn it in the same manner in which we are later to use it. In teaching a boy to drive a nail we do not hand him a nail and a hammer and tell him to go ahead. That would be aimless, and would lead to a waste of time, and to the acquisition of a faulty method. The human animal must be trained in order to make him effective; each human brain must be trained in the right way if we want the best from that brain. And so, when we give the nails to the boy, we begin by showing him how to drive them, and we strive to make the process interesting. Not only do we give the hammer and the nails to him, but we give to him, also, something into which he can drive the nails, some boards. We show him how to put the boards and the nails together; that is, how to make something. In learning how to adjust the boards, as well as how to drive the nails, he learns several facts at the same time, facts that attract his attention, that become interesting through association, and facts that, later are going to be of service to him. If he ever should want to make something with boards he will know how to begin; the basic idea is firmly fixed within his brain through association. It does not matter if the work to be done differs somewhat from the work which he learned how to do. He will accomplish it, for the foundation for right procedure was laid in the first instance. Once an idea is set in the brain

centres, once a pathway is established, it is difficult for the brain to ignore it. The brain is peculiar in this, it holds to what it has. It is, therefore, of the greatest importance that that which is learned is learned in the proper manner. If learned in an improper manner the improper way always will be in evidence; the wrong pathway, the wrong impression, once having been formed, will remain within the brain, even though the right way be learned later. It is impossible for brain cells to unlearn, to give up an impression. It must follow, then, that, to make the brain of the highest efficiency, we must teach it early, before there is time for it to learn the wrong ways.

This manner of learning should begin early, but teaching, formal teaching, should not. The brain is not ready for real thought before its eighth year, and so, anything requiring thought should be barred until then. Before that we have the primitive brain to consider, and the primitive brain itself considers only action. There should be no formal schooling for a child under seven years of age, but the foundation of its education should be begun. That is, we should lay down the right pathways, not forgetting that these pathways come through action. The child under that age should have an active life, but it should be action that is under proper direction. He should not be thrust out into the back yard or upon the street to pick up things for himself, mostly undesirable things; his activities should be so directed that he will learn useful things through them. The little child comes into knowledge of the external world through intimate association with it, through contact. That which he learns he learns unconsciously, without effort, and as a matter of fact through constant and every day association with it. He learns to say "Mama" through hearing the word many times, day after day. The impulse reaches his brain through the afferent nerve fibres, and, after a sufficient number of these impulses have been received, the motor centres controlling the muscles having to do with speech awake to the consciousness of the word, and, acting upon that consciousness, the muscles coordinate and pronounce the word. But, even after the word is pronounced, the centres are not in immediate control of it; their control is not perfect at the first attempt, nor yet at the second. The word impulse is so complicated that it requires many repetitions before it is learned. This illustrates what we said in regard to repeated sensory impulses being needed before a centre can come into active function. It is the repeated hammering that drives the nail, not the first blow, although the first blow must be a careful one, as that determines the direction in which the nail is to go.

And this should be the manner of the acquisition of knowledge by the very young; in that manner should the foundation of an education be laid. Children under eight years of age should learn, but learning should not be forced upon them. The process must be made interesting and understandable from their point of view. Most children, at any age, learn with difficulty under the ordinary school routine, and, usually, have to be driven to their books. That is because, first, they do not begin in the right way, and, second, because the work is not presented so that they may grasp it. If these children learn anything at all, it is only through sheer memorizing

of facts. But it is not the memorizing of bare facts, facts that only are to be repeated parrotlike, that constitutes education. Education is the individual, and, more than the individual; it is the present and the future, the individual and the world. It is the welfare of both that is determined by the foundation of the individual's education, by the development of the child's growing brain.

## AN ANALYSIS OF FIVE HUNDRED FATAL MEDICAL CASES IN THE TROPICS,

*With the Clinical Diagnosis in the Light of Autopsy Findings.\**

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(Concluded from page 407.)

### GROUP VII QUESTIONABLE AND UNDETERMINED CASES (3.40 per cent. of total 500 cases).

Case No.	Autopsy diagnosis	Clinical diagnosis
1	Undetermined infection	Estivoautumnal malaria, tuberculosis
2	Undetermined infection	Estivoautumnal malaria
3	Undetermined infection	Estivoautumnal malaria
4	Undetermined infection	Estivoautumnal malaria
5	Undetermined infection	Hemoglobinuric fever, lobar pneumonia
6	Undetermined infection	Congenital syphilis, malnutrition
7	Undetermined infection	Tertiary syphilis
8	Undetermined infection	Tuberculous meningitis
9	Ill defined	Meningitis
10	Ill defined	Estivoautumnal malaria, lobar pneumonia
11	Ill defined	Undetermined
12	Ill defined	Meningitis
13	Ill defined	Estivoautumnal malaria, acute infection
14	Anemia (unqualified)	Acute and chronic nephritis, secondary dysentery
15	Pleurisy	Bronchopneumonia, septicemia
16	Septicemia	Pellagra
17	Unclassified hepatic disease	Chronic nephritis, cardiac hypertrophy and dilatation

In all hospitals there will be found a group of cases similar to those in this list, which constitute a veritable apple of discord between clinician and pathologist. Cases one to four are examples of fatalities which the clinician believes ought to be classed as malarial or postmalarial deaths. In all these cases the clinician's laboratory had found the estivoautumnal asexual malaria plasmodia in the peripheral blood on the day of admission. In case two they were present in such large numbers as to be marked plus. The parasites were again found in this case on the day of the death (fourth day) in much smaller number. In the fourth case they were found on the first, second, and third days. In case one the patient died on the tenth day, having

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run a more or less remittent, high fever. Ante and post mortem cultures of the blood remained sterile. The leucocyte count was 9,800, with a differential of fifty-six polymorphonuclears, five large and thirty-nine small. The secondary diagnosis of tuberculosis was more of a guess than a clinical deduction, and was followed, as so often the case under like circumstances, by a flat failure. Case two shows two distinct paroxysms of fever on the second and fourth days. In the latter one of these the patient succumbed. To the clinician this death presents a strong case for argument in defence of his definite diagnosis, especially since a large number of parasites were found on the day of admission and a smaller number on the day of death. At autopsy very slight microscopic malarial pigmentation of the spleen was found. No mention is made of parasites. In case three the patient was admitted in coma, and remained so until death, on the third day. Case four shows the typical temperature curve of remittent malarial fever, with recovery on the fifth day. On the seventh day a quinine urticaria was so severe that the remedy was discontinued. The temperature remained normal for twelve days, during which the patient was up and eating full diet. On the thirteenth day the temperature suddenly rose to 105.5° F., and the patient died. The chief findings at the autopsy were focal necrosis, extensive albuminous degeneration, and multiple minute abscesses of the liver. Cloudy swelling of heart and kidneys was also found.

Much discussion has been aroused among the staff of this hospital as to the cause of death in these and occasional similar cases. A number of different opinions are held, the chief of which are: 1. These deaths are due to quinine poisoning, causing necrosis of the liver and cloudy swelling of other organs. 2. They are acute infections of unknown origin, independent of malarial infection. 3. They are malarial or postmalarial sequelæ, the result of poisoning by malarial toxins, in cases where the instituted quinine treatment has destroyed most parasites, and thereby liberated large quantities of toxine. The supporters of this theory also assert that the malarial parasites and pigment found at autopsy in many of these cases are often the visible remainder of the recent infection, and not the usual chronic malarial infection of the tropics. The cloudy swelling and the necrosis, especially of the liver, are easily explained by assuming that the malarial toxine has been the causative agent. The factor seemingly against the first argument is that these patients do not receive more quinine than the average severe malaria patient who recovers. Furthermore, when quinine does cause poisoning, beyond the unimportant tinnitus aurium and deafness, it manifests itself as a temporary amblyopia with widely dilated, nonreacting pupils. This symptom, always carefully watched for when quinine is given in heavy doses, i. e., sixty grains in twenty-four hours, to eighty grains in eight hours, has never been observed in any of these undetermined deaths following malaria under treatment. The second argument lacks essential support because of the inability, so far, to obtain any but sterile cultures in ante or post mortem blood, and

from post mortem tissues. In the presence of a decided malarial infection on admission, and in the absence of other findings at autopsy, the clinician feels that the assumption of malaria having been the direct or indirect cause of death should be sustained.

Case five may have been a posthemoglobinuric fever death, in which the only evidence remaining at death was an acute degenerative nephritis. The secondary diagnosis of lobar pneumonia was a mistake caused by extensive edema of the lungs shortly before death. Case six represents a death similar to those in cases one and four, but it was a case in which neither clinician nor pathologist had attempted malarial diagnosis. Malarial pigmentation of the spleen, liver, and bone marrow was found at autopsy, with necrosis of the liver and multiple abscesses of the lungs. The patient was an infant boy twenty months of age. The blood examination was negative on admission, but quinine sulphate was given, one dose of ten grains on the second day, three doses of five grains each on the third and fourth days. Death occurred on the fifth day. Possible evidence of syphilis was found in the femurs at autopsy. Case seven was an adult negro who was admitted to the hospital suffering with tertian malaria and a pustular dermatitis. The blood was positive for tertian parasites, and the Wassermann test was negative. Death occurred after seven weeks of practically afebrile temperature, from exhaustion. Pus from an arm pustule remained sterile when cultured. A culture from an open leg ulcer was positive for *Micrococcus aureus*. At the autopsy an ulcerative condition of the mouth and colon was found, in addition to the dermal infection. In case eight, bacteriological examinations of the blood, spinal fluid, and blood serum (Widal and Wassermann tests) were all negative. The patient died in three weeks with symptoms of acute meningitis. The conditions noted, coupled with a persistently low leucocyte count, caused the diagnosis of tuberculous meningitis to be made by exclusion. At the autopsy, the post mortem changes were found far advanced. Atrophy of the frontal convolutions of the brain and an excess of the cerebrospinal fluid were the only noteworthy changes. Tuberculosis was not present.

The following five cases (nine to thirteen) were classed as ill defined by the pathologist. Case nine was admitted in coma, temperature of 103° F., pulse 126, respiration 26. The leucocyte count was 20,000. Malaria plasmodia were not present. Signs of meningitis were the only physical findings. The spinal fluid was negative when cultured. Death came in thirty-six hours. Autopsy showed acute follicular colitis (focal), dry meninges, and sinuses, with congestion of the pia mater. Cloudy swelling of the heart, liver, and kidneys was also recorded. Case ten presented estivo-autumnal malaria parasites in the blood, on admission. A lobar pneumonia, with a leucocyte count of 38,000, was also found. The temperature was low intermittent until death occurred, on the fifteenth day. At the autopsy such a multitude of complications, such as acute degenerative nephritis, and acute purulent cystitis, were found in addition to the lobar pneumonia diagnosed clinically, that

the case was placed in the ill defined category. Case eleven is an especially interesting one. Clinically, a diagnosis of cerebral syphilis had been made. The patient was a Barbadian negro, thirty years of age. He seemed mentally dull, presented glandular enlargement, genital scars, acute periostitis of the sternum and tibia, mucous patches, and evidences of a fading skin eruption. His temperature was  $103^{\circ}$  F. on the day of admission, but fell to normal on the second day. The fever curve fluctuated between normal and  $100^{\circ}$  F. for the next eleven days. On the eleventh day he was given 0.5 gramme of salvarsan intravenously at 11:20 a. m. At 4:00 p. m. that day his temperature had risen to  $104.5^{\circ}$  F., his pulse had jumped from 88 to 135, and he died at 7:40 that evening. This patient had been up and about, eating full diet, the ten days preceding the salvarsan treatment. Due probably to advanced post mortem changes, definite pathological findings could not be obtained. Acute degenerative encephalitis, right basal ganglia, seemed to be present, but was held by the pathologist to be, possibly, a post mortem change. Other findings were of no importance. This case, by the chart records, strongly calls to mind similar fatalities reported, following salvarsan treatment, in cases of advanced or cerebrospinal syphilis. Case twelve presented all the clinical signs of acute meningitis. The spinal fluid was negative when cultured. Edema of the brain and congestion of the cerebrospinal meninges, in conjunction with cloudy swelling of the principal viscera, were the chief results of autopsy.

Case thirteen is similar to the malaria cases cited at the beginning of this group, with the exception that ulcerative enterocolitis was also found at autopsy. The patient lived seven days after the discovery of malaria parasites in the blood. The temperature became progressively higher, in spite of energetic quinine treatment. Death occurred with a terminal rise of  $106^{\circ}$  F. Ante and post mortem blood cultures remained sterile. The last four cases of this group (fourteen to seventeen) represent not so much a difference in the findings of the clinician and the pathologist, as a difference of opinion as to what lesion to hold responsible for the patient's death. Case fourteen was a chronic ulcerative enterocolitis, in which megaloblastic degeneration of the rib marrow with hyperplasia of the femur marrow led the pathologist to assume that the severe anemia recognized clinically was of primary importance. In case fifteen the patient died on the seventh day following admission, with a temperature of  $109^{\circ}$  F. Clinically, the case was considered to be a septicemia of unknown etiology, with a terminal bronchopneumonia. At autopsy an acute hemorrhagic fibrinous pleuritis was found, in addition to bronchopneumonia. The former was so severe that the pathologist accepted it as the cause of death. Case sixteen was considered pellagra by the clinician and septicemia by the pathologist. Whether the death was caused by either the former or the latter, or both, is quite impossible to decide by the remaining records. Possibly, in the absence of blood cultures, these two terms should be accepted as synonymous in this instance. The seventeenth case

represents a final difference of opinion occasionally held by clinician and pathologist. The clinician diagnosed chronic nephritis, complicated by a hypertrophied and dilating heart. The latter complication was especially evidenced by the presence of a large, smooth, and tender liver, assumed to be the result of passive congestion. The pathologist, at the autopsy, verified the clinician's renal and cardiac diagnosis, but found, in addition to hepatic congestion, an acute necrosis with fatty degeneration and red atrophy of this organ. The pathological changes of the liver were then taken to be of paramount importance, with the cardiac and renal findings as coincidental or secondary, while the clinician had shown his opinion to be exactly the reverse. How shall we decide who is right?

#### GROUP VIII. NEOPLASMS (38.46 per cent. failures).

Case No.	Condition found at autopsy.	Mistaken for, or clinically obscured by.
1	Sarcoma of spinal cord	Transverse myelitis
2	Sarcomatosis	Chronic meningitis
3	Sarcomatosis	Transverse myelitis
4	Hepatic sarcoma	Syphilitic hepatic cirrhosis
5	Cerebellar tumor	Cerebral abscess

The neoplasms of this group were all in negro patients. Cases one, two, and three were looked upon as tuberculous bone caries producing transverse compression myelitis and meningitis. Case four was mistakenly diagnosed gumma, though the Wassermann test was negative. Case five is an excusable error, though a history of four months' headache and a continuation of symptoms for four weeks longer under observation in the ward, the first two of which had a recorded afebrile temperature curve, might have suggested tumor, rather than abscess, of the brain.

In the main, the errors of this group seem very excusable. The outlook of these patients was, of course, quite hopeless from the beginning, irrespective of diagnosis.

#### GROUP IX. HEPATIC (54.54 per cent. failures).

Case No.	Condition found at autopsy.	Mistaken for, or clinically obscured by.
1	Amebic hepatic abscess	Tuberculous peritonitis
2	Amebic hepatic abscess	Clinical dysentery
3	Amebic hepatic abscess	Clinical dysentery
4	Amebic hepatic abscess	Acute peritonitis
5	Atrophic hepatic cirrhosis	Cardiac hypertrophy and dilatation
6	Acute suppurative hepatitis	Cardiac hypertrophy and dilatation

In the life of a physician in the tropics the first four cases of this group represent an affection that is the bane of the diagnostician. Case one shows an excusable error. The patient came to the medical wards with a liver abscess that had ruptured into the peritoneal cavity, before admission. The abdomen was distended with fluid (of which a gallon was withdrawn), resembling the exudate of tuberculous peritonitis. Nevertheless, the etiology being doubtful, he was sent to the surgical division for exploratory laparotomy. This revealed the true state of affairs. Cases two, three, and four were not diagnosed, because, in the first place, sufficient fresh stool examinations were not made to determine the nature of the existing dysentery, and, secondly, because repeated routine physical examinations had been carelessly omitted. Case five

could hardly have been diagnosed more correctly. A passive congestion of the liver, caused by a dilated heart in a recognized alcoholic, made the liver abnormally large. The last case was also one of cardiac dilatation, in which the passively congested liver had possibly become infected secondarily. This case could have been recorded under the heading of questionable cases.

The deaths from hepatic abscess in this group forcibly show the value of ascertaining the etiology of a dysentery, and the absolute necessity and duty of the physician to keep a close watch over the liver in all dysentery patients. In cases two, three, and four, recovery might have occurred had a correct diagnosis been followed by approved medical treatment, in conjunction with operative interference, while the patients still had vitality enough to react.

#### GROUP X. PANCREATIC (100 per cent. failures).

Case No.	Condition found at autopsy	Clinically mistaken for
I	Chronic pancreatitis	Chronic myocarditis and nephritis

Though chronic myocarditis and chronic nephritis were present in this case, a chronic pancreatitis, presumably of syphilitic origin, was the chief lesion found at the autopsy. No apologies nor explanations need to be offered for this error of omission. The case simply shows how rare, and how inaccessible to diagnosis, diseases of the pancreas are.

Though all efforts have been made to condense this paper as much as possible, we find the time and space allotted us too limited to take up the many interesting and instructive errors of omission and commission that were made incidental to determining the actual cause of death. As many of these errors would also be found to be repetitious of what has already been said, we shall content ourselves by drawing conclusions from the matter in hand, disregarding all errors made in secondary and incidental diagnoses.

#### CONCLUSIONS.

Without autopsy findings, our opinion as to the cause of death is correct in only somewhat over 80 per cent. (81.40 per cent.) of our fatal cases.

With autopsy findings, a satisfactory cause of death can be definitely established in somewhat over 96 per cent. (96.60 per cent.) of all fatal cases.

The great majority of our mistakes to diagnose clinically is due to neglect of some elementary, routine examination, either physical or laboratory.

Fortunately, in the above presented series of 500 cases, had there been no errors in diagnosis, and appropriate treatment adopted in every instance, the chances of recovery would have improved in only 2.4 per cent. of the total number.

If the pathologist would take into consideration more frequently the clinical, as well as the post mortem findings, in determining the causes of death, the number of undetermined infections and ill defined diseases would be materially reduced, and in some questionable cases definite conclusions could be reached.

#### CUTIS—INDEX MORBI

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Some wag has said that dermatology is the science of vanity: that a woman will endure with stoicism a crippling pain in the back, but will move heaven and earth to get a pimple off her face. Like most alleged witticisms at the expense of the serious things of life, this fling contains but a fraction of the truth. Presentability is not the only function of the skin. It is a great organ of protection and excretion. It guards us against the invasion of destructive bacteria, adapts our organisms to thermal fluctuations; by its delicate nervous mechanism warns the brain of dangerous contacts, and enables it to execute many marvels of artistic cunning. It can impart a feeling of perfect satisfaction or harry with the most exquisite torture. It supplements the kidneys in the mighty labor of elimination. It is only to the shallow mind, therefore, that the study of the skin would appear to be trivial and vain. It must be a subconscious approval of this contemptuous attitude, that so meanly subordinates the dermatological department in the minds of medical students and in the curricula of most medical schools. It is considered a waste of time to devote any of it to dermatology, when there are so many graver subjects for study. Who would concern himself with acne as compared with acromegaly? Contrast the relative importance of psoriasis and pneumonia! How pitiful is pityriasis paralleled with cholelithiasis! Think of tinea and tabes! think of eczema and rabies! Out upon pediculosis; note this cardiac stenosis! Et similia multa exempla! What adult mind but would advert at once to the more serious business in hand and sweep aside, as beneath its notice, the contrasting cutaneous lesions?

Yet a little experience will reveal, as a little reflection might have done, that ignorance of skin diseases is a material drawback to the general practitioner. Skin diseases are very common. They are a great annoyance to the patient, either through their unsightliness, or the positive physical distress that they produce. Acne may not possess the morbid possibilities of neurasthenia, yet I have seen it more than once bring about the latter condition because of the constant brooding it entailed. It has prevented marriages and lucrative employment. Its victims have been stung into suicidal fury by the caustic comments of inconsiderate associates. They become shy, retiring, morbid, and unhappy. Are not these adequate reasons for considering acne worthy of the attention of our august neopractioners? Because it does not kill it is nonsense to ignore it. It may destroy a lovable disposition, warp an ardent spirit, and crush commendable ambition. And if after these considerations, the Æsculapian debutant is still unimpressed, he will speedily ascertain, in the friction of medical practice, the importance of the patient's point of view, by the loss of remunerative occupation.

The itching dermatoses are often responsible



directly for deterioration of health through constant irritation of the nervous system. "Itch hath murdered sleep" just as effectually as Macbeth is reputed to have done. Dermatitis herpetiformis, insistent, insatiate, and intractable, is as serious a disease as many of those absorbing the physician's attention, yet how few physicians, apart from those making a special study of cutaneous disorders, are able to diagnose it correctly! It runs the gamut of all the "eczemas" till the sufferer is worn out with torment, and the hope deferred that maketh the heart sick. Finally, when the dermatologist gets him, he has to begin operations on a patient lacking faith, hope, and vitality. Hard as may have been the original problem, it is rendered almost insoluble by the deplorable morale following repeated failures.

In addition to the dermatoses operating evilly on the mind, and those producing the exquisite agony of pruritus, there are others that are directly dangerous to life. Carcinoma cutis, sarcoma cutis, epithelioma, gangrene, malum perforans pedis, malignant pustule, gumma, and lupus, are illustrations of cutaneous diseases, sufficiently destructive to arouse the interest even of the gravest minds. If the physician has only an indifferent smattering of dermatology, he may be unable to differentiate these conditions from others somewhat resembling them, and the patient may lose his life, or a special sense, or be grossly and hideously disfigured in consequence. Variola, scarlet fever, and even measles are grave enough in their immediate and remote effects, both to the patient and the community, to lift dermatology into undeniable importance. When a case of syphilis so closely simulates variola that experienced men are of divided judgment, who will say that the time spent on dermatology is wasted? Suppose that variola were simulating syphilis, a blunder might scatter the seeds of contagion among the people. And suppose as has also occurred, that during an outbreak of variola, a case of measles is mistaken for it, what consternation overcomes the vicinage, and what lasting ridicule is cast upon the misguided practitioner! There is no indulgence on the part of the community, in consideration of the difficulties of the diagnosis. Blunders are unpardonable, and what blunder could be greater, in the minds of the laity, than the confounding of measles and variola? Yet the man who made that irretrievable *faux pas* was one of the brightest men of my acquaintance, with a profound contempt for dermatology. The work of years, in building up a practice, through a well grounded knowledge of internal medicine, was seriously threatened by this single exhibition of ignorance.

As a practical factor in the everyday application of medical science, I think it is obvious, from the foregoing reflections, that dermatology deserves the profoundest consideration. But it was in relation to another aspect of the subject that this paper was designed. Cutis—Index Morbi. The skin the index of disease—the sheet on which is shown the whither of our quest. This has not to do alone, or mainly, with diseases of the skin. It has to do with the indications on the skin of internal disorders. The diagnostician, with an eye for all that is to be

seen, can often get valuable information, for the direction of his efforts, from a preliminary survey of the skin. A trite demonstration of this is familiar to all in the jaundice accompanying disease of the liver. Bronzing of the skin leads us straight to the suprarenal capsules. We have all noted the earthy hue of carcinoma. The pallor of anemia is a matter of common observation; as a variety thereof, recall the greenish-yellow tinge of chlorosis. The red flush of fever is promptly appreciated even by the laity. Purplish ecchymoses are often the telltale sign of fracture. The same color disseminated in spots of various sizes over the lower limbs leads to the diagnosis of rheumatism; so do the shiny red painful infiltrations of erythema nodosum. The violaceous nose of chronic alcoholism hardly calls for comment. In passing it may be well to remember the preliminary stage of acne rosacea, and the terminal stage of rhinophyma. The golden deposits of xanthoma often betray an unsuspected diabetes. The brownish splotches of chloasma hint of diseased uterus or ovary. Melanotic nævi give warning of the sarcomatous predisposition. An exaggerated flush on one cheek with dyspnea shows which lung is involved in the pneumonia. Rose colored spots on the abdomen of a fever patient may clear up an obscure case even before a Widal is available. Erythema, roseola, or petechiæ, may settle a dubious diagnosis of cerebrospinal meningitis. The muddy look accompanying intestinal torpor is everywhere in evidence. No one will mistake the puffy, pasty skin of chronic parenchymatous nephritis, or the blue of cardiac insufficiency. Contrast the dry anidrotic skin of chronic interstitial nephritis with the tense and waxy myxedema of the atrophied thyroid.

Herpes labialis was formerly regarded as a sign of malarial infection, and I have proved it to my satisfaction many times. Herpetic lesions in association with a belt sensation or lightning pains point to tabes. Of like significance are decoloration of the hair (gray or white in patches), falling of the nails, local perspirations, sudamina, ecchymoses, and bullæ. Note also the local variations of temperature, caused by diseases of the central nervous system.

Irritative lesions of the nervous system are frequently indicated by the so called glossy skin, which is atrophied, thin and shiny, and tightly stretched over the subjacent tissues. Persistently recurring boils and genital pruritus, like xanthoma, may be diabetic. Mark the cutis anserina, algid skin of chill. Mark its occurrence also in acute intestinal disturbance. Angioneurotic edema, erythema multiforme and urticaria, variants of the one pathological entity, products of a common cause, hark back to the autointoxication of intestinal putrefaction.

Chronic congestion of the face, neck, and ears, in connection with mental dullness, and feeble circulation, arouse a suspicion of chloral addiction. Persistent pruritus, general, local, or both, traceable to no eruption, and accompanied by nictitation, and contracted pupils, furnishes a pretty accurate picture of morphine habituation. Multiple small abscesses, within reach of the patient's hand, indicate positively the manner of its administration.

Tophaceous deposits in the helix of the ear lead unerringly to the diagnosis of gout. Friability of

the nails should suggest a search for other evidences of lithemia. Lithemia is a term treated with icy scorn by the pathologists of to-day, as conveying no scientific conception of the morbid condition to which it was applied. But in the minds of its framers it clearly meant that state of overnutrition leading to the precipitation of excrementitious matters and the formation of calculi. It seems to me, even in the light of our present knowledge, that it is a very serviceable and expressive term.

How important it is to recognize the *digiti mortui*, the cadaveric, icy, shrunken fingers of Raynaud's disease! Even if you cannot cure the patient, after you have recognized his malady, you can perform the very material service of "saving your face" with the family, and establish a reputation for astuteness.

Be not deceived by the *dermatitis factitia* of hysteria. Strangely appearing lesions that fit into no recognized pathological picture should always excite suspicion. If a woman presents herself with linear, angular, crisscross, or other bizarre configurations, confined to regions within access of her hands, search diligently for the stigmata of hysteria. Malingerer for sympathy, for profit, or for devilry, is not at all uncommon among women and even among men.

The clubbed fingers of tuberculosis point grimly to the lungs. Erythema induratum, lupus vulgaris, and scrofuloderma warn us of the tuberculous diathesis. The various tuberculides indicate that the toxins of tuberculosis are active in the patient, and that graver manifestations may be apprehended.

A knowledge of the multiform eruptions of syphilis, and of their differentiation from other dermatoses, constitutes in itself a liberal education in cutaneous disorders. For he who can boast of as broad a grasp as that has learned to recognize the legion of diseases with which the great imitator may be confounded. Needless to emphasize the gravity of overlooking syphilis.

The early recognition of lepra is urgently demanded, in the interest of the patient and the community. While not actively contagious, it has been demonstrated that it is communicable after prolonged exposure. And whatever is to be done for the patient had better be done early if he is to receive any benefit at all. This early recognition can only come through acquaintance with its manner of invading the skin. Fresh in my recollection is the embarrassment of a good diagnostician who overlooked scarlet fever in an adult male:

The patient had the typical throat of tonsillitis. Opinion was pronounced in accordance with appearances. The usual remedies seemed to be effective in rather a tardy manner. After a week he was allowed to go about as before. In a day or two more he turned up at the doctor's office with the announcement that he had some kind of a scaling skin disease. Examination revealed a general desquamation, distinctly scarlatinale. Here was a pretty mess! The patient lived in a large boarding house and worked in an office full of clerks married and single. The opportunities for the spread of the disease were ideal. The dilemma of the doctor was pitiful. If he confessed his error he was disgraced, if he concealed it he would be endangering the health of the community, and subjecting his patient to the possibility of a kidney complication. Finding no middle course he threw himself on the mercy of the patient, who fortunately was a man of sense and feeling, admitted his culpable carelessness, had him sent

to a hospital for infectious diseases, patiently bore the abuse of the mistress of the boarding house who had to submit to the annoyance of disinfection and took to heart the lesson that it is prudent to investigate the skin before pronouncing judgment.

One glance below the neck band and he would have read on the cutis—index morbi—writ large and unmistakable the diagnosis, scarlet fever.

A girl of sixteen years, of good family, and of a quiet and reserved disposition, never known to go about without her mother, was attacked with "a sore throat." A physician diagnosed tonsillitis. Treatment was not strikingly effective, and after a week another physician was called upon. He verified the first diagnosis, but could not understand the persistence of the trouble. After a few days of his medication, a third man fell heir to the puzzle. His suspicions, if aroused by the extraordinary prolongation of a simple pharyngitis, were lulled by the shy and modest demeanor of the girl, and the assurances of her mother, adroitly extorted, that she had absolutely no opportunity for misbehavior; and he went completely off the track. When I saw her I found the sharply circumscribed redness of the palatal arch so suggestive of specific infection and insisting on a complete examination, I uncovered a beautiful macular eruption and the evidence of a preexisting chancre. Faced with the facts the girl admitted her fault. Pressed by her mother for an explanation of when and where she had met the man, as she had rarely gone out alone and then only for a few minutes, she said she had received him in her own home when her mother had gone out.

That eruption had been present all the time that she was under treatment by the other physicians, and had they consulted the cutis—index morbi—they would have read at once the correct diagnosis.

A woman of forty-four years had been bitten on the cheek by her husband in a spirit of playfulness. In about two weeks a hard papule appeared. She consulted her physician after two weeks more, and he treated it for trauma. When it resisted his applications and adenitis of the submaxillary and the anterior chain of cervical glands demanded explanation, he expressed grave doubts of cancer. Much time was consumed in watching the progress of this possible cancer, and finally some two months after the appearance of the lesion I saw the case in consultation. The cheek presented an ulceration as big as a dime with indurated edges and a scanty discharge. The adenitis was spectacular. The patient's back and chest were dotted with large dark red fleshy papules of an unmistakable character. The patient was surprised that they had any bearing on the case as she thought they were hives!

They had been present a week, and had her physician searched her skin he would have awakened to her malady in a manner much more agreeable to himself. Of course, if he had had any suspicion of the true nature of the initial sore he could have had an examination made for the spirochete. But failing that, he would have come sooner, and by his own efforts, to a realization of the true state of affairs had he not ignored the cutis—index morbi.

A traveling salesman far from home discovers a "fever sore" on his lip. He consulted many physicians in the various towns through which he passed, and they all declared it was the same thing. After traveling nearly three months, he returned to New York, and sought the advice of his regular attendant in Brooklyn. Here again he was assured it was nothing. Irritated by the continual repetition of this stereotyped phrase and sensing a deeper significance in the sore than did his various advisers, he made another venture and came to see me. I found a confirmatory roseola, and the chancre was demonstrated beyond dispute.

The point is that the last two physicians who had seen him had had an opportunity to do the same thing: for the patient had observed "those

few faint spots" for about two weeks, but had not connected them with the initial lesion. They had not searched the index either.

Similar illustrations could be cited in great numbers. It will be conceded that something has been said in defense of the study of dermatology. Not only in combating diseases peculiar to itself is dermatology of grave and serious import, but in furnishing information whereby other systems may be intelligently guided. It should be advanced to a position of prominence in all our medical curricula, instead of being a side issue to which no well balanced medical student pays any attention.

How ill prepared is he to fight disease who cannot even read the cutis—index morbi!

315 WEST FOURTEENTH STREET.

### VINCENT'S ANGINA.

By LEO GREEN, A. B., D. M. D., •  
New York.

The field of oral surgery has been rather thoroughly raked over recently in the medical and dental journals, and an article published lately, I am informed, treats in part of the subject I am going to take up. There will be no contention as to priority, as far as I am concerned. This is a narrative of my observations of noma for the past ten years or more and the successful treatment of Vincent's angina for nearly three years.

The mortality in noma, as stated by Doctor Holt (seventy-five per cent.), seemed impressive to me when I started to observe it, as a member of the attending staff of the Nursery and Child's Hospital, about ten years ago, and it appeared that he erred only in conservatism. Noma, or cancrum oris, is a gangrenous stomatitis (it may occur elsewhere, as in the rectum) appearing generally in institution children or in those from poor surroundings, and found during the convalescent stages (or immediately thereafter) of measles, scarlet fever, whooping cough, and diphtheria, and in frequency, in the order named. During my early observations I did not see the little patients until the ravages of advanced noma were evident; little attention was given to the first oral symptoms, which were considered of no great moment. The usual surgical procedure of removal of soft tissue and dead bone, with frequent irrigations of potassium permanganate and sodium hyposulphite, and careful nursing and feeding, saved a few victims. But at best the progress was unsatisfactory, and, because of my uncertainty, I made no report of my infrequent success.

About six years ago, I began at the Foundling Hospital to observe all the patients suffering from the four diseases mentioned above and to carefully watch their convalescence. Somewhat later it occurred to me that Vincent's angina, observed in their mouths, was the starting point of cancrum oris; and if this could be arrested, the origin of the destructive disease was found. This theory has since been proved to be correct—cancrum oris is a neglected or aggravated Vincent's angina.

I tried, without success, irrigations of bichloride of mercury, permanganate of potash, and other antiseptics, and then in turn discarded by process of elimination the various cauterants (including the several silver salts), until I hit upon trichloroacetic acid, which I had previously used for other purposes. Trichloroacetic acid belongs to a group of three acids (monochloroacetic and dichloroacetic are the other two), the difference in their composition being due to the relative amounts of chlorine they contain. It is made by the oxidation of hydrated chloral by nitric acid, and occurs in regular, colorless crystals. I started using a twenty per cent. aqueous solution, but have since found that acid in the full strength gives me the best results. The caustic is applied to a freshly cleansed dry surface to prevent its being floated about in the saliva; to avoid extensive cauterization, the tissues are painted with melted petrolatum or other grease, leaving only the infected area exposed. To lessen the pain of cauterization, I drop a few acid crystals into six or eight drops of a four per cent. solution of novocaine, and the results are satisfactory, judging by the absence of pain. In addition to the cauterization, which is repeated every two or three days as needed, the mouth is irrigated with 0.5 per cent. solution of formaldehyde, or, if the odor is very bad (there is a characteristic odor in all advanced cases), I alternate with irrigations of permanganate. As a matter of experiment, I omitted all irrigations in several cases, to observe whether the acid alone would destroy the disease—it does.

Vincent's angina (oral) appears first as a grey ulcerative area at the gum festoons of the incisor or molar teeth, or both, and on the inner side of the cheek, usually around the orifice of the parotid duct. It may also appear on the hard and soft palate, on the tongue, tonsils, and sublingual glands. In the early stages there is evidence of bleeding (and usually pain) on the slightest touch. A smear stained will show the presence of the typical organism under the microscope. The cases taken early will clear up in from three to seven days. If allowed to develop, pockets will appear between the teeth, with evidence of dead alveolus, and, later, large ulcerative patches on the gums, lips, and cheeks. In the more advanced stages we have extensive areas of necrotic bone, a black gangrene of the soft tissues, and perforations of the cheeks, lips, and hard palate. Last spring I presented several patients at a clinic showing all these latter symptoms without perforations, who had entirely recovered after extensive removal of hard and soft tissues and deep cauterization. But, as a rule, the prognosis is unfavorable.

At this time of writing I have two wards isolated at the hospital. In one, established eight days ago, there are seven patients still under observation; four were entirely free in four days, two on the sixth day, and the seventh I will discharge to-day. In the other ward, established a day earlier, with eight cases, one patient died on the third day, of a double pneumonia; this case was hopeless when I first saw it. In another case there was a partial facial paralysis, and the patient has been operated upon recently for mastoiditis. The angina extended all over the mouth as far back as the soft palate, but will have



been eradicated within a week. Of the remaining patients, all will be discharged within a day or two, except one patient with whooping cough; this will require a few days more. In each case we have had a delicate child to deal with; one with resistance diminished by recent contagious illness. As to diet, all those without elevation of temperature had a reasonable variety; the others only liquids.

In another ward one child has infected its clitoris and another its rectum. I have since had the arms of all bound, to prevent further mischief. The treatment of each of these patients is similar to the oral infection; and both will be discharged within a few days. During the past winter several cases of Vincent's angina of the middle ear responded to similar treatment, with a greatly reduced solution of trichloracetic acid.

Several months ago I was greatly perturbed by the frequent occurrence (and in one case, recurrence in a discharged patient) of this oral Vincent's angina in a nursery of runabouts. At last I found a matron violating the hospital rules by feeding several youngsters with the same spoon. After this bit of detective work my worries were over. In another nursery the difficulty was not so easily rectified. A recently admitted child was the carrier, I felt certain. Not until I had ordered all housecleaning stopped, except with creolin soaked mops, did further infection cease.

These cases seem most prevalent during the spring and early summer, although I have also seen them during the fall and winter. Fortunately, there are few in private practice; children put out to nurse are rather free, but in several instances they also have been victims.

#### CONCLUSIONS.

To sum up, Vincent's angina occurs after measles, scarlet fever, whooping cough, and diphtheria—usually in malnourished. It is easily curable if taken early—in the advanced stages, rarely. In the past nine months seven cases advanced to the progressive stages of noma because of our inability to observe the initial lesion; of these, four recovered. We have had nearly thirty others checked in from ten days to a fortnight.<sup>1</sup> Young children as a rule do not call attention to their ills; you must be on the lookout for trouble, and not wait for it to be brought to your notice. I have learned this lesson dearly.

44 EAST SEVENTY-FIFTH STREET.

## THE RATIONAL TREATMENT OF PUSTULAR SKIN DISEASES.

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Modern methods of studying disease have demonstrated that microorganisms play an important rôle in the production of skin affections, especially those presenting pustular lesions, for which type the vaccine or bacterin treatment would seem theoretically an ideal one. The lesions being superficial.

<sup>1</sup>Since writing this article we had twelve additional cases; eleven terminating successfully within a fortnight; the twelfth patient died. All occurred during convalescence from measles.

the immunizing mechanism is not sufficiently impressed by the invading organisms to produce an immunity.

The natural arrangement of the skin in pavement-like layers of epithelium is such as to form an excellent barrier to the entrance of germs. Otherwise we would all require the constant ministrations of the dermatologist. In its normal condition no organism can penetrate through this structure, but imperceptible breaks in its continuity form avenues of entrance for infection. In addition, the opportunity afforded by the blood stream as a distributing agent for germs must be considered. It is only after the natural defenses of the body are broken down, or the germs are introduced in immense doses, that infection takes place (1).

The introduction of dead bacteria is one method of increasing the defensive powers of the blood, as a reinforcement of troops strengthens a garrison. These sterile bacteria in salt solution constitute what is called vaccine, or more properly bacterin. Vaccine therapy depends for its value upon the production of antibodies which react upon the invading organism either to neutralize their toxins or inhibit their growth. In other words, the patient produces his own antitoxine, with consequent active immunity (2).

As to the method of making the vaccines or bacterins it is unnecessary to go into details here, but they must be carefully prepared, and the heat used in sterilization should not be applied longer than twenty minutes, as much depends upon this point. While autogenous vaccines are unquestionably the most satisfactory, good results can frequently be obtained with the stock vaccines, which should be tried if the autogenous are not obtainable. One must at least be sure of what particular germ, or germs, is the cause of the infection before even stock vaccines are available. The constant occurrences of secondary or mixed infections renders it necessary to have discharges reexamined if healing is not rapid, because immunization against the staphylococcus will not interfere with the growth of streptococci.

While the physician who essays to use vaccines need not necessarily be a trained bacteriologist, he should have a knowledge of the microbes which cause the most common infections. He should have some conception of the principles of immunity. He should know the usual dose of the organisms, and, above all, how to adjust the dose to the requirements of the individual. Each case treated must be a study in itself; personal idiosyncrasies, variations in the virulence of the infection, must all be taken into consideration, never forgetting that the more severe the infection the smaller the dose of vaccine required. There are, of course, limits to the powers of the patient to react to the stimulation of the bacterin. In old chronic sluggish cases the treatment often gives results only after a prolonged succession of inoculations (3).

The most frequent microorganism found in skin affections is the familiar, almost omnipresent, staphylococcus, although the streptococcus is found in erysipelas, the acne bacillus in acne, the tubercle bacillus in tuberculous lesions, and the bacillus of seborrhea in seborrhea. The most common diseases

which are amenable to this treatment are furunculosis, seborrhea, carbuncles, impetigo contagiosa, acne, erysipelas, abscesses, and, possibly, eczema. Dr. T. Caspar Gilchrist (41), who has probably done more work on the use of vaccines in the treatment of skin diseases than any other one man in the United States, says bacterins are of undoubted value in the treatment of all pustular affections of the skin, but especially, in his experience, in the treatment of relapsing furunculosis, staphylococcic dermatitis, sycosis non parasitica, certain forms of eczema, pustular rosacea, and acne.

*Acne.* The long list of remedies for the treatment of the disfiguring eruption called acne is sufficient evidence of our inability to satisfactorily cope with it, a trifle though it seems. So the patients who are unfortunate enough to suffer from this affection drift from one physician to another, apply gallons of lotions and pounds of salve, finally gravitating to the so called beauty doctor or advertising charlatan. Many physicians do not consider a case of acne worth their serious consideration, so dismiss the patient with a box of cathartic pills and a prescription for a sulphur lotion; thus opening the door to the luxurious apartments of the beauty specialist, who pretends to be doing something even when accomplishing the least; or else the sufferer takes to "Pink Pills for Pale People," or something equally efficacious advised by well meaning, but meddling, friends.

The term acne is generally restricted to designate inflammation in and around the sebaceous glands and hair follicles, which results in small pustules. In acne rosacea there are, in addition, bloodvessel changes, which give rise to the well known red appearance. It occurs most frequently between the ages of fifteen and thirty, at a time when people naturally take the most pride in their appearance. There is nothing more unsightly, sometimes even revolting, than a face peppered with pustules and comedones, and this disease has a perverse predilection for the face. Acne has many names and many phases, varying from the occasional pimple, which annoys the vanity of the society beauty, to the loathsome mass of comedones, pustules, and indurated red masses which leave scars almost as unsightly as the original lesion. Such a condition is very frequent, and, while not dangerous to life, is decidedly uncomfortable and unsightly. In certain employments it is a serious drawback, as it is most objectionable to have these individuals in positions which involve personal contact with others, such as governesses, nurses, house servants, etc. The mortification which the victims of the worst type of acne feel, as a result of their unsightly appearance, is not the least of its annoyances, often resulting in serious nervous symptoms. One young lady patient had been obliged to give up her work, and constantly wore a heavy veil when she went on the street. At the time she began treatment she was so nervous that she would cry if anyone spoke of her disfigurement, and dreaded to meet strangers because they looked at her as though they thought she had smallpox. "Sometimes I could just scream, it is so awful," she said. Acne rarely persists to any extent after thirty-five to forty years of age, about

which time it is apt to gradually disappear, but meanwhile the patients have a number of years in which to hate themselves.

The cause of acne has been variously given as thick skin, sluggish circulation, cold winds, working in oily or dirty occupations, plugging of the orifices of the glands, a lack of personal cleanliness, constipation, intestinal toxemia, dyspepsia, uterine and ovarian diseases, anemia, chlorosis, scurvy, errors of diet, etc., etc., *ad infinitum*, through the list of ills to which the flesh is heir. While, of course, anything which disorders the metabolic functions must to a certain extent influence any disease, the constant presence of the so called acne bacillus, Unna's bacillus, or Sabourand's bacillus at the base of the comedo proves that the disease is due to bacteriological action. The "blackhead" is not composed of dirt, as commonly supposed, but of degenerated cells and sebum. So long as this bacillus alone is present we find only the comedones or red indurated masses, but when it becomes associated with the staphylococcus it results in pustules, with occasional deep abscesses. The cause, it must be conceded, is this specific organism, often assisted by the staphylococcus, and not alone, as formerly taught, disordered alimentation, ill advised cosmetics, or lack of personal cleanliness. Marcus Haase (5) wonders if we all mean the same disease when we speak of acne vulgaris, but concludes his review of the literature of the bacteriology of acne with the statement that the various organisms described by different observers, from Unna to Gilchrist, as being the etiological factor in this disease, are, in his opinion, simply different phases of the same organism. There is a bacillus constantly present in these lesions, and its pathogenicity is accepted by practically all dermatologists. While he has not seen brilliant results from the use of vaccines, he says the beneficial effects are so marked that he would be loath to treat a patient without their assistance.

The acne bacillus is a short, thick rod, usually retaining the stain with Gram's method, although occasionally partially decolorized forms may be seen in old cultures which have a granular appearance. It grows best on media to which fresh blood or a bit of fresh animal tissue has been added, and under anaerobic conditions. It takes from three days to as many weeks sometimes to obtain a good culture, which is frequently pink in color. The colonies are elevated, irregular in contour, granular or crumbly, something like the growth of tubercle bacilli. The comedones give the best cultures, and should be transferred carefully to the surface of the media without rubbing or breaking. By the adoption of this method of procedure pure cultures are invariably obtained. The bacillus is said to be pathogenic for mice and guinea pigs.

In the treatment of acne we encounter one of the most difficult problems of vaccine therapy, and our failures to obtain good results are, probably, *entirely* due to improper dose—usually the doses are either too large or too frequent. The tendency of the general practitioner is to increase the dose if he is not getting results, when oftentimes the dose should be decreased. The only fairly accurate way of regulating the dose is by means of the opsonic

index; which is usually out of the question as being too tedious or too expensive to be available. In this particular disease we have a guide which those who run may read; namely, the lesions themselves. If fresh lesions crop out within twenty-four hours after the injection it indicates too large a dose. If no change takes place, or a brief improvement, followed by fresh lesions, it is probable that the dose is too small. If an initial improvement is followed by a crop of fresh lesions, the interval is too long and should be shortened. One of the most frequent errors is in too short an interval, which does not permit time for the development of the positive phase, as shown by a lack of any improvement, or even a progressive retrograde change. This is forcibly demonstrated in those cases which are treated by too large doses of vaccine. The patient, seeing no improvement, but oftentimes finding the condition aggravated, throws up his hands in disgust and abandons the treatment. Later marked improvement may be noted, frequently terminating in complete recovery, when the system has the opportunity to react to the overstimulation previously given.

This was forcibly brought to my notice in a case of severe pustular acne, often forming large abscesses, which was under treatment for at least six months, without the slightest improvement. This patient seemed to have an idiosyncrasy to the vaccine, several times getting a systemic reaction in spite of the fact that the dose was reduced to three million acne bacilli, with three hundred million staphylococci, every two to three weeks. The patient was called away on business for six weeks during which time no treatment was taken, returning at the end of that time with great glee to show an improvement of at least fifty to sixty per cent. Thereafter the intervals were increased to six weeks, or until the first fresh lesion began to appear, showing the beginning of the negative phase indicating low resistance. So the case progressed to a complete cure, when there were left only the unsightly scars from previous abscesses. By watching these signs and working the dose up until it just fails to show any "negative phase" clinically, one obtains the maximum benefit of the vaccine treatment in acne. Of course, there are necessarily limits to this method of treatment, but our disappointments in the use of this therapeutic measure can usually be attributed to too much zeal or overdoses. This method of medication will not accomplish miracles, although it sometimes comes near it. It does not in the least interfere with other methods of treatment in acne. The physician can use all the lotions, etc., he desires, but personally I am of the opinion that they do not facilitate matters. Beyond keeping the skin clean by thorough scrubbing with tincture of green soap, the removing of all blackheads as they appear, and steaming daily, local applications seem unavailing. Lovejoy (6) obtained excellent results from doses of three million acne bacilli and one hundred and fifty million staphylococci every five days. Orvall Smiley (7) concludes, after the treatment of one hundred cases of acne vulgaris, that the results are so uniformly good that where

one can control the patient, a cure of the condition can be promised in every case. Seborrhea, a chronic disease of the sebaceous glands, is due to a bacillus very similar to, if not identical with, that found in acne, and is very favorably influenced by the use of vaccines. [Fleming (8) and Leon S. Medallia (9).]

*Eczema*, that protean disease under whose name our ignorance has masked widely different lesions, has been attributed to as many different causes, from intestinal toxemia to neurasthenia, but I am inclined to agree with Unna when he states that all these internal causes simply produce a better nutritive basis upon which germs or parasites may develop. In other words, they can only be considered as predisposing factors, which, nevertheless, should be eliminated whenever possible. Unna (10) attributes the disease to a micrococcus with which he has produced an inflammation resembling eczema. However, the essential germ has not been isolated, unless we admit that the staphylococcus, which is almost invariably present, is the etiological factor. Many observers agree that the fluid from the unruptured primary vesicle is amicrobic, but that secondary infection is almost invariably present.

Whether it is a primary or a secondary infection, its constant presence keeps up the inflammation leading to deeper or more extensive lesions, so that a rational treatment would be one tending to eliminate this factor of the dermatitis. Hence, whenever an eczema becomes pustular, or a micro-organism can be isolated from the scales or exudate, vaccine therapy becomes an invaluable adjunct to the treatment, oftentimes effecting a cure without other medication. Usually it is the staphylococcus, rarely the streptococcus, which is the invading organism. Staphylococcus skin lesions, however chronic, are curable by vaccines (11). A personal communication from Dr. James Murphy, of Middletown, Conn., states that a man, for whom we made a vaccine for furunculosis, had suffered for years from eczema. This cleared up entirely under the furunculosis vaccine, the patient remaining well for over a year. The amount of the staphylococcus should not exceed three hundred million at three to five day intervals, while the streptococcus requires only from twenty-five to fifty million to one dose. This treatment need not interfere with any other line of medication, either local or general, of which the textbooks on skin diseases give so many pages from which to choose.

*Furunculosis*, by which is understood a succession of boils, is a condition which frequently tries the patience of both the doctor and patient, as it did that of Job in prevaccine days. As everyone knows, these painful lesions are due to bacteria, which enter through hair follicles, glands, or slight skin trauma, when through some constitutional derangement the immunizing mechanism is either on a strike, or working on short time. In these lesions we often see most brilliant results when vaccines are utilized as strikebreakers to start the machinery and keep it moving. One or two doses often cause the lesions to dry up rapidly,



and prevent their recurrence by producing an active immunity against the invading organism, which is usually a staphylococcus. Under the use of bacterins the pain disappears within a few hours, and the necessity for a large incision is avoided, as a small opening is all that is required for drainage. The smaller boils usually dry up and disappear without the necessity for opening. The treatment should be continued for several weeks after the active lesions have healed, in order to thoroughly establish an immunity and induce the habit of producing antibodies in the blood of the afflicted individual. Sometimes prolonged treatment is required before permanent immunity is produced. For those subject to boils on slight provocation it is an excellent plan to keep on hand an autogenous vaccine, which can be administered at the first indication of a furuncle, which may then disappear without going through the entire course.

One case of a young woman, who was sent to me (service of Dr. W. E. Fisher) for diagnosis with the suspicion of specific infection, presented numerous dark red, angry indurated areas over legs and trunk. There were no foci of suppuration. The condition was of only a few days' duration, and the patient had a temperature of 101° F. At the suggestion that the condition was one of beginning furunculosis the attending physician was incredulous, but consented to try a stock staphylococcus vaccine. After two days the lesions began to subside, and the temperature to go down. Three doses completed the cure. The Wassermann reaction was negative.

One case (Dr. K. C. Mead) which has not given such brilliant results is that of a young woman who has been under treatment for six months with little permanent improvement. She was markedly improved when she discontinued the vaccine, with a subsequent relapse. There is in this case a family infection, the father, mother, and a sister (who was home only a few days) becoming infected from a common source. Probably a family pot of ointment used in the local treatment of the first lesion, a carbuncle of the father, was responsible. Another case of apparent failure (Dr. J. E. Loveland) occurred in a man suffering from chronic interstitial nephritis who had been tormented with boils for several months before vaccine treatment was instituted, sixty being present at the time vaccine was given. There was a temporary improvement, followed by a fresh crop and subsequent death.

Leary (12), who treated a series of infants suffering from furunculosis, calls attention to the fact that the children not only recovered from boils, but their general nutrition became so much improved after treatment that, from a condition of emaciation, they speedily became the best nourished, and most resistant children in the institution. This has frequently been the case in our series of patients treated by this method; the appetite improves and they gain in weight. Wechselmann and Michaelis (13) conclude that in the treatment of multiple abscesses in infants, a vaccine is specific.

*Carbuncles*, which are much more painful than

furuncles, frequently producing marked constitutional symptoms, are due usually to the *Staphylococcus aureus* invading numerous hair follicles simultaneously, producing several centres of necrosis surrounded by areas of inflammation, which are essentially coalesced furuncles. The frequency with which this infection occurs in those individuals whose immunity reaction is at a low ebb, as in diabetes, the aged, etc., is sufficient evidence of the need of stimulating the production of antibodies. The injection of vaccines as soon as the lesion appears works sometimes almost like magic in this condition, unless the responsive power of the patient is at too low an ebb. No crucial incision is required, and the lesion heals with little or no scar. As often happens, these patients do not consult a physician until they have exhausted all the home remedies, when a large necrotic area with numerous openings is found. Vaccines injected at this time have to overcome a greater toxemia than earlier, but even so they are our most powerful allies. The pain usually subsides rapidly, the discharge is often temporarily increased, then the whole necrotic tissue may peel off within twenty-four hours, leaving a clean granulating surface which rapidly heals.

Of course, where the power of the individual to react to the stimuli is lost or very low, as in some cases of advanced diabetes, or where the carbuncle has been allowed to spread, invading large areas, vaccines are usually quite useless. However, they should always be given a trial, even in these extreme cases, for no one can tell when the immunity apparatus is entirely out of commission, and these patients have the right to demand the help that modern science has placed in the hands of the up to date physician. One must remember that carbuncles are dangerous, and the time to get the best results from vaccines is in the beginning, when the subject has the most resistance, not when everything else has failed, and the individual is "down and out." Renal infections, osteomyelitis, acute endocarditis, or general sepsis may follow mild furunculosis or carbuncle. An autopsy made recently on a neglected case of carbuncle, or rather one treated on the expectant plan (namely, expecting nature to do unaided what might have been another story, if the patient had been given the benefit of vaccine treatment), showed an acute endocarditis, acute nephritis, and general septicemia, all due to the *Staphylococcus aureus*, the same germ as that found in the carbuncle.

*Erysipelas*.—True erysipelas, as all are aware, is due to the infection of the lymph spaces of the skin by the *Streptococcus erysipelatis*. It may involve the cellular tissue, and always gives rise to constitutional disturbances. The experimental evidence goes to show that the offending organisms do not escape into the circulation, but that the pyrexia, etc., are due to the absorption of specific toxins. Ross and Johnson (14) in a series of fifty cases treated by vaccines alone found that the change in the patients after the first dose of vaccine, in twenty-four to forty-eight hours, was most striking. The temperature dropped from 1° to 3°, delirium subsided, and the patient felt infinitely better. The duration

was much shortened, complications did not occur; the color of skin was less angry; and the tenderness and swelling lessened. They say that a "vaccine prepared from the *Streptococcus erysipellatis*, properly administered, exercises a specific and controlling influence on the course of the disease, preventing its spread, lessening its severity, and hastening recovery."

The few cases which have come to my notice fully corroborate their conclusions, but in this condition much better results are obtained if the vaccine is administered as soon as a diagnosis is made, not as a last resort when all else has failed, and the patient is in extremis, without power to react to the stimuli. The guide to dose is found in the severity of the infection and the clinical response of the patient. "The more severe the case and the less satisfactory the clinical response, the smaller the dose." The treatment should be instituted with a polyvalent stock vaccine, which is, if possible, exchanged for an autogenous one later, giving 10,000,000 in severe cases, and double that if the case is seen early, when symptoms are milder. If the case shows no improvement in twenty-four hours, administer five million, but if improvement is noticeable, repeat the initial dose, which is then gradually increased to twenty or forty million, given every forty-eight hours, until a week or ten days after the temperature is normal, and the blush has disappeared, showing that immunity has been completely established.

*Impetigo contagiosa* is characterized by successive crops of flat pustules, due to infection by staphylococci, usually through the agency of finger nails from scratching. It is most frequently found in children, who are in intimate contact. The children affected are usually cachectic and poorly nourished. Sometimes streptococci have been found in the epidemic form. These cases respond admirably to vaccine therapy. If the staphylococcus is found, the initial dose should be three hundred million, increased to five hundred million, given every three days. If the streptococcus is the offending agent, begin with twenty-five million, increasing to fifty million, which is continued at augmented intervals up to five days, for one month after the last pustule has disappeared. These children show rapid improvement, not only in the skin lesions, but by a gain in weight and general nutrition. It would be too time consuming to detail individual cases, for which reason reference to them has been omitted; but suffice it to say that I have made vaccines for some four hundred cases, including many of each of the above named skin diseases, and the results have been so uniformly good that there can be no doubt of the value of this method.

#### SUMMARY.

There is no doubt that in pustular skin diseases vaccines are specific when given in proper doses. That they not only act as a specific upon the lesions themselves, but that they improve the general nutrition and resistance of the patient. That the condition of the surface lesions is a sufficient guide for dose without the necessity for taking the opsonic index. In erysipelas the early use of vaccines shortens the course, relieves constitutional symptoms, and prevents complications.

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44 EAST SEVENTY-FIFTH STREET.

## DOUBLE DRAINAGE TUBES (INNER AND OUTER) FOR NARES AFTER SUB-MUCOUS RESECTION OF THE SEPTUM.

BY SAM GOLDSTEIN, M.D.,  
New York.

This simple contrivance for use with pressure splints, after submucous resection of the septum, has proved an advantageous addition to my technic. Of greater import, however, is the resulting comfort



FIG. 1.—1, Vulcanized outer tube (which remains intact with dressing in nares). 2, Soft rubber inner tubing to be removed (without disturbing dressing) whenever necessary to clear same of blood clot, etc., for free respiration.

afforded the patient, until the dressing has been removed by the operator, in consequence of the free nasal respiration secured.

These drainage tubes are inexpensive, and of the simplest construction. (Figures 1 and 2.) The larger or outer tube is vulcanized rubber, and the smaller, or inner, soft gum tubing; the latter fitting in the outer tube snugly enough to remain *in situ*,

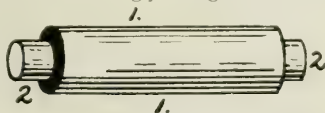


FIG. 2.—1, Enlarged outer hard rubber (vulcanized) tube, part of which is removed to show soft inner (2) rubber tubing and manner of fitting within outer tube.

and at the same time sufficiently loose to permit the attendant, or the patient himself, to remove the same whenever it becomes occluded, without disturbing the position of the vulcanized outer tube or displacing any of the packing in the nares.

The dimensions of the outer tubes, which I have found most suitable, are about  $1\frac{1}{4}$  to  $1\frac{1}{2}$  inches in length,  $5/16$  of an inch in bore, and about

1, 16 of an inch in thickness. The soft gum inner tubing should have about a 3/16 inch bore, and protrude for a short distance, especially at the proximal end, for easy removal from the outer tube. It is advisable to have the inner and outer tubes of different colors, to avoid the patient's erroneous removal of the outer tubing, when he wishes to cleanse the inner one.

My usual procedure, after completing the septal resection and replacing the cartilage, is to place a properly shaped piece of paraffin wax sheeting against each septal mucosa, then adjust the double drainage tubes on the floor of the nares, and fit all above and external to the tubes pieces of Bernay's sheets, and moisten these.

The vulcanized outer tubes may be shaped into any form desired, by placing them in hot water to soften, and patterning them to the configuration of the nares.

1211 MADISON AVENUE.

### THREE CASES OF ACUTE GASTROINTESTINAL INTOXICATION WITH CONSTIPATION AND A SUGGESTED METHOD OF SURGICAL TREATMENT.

BY R. J. MANION, M. D., C. M. (TORONTO); L. R. C. P. AND S. (EDIN.),  
Fort William, Ontario.

The writer has had the misfortune during the past three years of attending three cases, all fatal, the outstanding features of which were a very acute onset of so severe an intoxication as to cause coma, absolute constipation, vomiting of black material, and death in from one to three days. The constipation was so absolute and the vomiting so intractable as to resemble an obstruction of the bowels, but the ante mortem findings in one case, and the post mortem findings in the other two, revealed no sign of organic obstruction, but only a paralysis of a certain portion of the small intestine, above and below which the bowel was absolutely normal. And despite the fact that the material in the distended, paralyzed portion of bowel could easily be forced in either direction, nature, even with the assistance of oil, salts, and so forth, was quite unable to overcome the obstruction caused by this paralysis; with the result that the distended portion acted as a reservoir of toxins from which the body absorbed enough poisonous materials to cause ultimately a fatal ending.

CASE I. Baby D., the thirteen month old son of a fellow physician, was taken suddenly ill on July 15, 1910, with vomiting of black material, absolute constipation, and coma. Bowel irrigations were tried with no effect; the stomach was washed with temporary relief of vomiting; castor oil and small doses of calomel and salts were given with one small bowel movement as the result. Three physicians and the writer were in attendance, and one insisted that there was an obstruction of the bowels, although the abdomen was quite soft, and on examination there was no sign of obstruction. Thirty-six hours after the onset the abdomen was opened as a last resort, the operators finding no organic obstruction, but a dilated part of small intestine succeeded by a collapsed portion through which the contents of the dilated portion could be easily pushed with the fingers. The belly was closed, and purgation with

heavy doses of salts tried fairly successfully, but the baby died ten hours later.

CASE II. Baby T., aged ten months, became ill on June 2, 1911, with vomiting of black material, and constipation except one black movement in two days. The writer was called at 2 p. m. on June 4th, two days after the onset of the illness. On inspection the baby was found collapsed; hands and feet cold, face covered with cold sweat, temperature 95° F. The stomach was washed, and the bowels irrigated with no result. Calomel, one grain, in divided doses, given; followed by salts, one dram. The infant died at 7 p. m., five hours after first visit of the physician. After much pleading the writer was allowed to open the abdomen, and found the stomach and upper intestine distended with black fluid and the ileum collapsed. There was no organic obstruction.

CASE III. Baby C., aged six months, male, rather weakly constitution, was taken ill at a summer resort on June 29, 1913. The mother temporized for two days, giving castor oil with, she said, good effect, but on the morning of June 1st the infant became comatose, and was rushed to the city, arriving at 10 a. m. The writer was called and found the baby unconscious, temperature 97° F., pulse 120, respiration 5. It appeared to be dying, and the mother had feared not arriving in time to have a physician see it alive. An interstitial saline injection was immediately given, some brandy by the mouth as vomiting had not yet begun, and calomel, one grain, repeated, with no result. Interstitial injections were repeated, brandy and small doses of strychnine given with a good reaction; the respirations coming up to normal, pulse from 96 to 100, temperature 98° to 101° F., by the following day. The bowels, however, refused to move, and black vomiting began. The stomach was washed and one half ounce of salts left in, which treatment was repeated in a few hours with no bowel movement resulting. Irrigations of the bowel and enemas of salts were also ineffectual. The baby was kept alive four days by interstitial injections, stomach and bowel lavage, and stimulants, but did not regain consciousness; had no motion of the bowels, and died on July 4th. The parents readily agreed to an autopsy. The stomach, duodenum, upper jejunum, and lower ileum were normal, but some two feet of lower jejunum and upper ileum were markedly distended with black fluid, similar to the vomitus.

The three cases reported are the only ones of this kind encountered by the writer among some hundreds of cases of summer complaint treated in the past eight years. They were all artificially fed, all males, and all occurred in early summer. There appears very little in the ordinary textbooks on this somewhat rare condition, Still's *Common Disorders and Diseases of Children* and Osler's *Modern Medicine* not mentioning it, but Holt in his second edition, p. 365, gives sixteen lines to it.

#### CONCLUSIONS.

Taking into account the gravity of this condition, the writer takes the liberty of drawing the following conclusions from this small series of cases: The treatment should consist of interstitial injections, stimulants, irrigation of bowel and stomach, and strong purgation, for, as Holt says, "in a condition of this kind diarrhea is a conservative process of the greatest possible value." But if it were found impossible to satisfactorily evacuate the bowels of the patient, it is the opinion of the writer that a laparotomy would be indicated with the object of forming an artificial anus to drain the distended portion of bowel, which is nothing more or less than a toxic reservoir, absorption from which is gradually killing the patient. The whole operation could be done inside of ten minutes without even the shock of an anesthetic if the patient were unconscious, as he usually is in this condition. And the artificial anus could be attended to after recovery from the acute condition.



## Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXXVII.—How do you treat threatened abortion? (Closed August 15th.)

CXXXVIII.—How do you treat insomnia? (Answers due not later than September 15th.)

CXXXIX.—How do you treat chancreoids? (Answers due not later than October 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXXVI has been awarded to Dr. Nelson Du Val Brecht, of Washington, D. C., whose article appears below.

### PRIZE QUESTION CXXXVI.

#### THE TREATMENT OF CHOLERA INFANTUM.

Dr. Nelson Du Val Brecht, of Washington, D. C., states that:

Considered from the standpoint of etiology cholera infantum may be classified into—

- (a) The infectious forms; and
- (b) The mechanical irritative forms, due to improper food (Booker). The infectious forms comprise those in which the source of infection is external to the body (ectogenous) and those in which the elements of infection are intrinsic (endogenous) (Escherich).

The therapy resolves itself into prophylaxis and curative treatment.

Prophylaxis.—In hot weather infants should receive an abundance of fresh air and be kept scrupulously clean by frequent bathing. They should be carefully protected from flies, which not only cause restlessness and irritation but act as carriers of infection. If possible, especially during the months of July and August, they should be taken to the seashore or mountains, and when this is impossible good substitutes are found in the day excursions, and summer camps established for children by municipalities and charitable societies. The child should be given an abundance of cool boiled water to drink and the clothing should be light and comfortable, without restricting bands or buttons. In hot weather overfeeding is to be condemned, and weaning should not be attempted. The bowels should be regulated, and constipation avoided. In the case of bottle fed infants the milk should be delivered from a reliable dairy twice daily, should be sterilized or pasteurized, and should be kept in a refrigerator until needed for use. The intervals of

feeding should be regular. If any milk remains in the nursing bottle after a meal, it should be discarded. It seems hardly necessary to mention that the old-fashioned nursing bottle with the long rubber tube should never be employed. The nursing bottles when emptied should be filled with a saturated solution of sodium bicarbonate, allowed to stand several hours, and then scalded or washed externally and internally with a bristle brush. Rubber nipples must be sterilized daily. Breast nipples should be washed before and after each nursing with a saturated solution of boric acid. If there is caking of the breast or a fissured nipple, the condition should be cured before permitting the infant to nurse from the previously affected gland. Reinfection occurs much more frequently in hospitals than in private practice, because there is a lack of care in handling the diapers and in preparing the food by nurses, who are in proximity to many patients.

Curative Treatment.—The therapeutic indications are:

1. To combat bacteria.
2. To rest the gastrointestinal tract.
3. To relieve anhydremia.
4. To stimulate and prevent collapse.
5. To aid convalescence.

1. The intestinal flora in these cases has been demonstrated to consist of the Shiga bacillus (*Bacillus dysenteriae*), the *Streptococcus enteritidis*, the *Bacillus pyocyaneus*, various strains of the *Bacillus coli* and the proteolytic bacteria such as the *Bacillus subtilis*, *Bacillus mesentericus vulgatus*, and the *Bacillus tyrotrix tenuis*. The most rational measure to be pursued, when circumstances permit, is to endeavor to identify the invading microorganisms by examinations of the stools and the blood. After such identification, the use of appropriate bacterial vaccines or phylacogens is indicated. In establishing the dose of bacterins or phylacogens for children, either Young's or Cowling's rule may be followed with advantage.

While we cannot sterilize the alimentary canal, we can to a large extent inhibit bacterial growth, and limit fermentation and putrefaction, by the use of intestinal antiseptics, administered by the mouth or in the form of rectal irrigations. Salol, bismuth salicylate, aromatic sulphuric acid, phenol, betanaphthol bismuth, phenol sulphocarbolate, silver nitrate, quinine sulphate or bisulphate, and calomel are all useful drugs of this class. As a routine measure one grain of calomel should be administered three times during the first day of treatment.

2. Our means of securing rest for the gastrointestinal tract consist in: (a) Withholding of food and modifying the diet; (b) checking diarrhea, and (c) relieving or preventing emesis.

(a) When symptoms of gastroenteritis become manifest, milk should be discontinued. For the first twenty-four hours the baby should be sustained by the use of a solution of egg albumen, ice, peppermint tea, black tea, and cool water. After the first day a selection of any of the following preparations as nourishment may be made, i. e., barley gruel, oatmeal gruel, albumen water, gum arabic water, cold tea, lime water, toast water, bread water, mutton broth, cornstarch pap, burnt flour soup, acorn cocoa, beef juice, dextrinized gruel.

Liebig's soup mixture, whey, panopietone, scraped beef, liquid peptonoids, and lozenges of quinine tannate with chocolate. Children like the taste of the last preparation.

(b). Useful prescriptions for checking the diarrhea are:

- R Bismuthi subcarbonatis, ..... 3j;  
Aque cinnamomi, ..... f 5j.  
M. Sig.: A teaspoonful every one to two hours.  
R Argentii nitrat. .... gr. ij;  
Aque destillatæ, ..... f 5j.  
M. Sig.: A teaspoonful every two hours. (To be dispensed in a dark bottle with a "shake" label.)  
R Resorcini, ..... gr. ij;  
Aque cinnamomi, ..... f 5j.  
M. Sig.: A teaspoonful every two hours.  
R Bismuthi subnitrat. .... 3ij-iv;  
Salolis, ..... gr. xxiv;  
Mistura cretæ, ..... f 5j.  
M. Sig.: A teaspoonful every two hours.

(c). For excessive vomiting, gastric lavage is *per se*, the best single remedial measure. In some cases the following may be administered:

- R Tincturæ iodi, ..... gtts x;  
Aque menthæ, viridis, q. s. ad. .... f 5j.  
M. Sig.: Fifteen drops every hour.

3. When the course of the disease is rapid and prostration ensues, hypodermoclysis or enteroclysis is indicated. The Cantani normal salt solution should be employed; epinephrin chloride solution may be added with advantage.

4. When stimulation is required, caffeine, strychnine, and camphor are useful to supplement enteroclysis and hypodermoclysis. Hot baths and the use of hot water bottles are often of great value, if the peripheral circulation is feeble or collapse threatens.

5. During convalescence milk feeding must be resumed gradually. When a tendency to loose stools persists astringents must be continued. The judicious use of tonics and hematinics materially hastens complete restoration to health.

*Dr. Charles T. Leslie, of Pittsfield, Mass., says:*

Given an artificially fed child of about six months of age, fairly well developed and nourished, but which has had at some previous date a digestive disturbance, and is now suddenly made ill with persistent vomiting of everything taken, severe diarrhea at first fecal, then loose, with curds and foul smelling, later watery and profuse, perhaps blood streaked, the rectal temperature elevated—103° F. or higher—very restless and having evident pain, sunken eyes, and fontanelles receding. Such a case of cholera infantum, with its extreme prostration, needs careful, energetic, and immediate treatment. If we could have induced the mother to have kept the child at the breast, more than likely this condition would not have developed; or if we could have taught her to maintain the feeding periods as near the natural and normal as possible, and to avoid any sudden changes in the quality or quantity of the food, not to pasteurize the milk or add to it any disinfectants, but to use only pure, clean fresh milk, probably the child would have escaped. But if infection has occurred (with the Shiga bacillus for instance) we must give our attention, by way of treatment, to the gastrointestinal tract, to the nervous system, to the circulation, and to furnishing

the infant body with fluids to take the place of those lost through the diarrhea and vomiting.

The gastrointestinal tract.—To give it physiological rest, stop all food for the first twenty-four hours or so. Give water, plain boiled, only in drachm doses, with one tenth of a grain of calomel for about ten doses, every half hour—to clean out the intestines; it also has some germicidal value. Castor oil or phenolphthalein may be used, but I prefer calomel. Catharsis is assisted by irrigation of the lower bowel, two or three times in the first twenty-four hours with some unirritating solution. Normal salt solution is as good as anything. Sometimes gastric lavage is indicated to lessen the vomiting. On the second day, when feeding can be started, try the white of an egg at long intervals, or whey, or barley water, or buttermilk, especially the last (to which may be added cane sugar to sweeten). Buttermilk contains many bacteria whose activity in the intestines is antagonistic to the organisms causing the infection. There is a tablet on the market which, when given every two hours, acts in the same manner; it contains the *Bacillus lactis bulgaricus* in pure culture.

Breast milk, when it can be obtained, is most desirable, furnishing both food and an antitoxine. Gradually return to the former or a proper diet as the symptoms abate. For the nervous system nothing is so beneficial as morphine, grain 1/50, and atropine, grain 1/500, repeated in one hour if needful. Morphine also helps the heart and combats shock. If the stomach will retain it, a few drops of brandy will serve to stimulate the circulation. Strychnine sulphate is sometimes useful.

To replenish the fluids lost to the body through the liquid stools and vomiting, normal salt solution, given in a systematic manner, i. e., three or four ounces under the skin, every four hours, as seems necessary. Normal salt solution may be given in a high enema if it will be retained. Do not be alarmed if the kidneys seem to have stopped all their activity. Fresh cool air and careful nursing are necessary adjuncts to a happy recovery.

*Dr. Joseph R. Wiseman, of Syracuse, N. Y., holds that:*

The best way to treat cholera infantum is to prevent it. The disease does not depend upon bacterial infection, but is an acute toxemia due to the depressant action of heat, which directly injures the infant's vital powers and lowers its tolerance for food. A slight error of diet, which in cooler weather would cause but little disturbance, may produce severe or fatal illness. All artificially fed babies are at best contending with a food poorly adapted to their physiological needs, hence they are more likely to be injured by the same degree of heat than are breast fed babies. Many infants, particularly among the lower classes, begin the summer with chronic disturbances of digestion. These infants are particularly susceptible to the effects of heat. Infants with lowered food tolerance are more apt to be unfavorably affected by milk of high bacterial content, and hot weather complicates matters by favoring a luxuriant growth of the milk bacteria.

Cholera infantum may be considered an "enterogenous coma," analogous to diabetic or uræmic coma. It is caused by exceeding the infant's limit of tolerance, particularly for carbohydrates and salts. The food which formerly caused the baby to thrive now acts as a rank poison. There occurs a profound disturbance of intermediary metabolism with the accumulation of toxic products in the blood, and the presence of a true acidosis.

How, then, may we prevent cholera infantum? Keep the infant as cool as possible during hot weather. Give frequent drinks of cool boiled water between feedings, and several cool baths daily. Clothe the infant as lightly as is consistent with safety. Treat promptly every slight disturbance of digestion. Send babies into the country whenever possible, for even though the heat may be as great, there is more chance for radiation (breezes, lack of heat stagnation) and they do infinitely better. Even daily outings are of considerable help. Pure milk is of course essential, but alone will not solve the problem. Infants fed upon condensed milk, which is supposed to be sterile, are particularly subject to summer diarrhea. Milk stations are of great assistance, largely by the instructions given to mothers and the inspection of home conditions by nurses. If the purity of milk or the facilities for its storing are not above question, boil it just before using. On hot days dilute the feedings up to one half with boiled water. Above all, encourage breast feeding and delay weaning until cool weather.

The first essential in treatment is absolute starvation for twelve to twenty-four hours. The infant should be given as much water or very weak tea as possible, sweetened if necessary with saccharin (grain  $\frac{1}{4}$  or  $\frac{1}{2}$  of the quart). If diarrhea is profuse no cathartic is needed. With insufficient evacuations give ten  $\frac{1}{10}$  grain calomel tablets, at ten minute intervals to a child of one year, followed by two or three teaspoonfuls of castor oil. For free vomiting the stomach should be washed out once or twice. If vomiting continues, absolute rest must be given for several hours. With great loss of fluid through diarrhea or vomiting, weak physiological saline solution should be given by the rectum, by the drop method if possible, otherwise by subcutaneous infusion, half a pint every twelve hours.

With high fever, severe toxemia, or profound involvement of the nervous system, hydrotherapy is of signal benefit. The infant should be put into a tub of water at 90° F., after bathing the face and head with cold water. Gentle friction should constantly be made while ice water is poured in slowly on the side furthest from the child's body until the temperature of the water falls to 80° F. Agitation of the water and friction should be continued for five to ten minutes if well borne. A wet pack may follow the bath, or be used as a substitute. A folded sheet or towel is wrung out of water at 60° to 70° F., and laid upon a dry blanket. The child is wrapped in the damp sheet around which the blanket is snugly tucked. The pack may be continued one half hour or longer, and may be repeated every four hours. After removal the trunk should

be gently rubbed with a cloth wet with water at 70° F., and dried.

Drugs are of limited value. To neutralize the effect of the poison upon the heart and nervous system the hypodermatic injection of morphine, grain  $\frac{1}{50}$  and atropine, grain  $\frac{1}{600}$  to a child of one year, sometimes has a decidedly beneficial effect. It may be repeated in one or more hours as needed. With the presence of drowsiness, stupor, or slight diarrhea, opium in any form is contraindicated, but for excessive vomiting, purging, great restlessness, or pain it is often valuable. Medicinal stimulants are of doubtful utility but should be tried in severe cases. Hypodermics of caffeine, strychnine, camphor, or brandy are probably the best. With a persistence of diarrhea large doses of bismuth subcarbonate are useful, five to ten grains suspended in mucilage of acacia, and given every two hours.

At least by the end of twenty-four hours, whether or not the condition of the patient is satisfactory, food must again be given. A hunger cure is a two-edged sword, and although essential for a brief period to free the organism from toxemia and to diminish fermentation, each additional hour of starvation lessens the tolerance for subsequent nourishment. Of foods which have the greatest power to raise the infant's limit of tolerance, human milk and albumin milk (Finklestein) take first rank. Wet nurses are unfortunately very scarce. Albumin milk (a suspension of precipitated casein in buttermilk with the addition of sugar) is practically limited to hospitals or very intelligent private families because of the difficulty of its preparation. In most cases, therefore, we have to rely upon the more common milk preparations. Of these buttermilk is probably the best, because of its low fat and carbohydrate content and its high percentage of salts. Skimmed milk, or one half milk and diluent may be used. In place of buttermilk a lactic acid bacilli tablet, dissolved in each feeding, may be tried. Broths and whey are usually not indicated. Whatever food is used the carbohydrate content must not fall below a minimum of 2.5 per cent., otherwise the tissues will lack the power to bind the ingested water, and no gain in weight, or an actual loss will follow. If sugar is added, maltose-dextrin preparations are probably the best. Milk should be boiled before using, to prevent a secondary intestinal infection.

Whatever food is chosen, including human milk, must be given at first in very small quantities and at frequent intervals. One may begin with one to two ounces of milk the first day and increase to three ounces in two or three days. Ten feedings in twenty-four hours should be given, and not until the total quantity of milk reaches ten ounces should the intervals be made longer. The quantity and strength of the food must be increased with sufficient rapidity to prevent inanition and further weakening of the infant's vital powers, yet, the limit of tolerance must not be exceeded lest a fresh catastrophe result. One is thus between Scylla and Charybdis. The general condition and behavior of the infant are a much better guide than the stools alone. If the infant shows itself sensitive to the food chosen, when given in small amounts, starva-



tion should not be repeated, but a change of diet made. Only in the presence of symptoms of intoxication on a fairly full diet should a renewed restriction of food be ordered.

It must not be forgotten that a continuance of fever and diarrhea may be due to infection, either intestinal—*Bacillus of Shiga* (*Bacillus dysenteriae*), *Amoeba coli*, streptococcus; or parental—bronchitis, bronchopneumonia or otitis media. In this case a second hunger cure might be fatal.

Fresh air is of great advantage. Even with high fever and toxic symptoms the babies should be allowed to rest outdoors.

(To be continued.)

## Therapeutic Notes.

**Treatment of Chorea Minor.**—Binz, in *Zentralblatt für die gesamte Therapie* for May, 1912, is credited with the following formulæ for use in chorea:

- R Sodii arsenatis exsiccati, ..... gr.  $\frac{1}{2}$  to  $\frac{1}{2}$  (0.01-0.03 gramme);  
 Antipyrine, ..... gr. lxxv (5 grammes);  
 Syrupi aurantii, .....  $\frac{3}{4}$ ss (50 grammes);  
 Aquæ distillatæ, q. s. ad .....  $\frac{3}{4}$ v (150 grammes).  
 M. Sig.: One teaspoonful three times daily after meals.  
 R Extracti cannabis indicæ, ..... gr. v;  
 Arseni trioxidi, ..... gr.  $\frac{3}{4}$  to ii;  
 Quinine sulphatis, ..... gr. xv;  
 Valerianæ, q. s.

Divide in pillulas No. xxx.

Sig.: One pill three times daily after meals.

**Treatment of Exophthalmic Goitre.**—Castaigne, Gouraud, and Paillard, in *Journal médical français* for March, 1913, state that while the drug treatment of exophthalmic goitre has generally been exclusively symptomatic, two substances—other than organic extracts—seem to exert a more general action on the disease.

Sodium salicylate has recently been taken up by Babinski in these cases, and he advises its use particularly in cases where the disturbance is of infectious origin, e. g., after acute rheumatism. The patients to whom the salicylate was administered showed a rapid diminution of the characteristic symptoms and the size of the thyroid, as well as a general constitutional improvement. The drug is prescribed thus:

- R Sodii salicylatis, ..... gr. xii (0.75 gramme);  
 Sodii bicarbonatis, ..... gr. iv (0.25 gramme).  
 Ft. in cachetam no. i.  
 Sig.: Four cachets a day, to be taken with the meals.

The salicylate treatment should be continued a month, interrupted, then resumed.

Quinine sulphate has been advised by Lancereaux and Paulesco, with the object of inducing vasoconstriction of the thyroid vessels. The average dose is fifteen grains (one gramme) to be taken with the evening meals in two doses, a quarter of an hour apart. Huchard combined quinine hydrobromide with an aqueous extract of ergot—1½ grains (0.1 gramme) of each in a pill: six to eight pills to be taken during the day.

Digitalis is indicated where there is cardiac insufficiency with dilatation of the right ventricle. If used for tachycardia or palpitations its effect is un-

certain, and there is a possibility of harm resulting. Strophanthus has been advised instead for the palpitations.

Tremor, when intense, may be treated with tincture of belladonna or hyoscyamus. Atropine or scopolamine, 1/120 grain (0.0005 gramme) o. e. ther, might also be used, but a close watch must be kept over the patient.

Restlessness and insomnia should be treated with mixed bromides, valerian, sulphonmethanum, diethylmalonylurea, or chloral hydrate.

Arsenic is generally poorly borne, but subcutaneous injections of sodium cacodylate have proved useful in certain cases.

Kocher advises the administration of sodium phosphate on the ground that thyroidectomized animals become cachectic when sodium phosphate and magnesia are removed from their food.

Some observers have found calcium chloride useful in exophthalmic goitre. It may be given as follows:

- R Calcii chloridi, .....  $\frac{3}{4}$ iss (10 grammes);  
 Syrupi aurantii florum, .....  $\frac{3}{4}$ v (20 grammes);  
 Aquæ distillatæ, q. s. ad .....  $\frac{3}{4}$ v (150 c. c.).  
 M. Sig.: Three tablespoonfuls daily.

**Treatment of Coryza Due to Chemical Irritation.**—G. Laurens, in *Journal de médecine de Paris* for May 3, 1913, is credited with the following combination, to be used where severe and obstinate coryza results from irritation of the mucous membranes by chemicals:

- R Sodii sulphidi, ..... gr. lxxv (5 grammes);  
 Glycerini, .....  $\frac{3}{4}$ iss (75 grammes);  
 Aquæ distillatæ, .....  $\frac{3}{4}$ vi (25 grammes).  
 M. ft. solutio.

One teaspoonful of this solution is to be placed in a quart (litre) of normal saline and used as a nasal douche twice a day.

The following ointment may be drawn up into the nose:

- R Eucalyptoli vel camphoræ, .....  $\mathfrak{m}$  or gr. iiss (0.15 gramme);  
 Acidi borici, .....  $\frac{3}{4}$ i (4 grammes);  
 Petrolati, .....  $\frac{3}{4}$ v (20 grammes).  
 M. ft. unguentum.

**Treatment of Heartburn in Pregnancy.**—D. B. Hart, in his recently issued *Guide to Midwifery*, states while heartburn is a very common symptom in pregnancy, it demands attention, since there are always suspicions that it may prove a persistent condition. It may also indicate that in the later stages of pregnancy albumin will appear in the urine.

The patient should be given ten drops of the B. P. saccharated lime solution in each glass of milk she takes. The lime solution in question is made by shaking calcium hydroxide with a solution of refined sugar and allowing the excess to settle, and contains the equivalent of about eight grains (0.5 gramme) of lime in each fluid ounce (30 c. c.).

The following preparation should also be administered:

- R Bismuthi subnitratæ, ..... gr. x (0.6 gramme);  
 Sodii bicarbonatis, ..... gr. vi (0.4 gramme);  
 Pulveris rhei, ..... gr. ii (0.13 gramme).  
 Fiat pulvis. Mitte tales no xxiv.

Sig.: One powder, thrice daily after food, in a wafer moistened with water.

# Treatment of Hyperidrosis and Bromidrosis.—

Fouquet, in *Médecine médicale* for December 5, 1912, is credited with the following formulas for use in hyperidrosis of the scalp:

R Sodii boratis, . . . . .	5ss-i (15-30 grammes)
Camphoræ, . . . . .	gr. xv-xxx (1-2 grammes)
Aetheris, . . . . .	5m-ix (10-30 grammes)
Aquæ destillatæ, . . . . .	5m (250 grammes)

Fiat lotio.

Sig.: Use as a wash every evening.

R Hydrargyri chloridi	
corrosivi, . . . . .	5m (250 grammes)
Acidi tartarici, . . . . .	5m (250 grammes)
Acidi salicylici, . . . . .	5m (250 grammes)
Spiritus lavandulæ, . . . . .	5ss (5 grammes)
Olei rosmarini, . . . . .	gtt. v
Alcoholis, . . . . .	5viii (250 grammes)

Fiat lotio.

Sig.: Use as a wash every morning.

In hyperidrosis of the axillæ and genital folds, frequent warm baths should be taken, and the parts washed with dilute alcohol:

R Alcoholis absoluti, . . . . .	5vi (20 grammes)
Aquæ destillatæ, . . . . .	5iv (125 grammes)

Misce.

One of the following dusting powders should then be applied:

R Camphoræ, . . . . .	gr. xv (1 gramme)
Talc, . . . . .	5iiss (10 grammes)
Magnesi oxid, . . . . .	5x (40 grammes)

M. ft. pulvis.

R Talc, . . . . .	gr. lxxv (5 grammes)
Potassii permanganatis, . . . . .	5iiss (10 grammes)
Bismuthi subnitrat, . . . . .	5vi (25 grammes)
Amyli, . . . . .	5iii (60 grammes)

M. ft. pulvis.

In bromidrosis, not only should the excessive perspiration be overcome with the preceding preparations, but the feet should be washed with a solution, containing five drachms (twenty grammes) of sodium borate and a tablespoonful of tincture of benzoin to the quart (litre). Dilute formaldehyde lotions or cologne water may also be used.

The following combination has been recommended for bromidrosis by Eschœpfe:

R Betanaphtholis, . . . . .	gr. xv-xiv (1-3 grammes)
Olei thymi, . . . . .	℥xliv-lxxv (3-5 grammes)
Acidi hypophosphorosi diluti, . . . . .	5i-ii (4-8 grammes)
Cupri sulphatis, . . . . .	5ss (15 grammes)
Zinci sulphatis, . . . . .	5ss (15 grammes)
Ferri sulphatis, . . . . .	5ss (15 grammes)
Aquæ destillatæ, . . . . .	5v (250 grammes)

Misce.

As dusting powders boric acid, or boric acid and starch in equal parts, have been recommended; likewise the following:

R Acidi salicylici, . . . . .	gr. lxxv (5 grammes)
Aluminis, . . . . .	5iiss (45 grammes)

M. ft. pulvis.

**Pituitary Extract in the Treatment of Hemoptysis.**—E. Rist, in *Bulletins et Mémoires de la Société médicale des hôpitaux de Paris*, April 24, 1913, states that, inspired by the experimental work of Wiggers, he tried intravenous injections of an extract of the posterior lobe of the hypophysis (pituitrin) in twelve cases of abundant—though not “fulminating”—hemoptysis, with most excellent results. The dose used was 0.5 c. c., and the injections were made into a vein at the elbow. Whereas ice and morphine had proved ineffectual, the injection of the pituitary preparation was followed almost immediately by cessation of the hem-

orrhage in ten out of the twelve cases. The patients continued to expectorate blackish material for a few hours, but the flow of fresh blood was clearly arrested by the remedy. Where the hemorrhage recurred on succeeding days, the same prompt relief was obtained. In the eleventh case the first injection alone proved effectual, while in the twelfth the first injection, though soon successful in its results, at first caused sudden pallor, vertigo, and a rise of blood pressure from 80 to 95 mm. Hg. with primary increase in the amount of hemorrhage for two or three minutes. Rist thinks such phenomena can be avoided in the future by diluting the remedy with a few cubic centimetres of saline solution and injecting very slowly.

P. Emile Weil, discussing Rist's communication, pointed out that in 1909, with Boyé, he had shown that extracts of the posterior pituitary lowered the coagulation time of the blood where this was increased. Livon soon after found the coagulant properties of the extracts were so intense that no blood pressure tracings could be taken from the dogs experimented on, the blood at once clotting in the cannulæ. Weil believed the results obtained by Rist to have been due rather to this coagulant action than to the diminished blood pressure in the pulmonary circulation noticed by Wiggers in his experiments.

**A Gynecological Hint.**—Ralph Waldo, in the *International Journal of Surgery* for February, 1913, refers to the fact that granulations, or small mucous polypi, often form in the lower portion of the female urethra, causing frequent and painful urination. They can easily be removed after the free application of a two per cent. cocaine solution. As they are usually associated with urethritis, this must be cured by appropriate treatment; otherwise the growths will return. Not infrequently Skene's glands are infected, and to remove the infection it is usually necessary to incise the small ducts (two in number) leading to them.

**Uses of Balsam of Peru.**—Deffuant, in *Journal de médecine de Paris* for May 17, 1913, is credited with the statement that while balsam of Peru may be directly injected into abscess cavities or applied on cotton or gauze, ointments may also be used in the treatment of sluggish ulcerations and sinuses.

Van Hoffer and Gratz recommend the following combination:

R Argenti nitrat, . . . . .	gr. v (0.3 gramme)
Balsami peruviani, . . . . .	5iiss (6 grammes)
Unguenti, . . . . .	5iii (60 grammes)

M. ft. unguentum.

Cassin has been using for a number of years the following:

R Argenti nitrat, . . . . .	gr. xv (1 gramme)
Balsami peruviani, . . . . .	5iiss (50 grammes)
Emplastri, . . . . .	5viss (200 grammes)

M. ft. unguentum.

In the treatment of burns, Gastou and Guillet employ this combination:

R Balsami peruviani, . . . . .	5ss (2 grammes)
Styracis, . . . . .	℥lv (0.3 gramme)
Olei eucalypti, . . . . .	gtt. xx
Petrolati, . . . . .	5vi (25 grammes)
Calci carbonatis, . . . . .	5iii (12 grammes)

M. ft. unguentum.

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INTRATHORACIC INJECTIONS OF IODINE  
IN TUBERCULOSIS.

As emphasized by Cavazzani last year, iodine has held its own in the treatment of tuberculosis, and is a potent aid in the sanatorium treatment of the pulmonary form. But it must be given in moderate doses, lest, as demonstrated by Capelli, it depress phagocytosis, a process enhanced by appropriate doses. Moreover, large doses evoke an excessive and depressing general reaction. Iodine and the iodides have been used advantageously by the mouth, and, where this mode of administration tended to cause gastric disturbances, hypodermatically. The beneficial effects of iodine are doubtless due to the bactericidal properties, partly direct and partly phagocytic, with which it is endowed, as emphasized by the observations of Grossich, Réclus, Walther, Woodbury (see our issue of February 11, 1911), and others. This accounts for the results obtained recently by d'Amico in a series of twenty-two cases of pulmonary tuberculosis treated by means of intrathoracic injections of iodized fluids, the aim of the Italian clinician being to bring the iodine into contact with the diseased pulmonary foci, whether a cavity or an area of tuberculous infiltration. Although the cases were more or less advanced, and other methods had afforded but little encouragement, very distinct amelioration of their condition

was obtained. The injections were well borne, no hemorrhage was caused, even where hemoptysis had previously occurred. Two of the patients were children aged four and ten years, respectively. The solution preferred by d'Amico (*Lancet*, March 29, 1913) consisted of iodoform, one gramme (fifteen grains); camphor, two grammes (thirty grains); guaiacol, five grammes (seventy-five grains); essence of pepperment, thirty drops—a quantity we deem excessive and needlessly irritating—and olive oil, twenty grammes (five drachms). The needle, preferably of platinoiridium, should be of fine calibre and from three to five cm. long. In adults from twenty to sixty injections were administered, according to the extent of the disease, while in the two cases in children, ten sufficed. One cubic centimetre (sixteen minims) was the amount usually injected, but as much as from four to six c. c. (one to one and a half drachms) was required for cavities. Avoiding the cardiac area and large vessels while introducing the needle into the appropriate intercostal space, the solution is injected directly into the affected pulmonary area. The most favorable region is that comprised between the second and sixth ribs on either side. The apex is best reached through the dorsoscapular intercostal space.

Of the tuberculous nature of the cases treated there could be no doubt. The injections caused disappearance of the tubercle bacilli from the sputum, gradual cessation of the fever and cough, all other physical signs being also gradually eliminated. Open air exercise and the patients' daily avocations being in no wise interfered with, they progressed steadily toward recovery while earning their livelihood—a matter of vast importance when we realize that the majority of cases occur among those most exposed to infection, the working classes of our great cities.

## THE SMOKE NUISANCE AND PERNICIOUS COURT DECISIONS.

Without going very deeply into the merits of the law involved in the recent nullification, by a decision of a lower court in New York, of the ordinance passed by the New York Board of Health in relation to the smoke nuisance, it is clear that sanitary progress has received a great setback, at least temporarily, it is to be hoped, through this decision. The court has taken upon itself the burden of deciding that a general ordinance against the emission of dense smoke was an unreasonable exercise of the police power of the State. The court seemed to think that the restriction of an industry was of more moment than this question of the public health, though it is plain that the restriction consisted only



in the expenditure of a little more money in the use of hard coal as a fuel, to say nothing of the extravagance entailed in the use of oil as a fuel, as is now done in many industries.

And yet this city is rather fortunate in having a separately incorporated health department, chartered directly by the State and independent of any other body in the promulgation of its ordinances. Its rulings have the force of legislative acts. This mode of health administration constitutes the highest form of progress in the sanitary control of the community. It takes out of the hands of the uninitiated the matter of health and places it into the hands of those fitted by training and experience to administer such matters. But the reasonableness and the justice of these ordinances and, as is also the case with the acts of the legislative bodies, is reviewable by the courts. This may appear to the lay mind as a just check on the health authorities, but this case shows that it is not safe to leave to the lay mind the final determination in matters of the public health.

From the very nature of their work health authorities meet with a great deal of opposition. They are constantly interfering with liberty or property in carrying out their mission. But to accomplish any results health officers must be given wide latitude and their discretion and judgment must be taken in absolute good faith. A learned court remarked on this subject: "A health officer, who is expected to accomplish any results, must necessarily possess large powers and be endowed with the right to take summary action, which at times must trench closely upon despotic power." Whether the emission of dense smoke is detrimental to the public health is surely a question for sanitarians. The criterion of the validity of a health measure is only whether the public in its aggregate will be benefited. The beneficial effects on a community of a clear unclouded sky, and an unirritating atmosphere can not be overestimated, nor can the depressing effect of a smoky, murky atmosphere be ignored. In respect to the character of the atmosphere New York city is almost a city by itself. The health department is to be given the largest part of the credit for the reputation this city bears of being one of the best health resorts.

The mere fact that an industry, whose operation tends to create a nuisance, was first established in an uninhabited district, and possibly to avoid this very result, but later a habitation grew around it, to whose inhabitants the operation of that industry was detrimental, is now held to be no defense against its removal from amidst this habitation.

This decision is a decided retrogression, when it is considered that the tendency almost universally

is to regard a measure justly within the police power of the State and, therefore, to be sufficient justification to take property or even liberty "without due process of law," when not only the health, welfare, and safety of the community is involved, but even its mere *convenience*. It is to be hoped that the higher tribunals will see the menace to public health progress in thus putting at nought the judgment of the health board.

#### FRESH AIR AS AN ELIMINATOR OF THE EXANTHEMATA.

In no other condition is the beneficial effect of fresh air more strikingly shown than in the case of the exanthemata. In tropical countries, where the people divide their time between the open air and houses so constructed that the outside air has at all times the most complete access to all parts of them, these diseases are practically unknown; and if, in New York, we were to have all the year round the conditions which now prevail during the summer months, there can be little question that they would disappear here.

These remarks have been suggested by the recent announcement made by the health department that in one of the weeks of July, for the first time in many years, not a single death in the city was reported from scarlet fever. Such an absence of mortality, indicating, naturally, a very small incidence of the disease, could have occurred, it may safely be asserted, only in the summer season or early autumn. The whole story of the exanthemata in New York and elsewhere in this part of the world was given in a nutshell, so to speak, some years ago, when Doctor Blauvelt, of the health department, tersely remarked: "Measles and scarlet fever appear every year as soon as people close their windows and keep out the fresh air."

This statement, of course, needs some qualification, as these diseases never entirely disappear, since, in the few months intervening between the recession and advance of cold weather—the period of open windows—there is not time enough for them to become eradicated. A striking illustration of the injurious results of a lack of fresh air in the presence of infectious disease is shown in the case of smallpox in Russia. In that country, as is well known, this disease is still very prevalent, owing, no doubt, primarily to inadequate vaccination among the inhabitants, but very largely to domiciliary conditions; it is said to be attended by a frightful mortality. On account of the intense cold of the long winter, the people keep themselves

shut up as much as possible in their houses, where a high temperature is maintained and everything done to exclude the outside air. Under such circumstances a contagium becomes very concentrated and the results are most disastrous. Formerly, when a number of typhus patients were treated together in hospital wards, the condition was such that a very brief exposure to the atmosphere of a ward was usually sufficient to impart the disease to a perfectly healthy individual. Later, however, when the cases of typhus were treated in tents cut in the open, it was found that the poison, largely diluted with fresh air, quickly lost its potency.

The health department records show that the mortality from measles and scarlet fever gradually increases as the weather grows colder in the late autumn. During the winter months there is naturally more or less variation, but the maximum death rate is not usually reached until some time in the spring.

As to any method of contending successfully against these diseases, other than the use of the measures already employed to prevent their spread, the only hope, of course, is the somewhat chimerical one of so educating the people that they will have some appreciation of the real facts of the case. During the past school year an encouraging experiment was made in one of the public schools of Philadelphia. In one of the rooms the windows were kept constantly open, and at the end of the year it was found that the children of this room were in every way in better condition than the children, of the same age and class, in a room of corresponding character with ordinary ventilation and in which the windows were for the most part kept closed.

#### AUTOGENOUS VACCINE IN TYPHOID FEVER.

According to *Presse médicale* for July 23, 1913, Josué and Belloir, at a recent meeting of the *Société médicale des Hôpitaux* of Paris, reported that they had treated twelve cases of typhoid fever by auto-vaccination. Their method is as follows: As soon as an individual suspected of having typhoid fever is admitted, blood cultures are made, which usually become positive at the expiration of forty-eight hours. The last culture is then sterilized by heat (56° C.) for six hours and, after estimating the number of bacilli contained in one c. c., the authors begin vaccinating the patient, injecting three successive doses, each of 200 million bacilli, at intervals of twelve hours. If, after five days, the temperature remains above 38° C. an additional injection of the same number of bacilli is administered. This in most instances results in the rapid improvement of the patient. Severe cases of typhoid run, after vac-

cination, a course of only moderate intensity, and terminate favorably in such a period, as will render the total duration of the disease from three to four weeks. In average cases, a prompt influence on the affection is sometimes manifest, a slowing of the pulse rate generally preceding the fall in temperature. In other instances the disorder continues with temperature oscillations between 37° and 38° C., and one additional injection brings about a cure. In mild cases, there is often immediate sedation.

#### THE ELASTIC AREA IN THE ISTHMUS OF THE UTERUS. A POSITIVE AND EARLY SIGN OF UTERINE PREGNANCY.

Doctor Ladinski, in the *American Journal of Obstetrics and Diseases of Women and Children* for August, 1913, comments on the lack of definite signs or symptoms indicating an early stage of pregnancy and then calls attention to what he considers a positive sign. To quote his words: "The change I have invariably found in early uterine pregnancy consists of a circular area situated in the median line of the anterior surface of the body of the uterus just above the junction of the body and cervix, that is to say at the isthmus of the uterus, which varies in size according to the duration of pregnancy, and offers to the palpating finger the distinct sensation of elastic fluctuation. It can frequently be made out as early as the fifth week, when the area is only the size of a finger tip; but it can always be felt in the sixth week, when it is somewhat larger. As pregnancy advances this area increases in size in a crescentic manner, and extends upwards toward the fundus until the third month of pregnancy, when nearly the entire anterior body of the uterus presents a fluctuating, cystic feeling to the examining finger.

#### MEDICAL ASPECTS OF GOITRE.

I. V. Lemann, in the *Interstate Medical Journal* of August, 1913, states that the new kinetic theory of Crile is very attractive to the medical man because it justifies his statement that most patients will be benefited by nonsurgical measures. Whether this theory is adopted or not, all must agree that the most important point in treatment is rest—rest in bed—until all symptoms have disappeared. Hydrotherapy is invaluable, warm baths, cold applications to the enlarged thyroid, ice bag to the heart for palpitation. In the way of drugs, tonics such as quinine, iron, and arsenic—quinine hydrobromate has seemed to act almost as a specific. Digitalis and its congeners, for the regulation of the heart, are to be used just as in other heart conditions, and the bromides are useful in quieting nervousness. If we look upon Graves's disease as hyperthyroidism, certainly iodine and all thyroid preparations are to be interdicted, and even if one is inclined to other theories, must be employed with great caution. More logical, from the standpoint of hyperthyroidism, is the use of organic preparations from thyroidectomized animals. With these, as with the Rogers and Beebe serum, the author's experience is small.

## Obituary.

### AUGUSTUS MAVERICK, M. D., of San Antonio, Texas.

Doctor Maverick was killed almost instantly on August 18, 1913, while defending a cook employee in the doctor's family against the attacks of a lust mad negro. The murderer had already severely wounded the girl, and after killing the doctor attacked one of the daughters of the physician, when he in turn was seriously wounded by the aged father of the murdered man. In less than five days after the crime, the assailant was tried and convicted. The trial had lasted not quite two days. The date of execution will be set during this month. Doctor Maverick was a well known practitioner of San Antonio, his native town. Born on November 12, 1885, he received his medical education at the University of Pennsylvania, from which he was graduated in 1907. After a postgraduate course in Vienna, he returned to his native town, where he had practised since. He was well known in medical circles, a good writer on medical subjects, and an esteemed contributor to the JOURNAL. A widow and two children, six and four years of age, survive him.

## News Items.

**Conference on Pellagra.**—Dr. Louis W. Sambon, of the London School of Tropical Medicine, delivered an address at the conference on pellagra held in Spartanburg, S. C., on Friday, August 29th.

**Vermont State Medical Society.**—This society will celebrate its one hundredth anniversary at the annual meeting to be held in Burlington on October 8th, 9th, and 10th, under the presidency of Dr. B. H. Stone, of Burlington. The local committee in charge of arrangements is composed of Dr. C. A. Pease, Dr. E. T. Brown, and Dr. F. J. Arnold. Every effort is being put forth to make the meeting the best in the history of the organization.

**Harvard Expedition for Study of Tropical Diseases.**—Dr. Richard P. Strong, professor of tropical diseases at Harvard University, Dr. Ernest E. Tyzzer, assistant professor of pathology and director of the Cancer Research Commission at Harvard, and Dr. C. T. Brues, of the Bussey Institute, who left for South America on April 30th last, for the purpose of studying tropical diseases in that country, have returned home. Three weeks were spent in Guayaquil, Ecuador, but most of the time was devoted to investigating the cause of a contagious disease, prevalent in Peru, called "verruca peruana." The expedition was financed by the department of tropical medicine of Harvard University, and is said to have been highly satisfactory from a medical point of view. An interesting report will soon be presented to Harvard University.

**Library of Radiographs.**—An attempt is being made to establish, at the Army Medical Museum, Washington, D. C., an extensive library of lantern and stereoscopic slides of radiographs, representing the work of radiographers who have done particularly notable work along certain lines. Enough slides have already been received to make the collection of value for reference and for teaching purposes at the Army Medical School. Those who have already contributed to the collection are Dr. Lewis Gregory Cole, of New York, slides of stomach, lungs, and kidneys; Dr. William H. Diefenbach, of New York, slides of diseases of bones; Dr. Kennon Dunham, of Cincinnati, stereoscopic slides of the lungs; Dr. Walter C. Hill, of Cleveland, slides of diseases of bone; and Dr. James T. Case, of Battle Creek, Mich., slides of the alimentary tract. Others have promised to send slides, and it is the intention to add to the collection from time to time as important work is done. The collection is available for study by any civilian practitioner on application to the Curator, Army Medical Museum, Washington, D. C.

### New Officers of American Federation of Sex Hygiene.

At a meeting of this organization, which was held at Buffalo last week in connection with the Fourth International Congress of School Hygiene, the following officers were elected: President, Dr. Charles W. Eliot, president emeritus of Harvard University; vice-presidents, Dr. David Starr Jordan, of Leland Stanford University; William T. Foster, of Portland, Ore.; Felix Warburg, of New York, and W. T. Sumner, of Chicago; secretary, Dr. Donald R. Hooker, of Baltimore; treasurer, Henry L. Higginson, of Boston.

**American Hospital Association.**—At the annual meeting of this association, held in Boston on August 27th, 28th, and 29th, under the presidency of Dr. Frederick A. Washburn, head of the Massachusetts General Hospital, the following officers were elected to serve for the ensuing year: Dr. Thomas Howell, superintendent of the New York Hospital, president; Dr. H. E. Webster, of the Royal Victoria Hospital, Montreal, first vice-president; Miss Mary A. Baker, superintendent of St. Luke's Hospital, Jacksonville, Fla., second vice-president; H. A. Boyce, of Kingston, Ont., secretary; and Asa Bacon, of the Presbyterian Hospital, Chicago, treasurer. Next year's meeting will be held in Baltimore.

**Changes in the Staff of the University of Alabama.**—Dr. Andrew H. Ryan, instructor in physiology and pharmacology in the University of Alabama, has accepted the chair of physiology in the University of Alabama, succeeding Dr. John Van de Erve, who resigned recently to accept a position in Marquette University, Milwaukee. Other appointments on the staff of the medical department of the University of Alabama are the following: Dr. Howard H. Bell, of the University of Pennsylvania, full time assistant in the department of pathology; Dr. Jesse P. Chapman, instructor in orthopedic surgery; Dr. Percy J. Howard, associate professor of surgery; Dr. E. S. Sledge, instructor in radiography; and Dr. Julius G. Henry, instructor in medicine.

**Old Battleships as Tuberculosis Sanatoria and Open Air Schools.**—At the Fourth International Congress on School Hygiene, held in Buffalo, N. Y., last week, Dr. S. Adolphus Knopf, of New York, presented a resolution, which was adopted unanimously, endorsing the proposal to ask the United States Government to convert its old, discarded battleships and cruisers into tuberculosis sanatoria and preventoria for the treatment of children suffering from tuberculosis, and also for the establishment of open air schools. The resolution states that there are nearly one million tuberculous children in the public schools of the United States, while there is hardly proper accommodation for fifteen hundred. Italy has already adopted the plan, and the resolution included a vote of appreciation of this action on the part of the Italian government.

**Personal.**—Dr. Wade H. Brown, professor of pathology in the University of North Carolina, has resigned, to accept a position on the staff of the Rockefeller Institute for Medical Research, New York. Doctor Brown's successor will be Dr. James A. Bullitt, late of the University of Mississippi.

Doctor Roux, director of the Pasteur Institute, Paris, has been appointed a grand officer of the Legion of Honor.

Dr. A. Bachmeister and Dr. L. Küpfeler, of Freiburg, Germany, have received \$1,000 from the Robert Koch Foundation, for their studies on Röntgen therapy in tuberculosis.

Dr. Calvert M. De Forest, who recently returned from Libau, Russia, where he represented the United States Public Health Service for five years, has been appointed deputy health officer of the port of New York.

Mr. George C. Signor, for eight years superintendent of the Medico-Chirurgical Hospital, Philadelphia, has resigned, to take charge of the State Institution for the Care of the Feeble-minded and Epileptics, at Spring City. He assumed his new duties on August 25th.

Dr. Mary W. Griscom, of Philadelphia, sailed on September 2d from New York for Japan. It is her intention to spend three years in the Far East.

Dr. Louise Pearce, a member of the staff of Johns Hopkins Hospital, Baltimore, has been appointed an assistant to Dr. Simon Flexner, at the Rockefeller Institute for Medical Research. It is said that this is the first time a woman has been appointed to engage in research work in that institution.



**Death Rate in New York.**—During the week ending August 30, 1913, there were reported 1,274 deaths from all causes, corresponding to an annual death rate of 12.37 in a thousand of population, as compared with a rate of 13.28 for the corresponding period in 1912. The diseases which showed increased mortality last week were measles, diphtheria, croup, and whooping cough. There were forty-six fewer deaths of children under one year of age than there were the last week of August, 1912.

**Tuberculosis Day.**—Sunday, December 7th, has been designated by the National Association for the Study and Prevention of Tuberculosis as the fourth national Tuberculosis Day, and as such will be observed by churches, schools, labor unions, fraternal orders, and other organizations in all parts of the country. The movement will be furthered by more than one thousand antituberculosis societies working through various State organizations and the national association. Personal appeals will be made to clergymen, school principals, and leaders of organizations urging them to set aside a definite time on or about December 7th for a lecture on tuberculosis.

**Gifts and Bequests to Hospitals.**—The will of Mrs. Julia Lorillard Butterfield, who died recently at Cold Spring, N. Y., devises that a hospital is to be erected at some spot accessible to both Cold Spring and Nelsonville, Putnam County, N. Y., to be known as the Julia L. Butterfield Hospital; \$40,000 is given for the construction of the building, \$10,000 for its equipment, and \$100,000 left in trust for its maintenance. The will also contains a bequest of \$20,000 to the Association for the Relief of Respectable, Aged, Indigent Females, at 104th Street and Amsterdam Avenue, New York, and a bequest of \$5,000 to the Association for the Relief of Crippled Children.

Many organizations of a charitable nature are beneficiaries under the will of Mrs. Clarence C. Hardy, who died in Newark, N. J., on July 20th. The Young Women's Christian Association receives \$5,000 outright, while to St. Barnabas Hospital and the Home for the Friendless are each given a trust fund of \$5,000 for the maintenance of beds in these institutions. After noting several bequests to individuals, the will directs that the residue of the estate be divided equally between the Hospital for Women and Children and the Home for Crippled Children. The amount which will be divided between the residuary legatees is believed to be large, although no accurate estimate is as yet available.

**A School for Health Officers.**—Beginning this fall, Harvard University and the Massachusetts Institute of Technology are to maintain in cooperation a school for public health officers. The facilities of both institutions are to be available to students in the school and the Certificate of Public Health (C. P. H.) is to be signed by both President Lowell and President Maclaurin. The object of this school is to prepare young men for public health work, especially to fit them to occupy administrative and executive positions, such as health officers or members of boards of health, as well as secretaries, agents, and inspectors of health organizations. It is recognized that the requirements for public health service are broad and complicated, and that the country needs leaders in every community, fitted to guide and instruct the people on all questions relating to the public health. To this end the instruction of the new school will be on the broadest lines. It will be given by lectures, laboratory work, and other forms of instruction offered by both institutions, and also by special instructors from national, State, and local health agencies. The requirements for admission are such that graduates of colleges, or technical and scientific schools, who have received adequate instruction in physics, chemistry, biology, and French or German, may be admitted to the school. The medical degree is not in any way a prerequisite for admission, although the administrative board strongly urges men who intend to specialize in public health work to take the degree of M. D. before they become members of the school for health officers. The administrative board, which will conduct the new school, is composed of Professor William T. Sedgwick, of the Massachusetts Institute of Technology, Dr. Milton J. Rosenau, professor of preventive medicine and hygiene, Harvard University, and Professor George C. Whipple, of Harvard University. Professor Rosenau has the title of director, and the work of the school will be under his immediate supervision.

## Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT

July 7, 1913.

**Diet in Diseases of the Heart and Blood-vessels.**—H. Vaquez states that the regular and moderate use of alcohol is not always the only cause of increased blood pressure, but simply one among others. It nevertheless belongs to the pathogenesis of this affection and for this reason it will be advisable to strictly regulate its use for all persons in whom high blood pressure is found, the cause of which cannot otherwise be explained. In patients with cardiac insufficiency and a contracted kidney, the total amount of fluids is also reduced. The disturbances caused by the abundance of fluid at this time are vomiting, dyspnea, at times menacing edema of the lungs and frequently increased blood pressure. When cardiac insufficiency and lesion of the kidneys coexist, food and drink must be still more limited, and the limitation should cover a longer period of time. A salt free diet is advocated. The drinking of milk should be restricted to within two litres during the day, because its contained albumin is apt to produce acetonuria, which is especially to be avoided. All excess of meats is to be avoided and drink should be used sparingly and at infrequent intervals. It is therefore necessary to adhere to vegetables and fruits. This diet contains much less nourishment. On the whole the character of the diet should be governed by the excretions. The patient is to be restricted in those articles of the dietary which the diseased organs cannot excrete. The attentive study of clinical facts and laboratory examinations should be the physician's guide, rather than empiricism.

**Noviform in Rhinology.**—G. Dinolt states that noviform advantageously replaces iodoform. While it has all the advantages of iodoform, it possesses none of the objectionable features. The author has had very good results with noviform gauze and an emulsion of noviform petrolatum. It is nonirritating, hygroscopic, and nonpoisonous, as well as nonodoriferous.

July 14, 1913.

**Vomiting of Pregnancy.**—R. Asch explains that vomiting in itself is not a disease but a symptom. It is seen in fear, pain, sorrow, or feeling of dislike. Excitation of the sensory nerves by the sight of food stimulates the digestive secretions, which are at once inhibited by the sight of anything unpleasant or disgusting or any feeling of dislike. Women or girls at times become pregnant against their wishes. The resulting vomiting becomes a habit. The pernicious form of hyperemesis develops at times from these causes and from the lack of proper instruction. The disproportion between the subjective sensations and the necessity for food explains the cause of disturbance. Small meals every two and one half hours, solid and fluid meals alternating, should be taken in the reclining posture; the patient lying down for some time after. The author also advises larger meals to be taken while lying down. No fluids at the same time with solids, but each should be taken separately. With one very sick patient the writer

had good results after giving the fluid nourishment and drinks frozen in the form of frappés for fourteen days. Frozen milk, milk coffee, milk tea, water cocoa, apple sauce, and fruit ices. The patient was kept on these frozen fluids until she asked for beefsteak, which she ate with relish and retained from that time. The psychic treatment may consist in properly teaching the patient that pregnancy is not a disease, and childbirth is not a dangerous process; also warn her against the inquisitiveness and advice of those in her environment.

**Experience with Hexal.**—E. Bäumer states that among the numerous urinary antiseptics of today, hexamethylentetramine has still first rank. The author mentions along with its good points at least two of its ill effects. It increases any existing strangury, and at times increased the inflammation of the urinary mucosa, which is expressed by a burning sensation or even hemorrhage. Facts and observations show clearly that both components of hexal, sulfosalicylic acid and hexamethylentetramine in combination heightens the sedative and astringent action of the sulfosalicylic acid over and lessens the irritating effect of hexamethylentetramine. Hexal is in fact what it was proposed to be, a sedative bladder antiseptic. The greatest advantages of hexal tablets are their solubility in water and their pleasant acid taste. Of forty patients, treated with hexal, mostly with gonorrheal infection of the urinary tract, only two or three, who were very severely ill, required additional remedies. The general dose is three tablets daily, according to the severity of the disease. On increasing the dose its good effects are immediately increased. No cumulative action need be feared.

July 21, 1913.

**Mesothorium for Gout and Nonacute Rheumatic Affections.**—Görge describes the mesothorium compresses as follows: They consist of asbestos fibres, which have the active salts incorporated, in insoluble form. This compress is wrapped in a covering of English lint. The intensity of action varies according to size. In a compress of 20x30 cm. there is the relatively large quantity of one to two milligrammes of mesothorium salts and radio bromide strength. The compress is moistened with physiological salt solution warmed to 98.5° F. It is made pliable to conform to the painful parts and joints, and covered with Billroth's taffeta is fastened with a flannel bandage. The application is left on from one to twelve hours. It produces absolutely no ill effects on the skin or organs. Inhalations are made three times weekly, each of three minutes duration. The excretion of uric acid is increased under the influence of radium emanations. Thorium emanations act in like manner: so much so, that after inhalation, the increase in the relative quantity of uric acid excreted daily is very apparent, although the purin content of the diet is kept the same during the time of the inhalation treatment.

**Adiposis Dolorosa.**—Kloninger observes in these patients a painful fat proliferation, a feeling of general infirmity, and a mental change, mostly of a depressing nature, all apparently without any organic changes. The disease is found more

among females and often occurs after changes in the reproductive organs, as childbirth, abortion, menopause, ovariectomy. Nothing certain is known of its etiology, although it is supposed to be caused by the influence of diseased glands through their altered internal secretion. At autopsies changes were found partly in the thyroid, pituitary body, also in the ovary, testicle, and suprarenal capsule. Most often the thyroid gland was found affected (atrophied, colloid degeneration, diffuse cirrhosis). The author presents a photograph of one of his patients whom he treated as follows: Thyroid tablets three times daily, each 0.1 gramme. These are generally well tolerated by the patients. Hydrotherapeutic treatment was given to increase the metabolism. Headache was favorably influenced by the high frequency current. After four months of treatment a marked, general improvement was noted; pains were less; the patient, who had been bedridden, was able to attend to her household duties and was not at all excitable. When all pain had ceased general effleurage was resorted to with good results.

July 28, 1913.

**Operative Cure of a Tumor of the Gasserian Ganglion.**—B. Sachs and A. A. Berg report this case, not only on account of the successful issue, but because tumors of the Gasserian ganglion are very rare, and the diagnostic difficulties were of an unusual nature. The patient was an unmarried man of thirty-seven years; family history good; moderate in the use of tobacco and alcohol; no history of venereal infection. Pains began with a burning sensation in the left side of pharynx, also anterior to the left ear and in the left cheek. Long continued pains, having the same characteristics, are generally of organic origin; but it is rare, as in this patient, to find a double origin for the one ailment; so it may easily be imagined, that in the face of an affection of the antrum, from which was removed several ounces of thick, white pus containing staphylococci, the authors were nonplussed to find that after evacuating the antral abscess cavity the pains had not in the least been relieved. Even after successful cleansing and later removing some remaining necrosed spicules of bone, the pains became even worse. It was not until the motor branch of the fifth nerve became involved and the present rapid increase of the patient's sufferings, directed attention to a tumor of the Gasserian ganglion. The pressure symptoms, absent from the beginning to the end, increased the difficulty of diagnosing this other origin of the disease. The tumor which was successfully removed proved to be of endothelial nature, probably originated in the dura and entirely enveloped the ganglion. The excellent condition of the patient the day after operation was most striking, and the uneventful convalescence is ascribed to the careful manipulations on the brain, and above all to the slight amount of bleeding.

CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE.

July 26, 1913.

**The Behavior of Leucocytes in Great Altitudes.**

—Wanner has made a study of the blood corpuscles of persons coming into the mountains and finds a

great increase of the red blood cells and a decrease of the leucocytes at various periods ranging from two weeks to five months. He also finds that there is a diminution of the neutrophile polynuclear cells, with a great increase of the large mononuclear and of the transition forms. He therefore believes that a great altitude affects the ability of the bone medulla as a whole in the production of both the white and the red corpuscles.

#### MUNCHENER MEDIZINISCHE WOCHENSCHRIFT.

July 1, 1913.

**Differentiating Related Bacteria in the Precipitating of Their Albumins by Concentrated Solutions of Salts.**—H. Liefmann describes this method for the detection of pathological conditions of the cerebrospinal system. It consists in taking a certain quantity of fluid by lumbar puncture mixed with the same quality of a concentrated solution of ammonium sulphate. The author tested several varieties of bacteria and found that by using different degrees of concentration, even the very closely related bacteria could be differentiated. Albumin precipitates do not influence the suspension of different bacteria in the same degree. Of the light metals ammonium sulphate was first used as a precipitant; but for differentiating closely related germs it is not as useful as magnesium sulphate.

**A Simple Aid to Replace a Protruding Hernia in the Infant.**—A. Nussbaum observed that blowing in the faces of crying infants causes them to be quiet at once. The author made use of this expedient in connection with a little patient of three months, who had been suffering with an irreducible hernia for nine hours. It was situated in the right inguinal region and contained a portion of the intestines the size of a plum. The infant was placed with the buttocks slightly elevated, and while forcible puffs were blown into its face by the operator, the child stopped crying, the abdomen became relaxed, though he struggled with hands and feet while held. The blowing was kept up while the hernia was slowly but steadily being replaced by taxis, and retained in position by a band of adhesive plaster, which prevented any relapse. This method of blowing may also be utilized to facilitate palpation of the abdomen in crying infants.

**Pituitrin Treatment.**—Grumann relates his experience with pituitrin given during the first stage of labor as follows: While the remedy excited the musculature of the uterus, it caused a prolonged contraction on a rigid cervix which led to untoward complications. The prolonged contraction due to pituitrin differed greatly from the physiological normal labor pains. The coming and going of the pains and not the contraction itself causes the dilatation of the birth canal and the expulsion of the child. The author advises caution in the use of pituitrin during the stage of dilatation. He prefers to wait.

July 8, 1913.

**Iodostarin.**—G. Stumpke states that the ill effects of iodism rarely appears with iodostarin. The author has continued the use of the remedy in cases of coryza and intestinal disturbances, without untoward effects. He also noted that iodostarin was well borne by those who formerly could never take

any preparation of iodine without showing signs of iodism. Two or three tablets taken during the day are used to begin with, and may be increased to six tablets daily. The author has had gratifying results from this remedy in patients suffering with tabes. It has a pleasant taste, and has found a special place in the treatment of lues, especially in the second stage, for the headache, bone pains, and meningeal irritation; in tertiary processes where the usual antiluetic treatment does not prove satisfactory, the author finds this remedy useful.

**Treatment of Pyelitis by Irrigating the Pelves of the Kidneys.**—H. Hohlweg presents the following: For irrigations one half to one per cent. solution of nitrate of silver was used. The idiosyncrasy of patients to the nitrate of silver varied greatly; sometimes after treatment the urine contained albumin, an increase of leucocytes, and at times blood. In these patients the author substituted collargol, but even with this the irrigations were not always painless. Two or three irrigations were given weekly. At times the writer used from five to ten per cent. solutions of argyrol. With the use of these solutions pain was never experienced; but the price of the argyrol would forbid its general use. Hartmann has had good results in a large and varied experience with perhydrol, where no pain at all was experienced; this remedy is as good a germicide as nitrate of silver. Those that favor this treatment believe that not only a clinical but also a bacteriological healing process is accomplished by this method, which has proved itself more efficient than all others heretofore used. The disease should be detected and treated early. The earlier the treatment is adopted the more quickly and certainly is healing accomplished.

**The Tendency of Colypyelitis to Spread.**—F. Mayer says that pregnancy is usually attributed as a cause to existing pyelitis at that time. As a result of his large experience with pyelitis in men, the author states that pregnancy instead of being a cause of pyelitis, only predisposes one to that disease. Most authors mention only an ascending infection, but according to clinical symptoms there is also a descending infection of the pelvis of the kidneys by way of the blood and lymph channels, as evidenced after infectious diseases. The writer also tells of the ease with which hemorrhage resulting from pyelitis may be mistaken during pregnancy as being of uterine origin. In one of his patients the bleeding was so profuse as to simulate a hemorrhage from a placenta prævia. This interesting clinical picture of pyelitis suggests many significant references to pregnancy.

July 15, 1913.

**Exchange of Foodstuffs in Parabiose Rats.**—B. Morpergo and G. Satta have shown that a young parabiose rat may live and grow, fed exclusively on saccharose, while her partner has a nonnitrogenous mixed diet. This fact does not depend upon the food being evenly divided between both partners because in depriving the sugar rat of her sugar she promptly died of acute inanition. As a result of this it may be concluded that the parabiose rats exchange nitrogenous foods but no continuous mixing of nutritive fluids takes place; because to fill the caloric requirements the immediate passing in of



energy producing materials at once takes place. The authors can give no exact information with regard to the quantity of nitrogenous substances passing from one to the other; but they do know that it must be very small because of the length of life and the loss of weight of the hungry parabiose animals is not different from that of other single animals in a state of starvation. In consequence of this a new basis is offered in place of the former rules for keeping the body of the organism in good condition. The quantity of nitrogenous food-stuff required for a growing organism is, by far, less than that which has formerly been believed necessary for the purposes of metabolism.

July 22, 1913.

**Paroxysmal Tachycardia.**—K. Grassmann states that from his observations on fifteen patients, some extending over many years, attacks of tachycardia covering a period of a week, lead to dilatation of the heart with all the severe symptoms accompanying that condition, because the heart muscle has simply exhausted itself from over fatigue and its function is impaired or possibly destroyed. Gerhardt says that paroxysmal tachycardia is a neurosis, the nature of which is not yet fully understood. It is due to abnormal excitation, and is not the result of any organic change. The cause may be, for instance, fright or simply stooping. Hoffmann groups the following as causes: Heredity, nervous diseases, accidents, alcohol, nicotine, coffee and anemia.

July 29, 1913.

**Treatment of Hordeolum and Blepharitis Ciliaris with Histopin.**—R. Vollert states that histopin therapy is effectual against staphylococcus infection of the skin, especially of the outer skin of the eyelids. The author substantiates this with a report of eighty patients treated with amazingly prompt recovery. The treatment consists in the application of histopin ointment, after opening any pustules that may be present. The histopin ointment is stroked on the lids for eight or ten days after apparent healing, as a prophylactic. Joseph observed along with favorable results some not as effectual, but these cases were invariably proved to be due to a streptococcus infection. To prevent relapses Marenholtz would warn against such causative factors as neglected refractive errors, strabismus, digestive disturbances, constipation, compression of the throat as by collars, tight lacing, narrow shoes, wetting the hair when brushing or combing it; any of these may make the ailment worse.

#### WIENER KLINISCHE WOCHENSCHRIFT.

July 17, 1913.

**Inverse Action of Atropine.**—Rudolf Kaufmann and Hedwig Donath report a case met with in a man forty-one years old in whom the injection of atropine produced an unusual result. The pulse of the patient showed spontaneously great fluctuations in rapidity. Repeated examinations after the injection of atropine showed first a slowing of the frequency of the heart beat, which in about twenty minutes passed into an acceleration; as soon as the auricular pulsation reached a height of about 90, partial or total heart block supervened, so that during the course of each observation there was seen

first a true slowing of the pulse, then an acceleration of the same, and then an apparent slowing with arrhythmia.

**Radium Treatment of Malignant Tumors.**—Alfred Exner asserts that he can dilate stenoses of the esophagus due to carcinoma by means of radium, as shown by the results on twenty patients. Perforation occurred in two of these; in one into the trachea, in the other into the mediastinum; possibly this perforation would not have occurred at all, or would have taken place later, had it not been for the radium treatment. Of forty cases of deep seated cancer elsewhere on the body, recurrence appeared in all but two within three years. One of the patients with a carcinoma of the mucous membrane of the mouth died from recurrence nine years later, the other case, a carcinoma of the upper lip, recurred after seven years.

July 24, 1913.

**Adipositas Hypophysarea.**—Theodor Bauer and Hans Wassing state that certain trophic and metabolic disturbances, even when not accompanied by symptoms that indicate a tumor in the pituitary gland, must arouse suspicion of an affection of the hypophysis when the thyroid gland can be felt.

July 31, 1913.

**Empyema Pulsans Interlobare.**—Ettore Levi describes a case of empyema in a boy seventeen years old, over whose back and side and in the axilla could be felt a diffuse pulsatory impulse of the entire wall of the thorax, best marked in the upper intercostal spaces, corresponding to the interlobar space.

#### ZENTRALBLATT FÜR CHIRURGIE

July 19, 1913.

**The Use of Spring Retractors in the Treatment of Suppurative Processes.**—Max Tiegel has devised a little retractor, resembling somewhat an eye speculum, which he inserts between the lips of an incision into an abscess and leaves in position for some hours. This allows the pus to escape freely and shortens the period of healing.

#### LYON MÉDICAL.

August 3, 1913.

**Coexisting Ileocecal and Pulmonary Tuberculosis.**—Santy and Durand report a case in which hypertrophic tuberculosis of the cecum was diagnosed and operative treatment undertaken, in spite of the fact that the patient was suffering from active lung disease, was cachectic and emaciated, and so enfeebled as to be almost constantly confined to bed. The cecum, ascending colon, hepatic flexure, and the terminal part of the ileum were removed, and the hypertrophied ileum anastomosed end to end with the transverse colon. The abdominal pain and digestive disturbances were thereby relieved, permitting increased alimentation and the administration of arsenic. Rapid improvement in the general and pulmonary conditions followed. Sodium arsenate was at first given, but later a series of eight rectal injections of salvarsan. Coincidentally with the latter the agglutinating power of the blood was observed to increase and fever to disappear. The chief interest of the case lies in that it showed excision of the diseased bowel to be permissible even at a relatively advanced stage of pulmonary tuberculosis and where the lung condition was primary.

## PARIS MEDICAL.

July 19, 1913.

**Electric Treatment of Trifacial Neuralgia.**—E. Albert Weil recommends the trial of strong galvanic currents before resorting to operation in this disorder. The necessary apparatus comprises a battery of twenty-four, or better, thirty-six cells, with a milliamperemeter and rheostat. The whole neuralgic area is covered with an electrode consisting of twelve to fifteen thicknesses of gauze moistened with saline solution, and held in close contact with the head by tight bandages. The other (negative) electrode is applied to the back of the patient, who is kept recumbent during the treatment. The current is increased in three to five minutes from nil to eighty milliamperes, the latter being then continued for from thirty to forty minutes. At the end of the séance the reduction of the current to zero should likewise be gradual. Daily sittings generally suffice, and improvement is usually manifest after the fifth or sixth treatment. In case of failure, ionic medication, the facial electrode—now to be connected with the negative pole—being moistened with a one per cent. solution of sodium salicylate, should be tried before abandoning the procedure.

July 26, 1913.

**Relations of Inferior Vena Cava to Pelvic Organs.**—M. Bourcart shows that descent of the right kidney or the liver, as well as all changes in volume of the latter organ, tend to produce torsion of the inferior cava and hence favor congestion of the pelvic organs. In the treatment of uterine hemorrhage, principally certain post partum hemorrhages, hemorrhages at the menopause, and hemorrhages in cases of uterine fibroma, as well as in congestive metritis, and ovarian circulatory conditions reacting on the uterus, much can be done by massage of the abdomen. This massage should comprise such manipulations as pushing the mass of intestines toward the diaphragm, separating the false ribs, executing manual vibrations below the liver, and lifting up this organ, and general massage of the abdominal area. In addition active movement of the muscles of the abdomen and perineum should be made, as well as respiratory gymnastics. Bimanual massage of the uterus and annexa is generally useless and even harmful. Direct manipulation of the uterus is alone permissible for the purposes of causing the organ to contract or restoring it to its normal position, unless the upper venous channels have already been well opened up by the procedures just described, and all acute local inflammation has disappeared. External massage and surgical treatment are not mutually exclusive, but complementary.

## PRESSE MEDICALE.

August 2, 1913.

**Treatment of Hypophyseic Conditions.**—Alfred Martinet discusses the therapeutic management of cases in which hypophyseia—diminished pulse pressure, with diminished arterial blood output and increased blood viscosity, resulting in venous stasis and circulatory sluggishness—is combined with hypocrinia—glandular insufficiency, especially of the digestive and the internally secreting glands,—these two conditions so reacting upon

each other as to form a vicious circle. The treatment should consist, first of all, in measures to activate and strengthen the circulatory function, viz., the administration of strychnine, sparteine, epinephrin, and pituitary extract, singly, simultaneously, or alternately; progressive physical training, beginning with rubbing, massage, passive movements, active movements, and respiratory gymnastics, and ending with dumbbell and resisted exercises, walking on flat or inclined surfaces, etc.; and in addition, subcutaneous injections of oxygen, which stimulate the circulation, increase the amplitude of the respiratory movements, augment the hemoglobin percentage, and lower the viscosity of the blood. At the same time, measures should be instituted to reestablish proper glandular activity. Half an hour before meals, the patient should take a half wineglassful of lukewarm vichy water, followed in twenty minutes by a small amount of some bitter preparation. During meals, pepsin in an elixir, or in natural gastric juice, and after meals, extracts of the whole pancreas and duodenum should be taken. These digestive remedies should be given only a short time, lest the natural secretory reflexes become in part inhibited. Thyroid and ovarian extracts may be alternated with the epinephrin and pituitary extract, already referred to as cardiovascular remedies. With this treatment the author has had excellent results in cases of hypophyseia occurring after infectious diseases, inanition, neurasthenia, and in the pretuberculous. Improvement was also noted in congenital conditions accompanied by hypophyseia.

**Action of Diphtheria Antitoxine on the Diphtheria Bacillus.**—P. J. Ménard asserts that the soluble toxine of *Bacillus diphtheria* is not the sole cause of diphtheria manifestations, certain proteins and lipoids in the bacillus also being responsible. Experiments showed that diphtheria antitoxine, far from killing the bacillus itself, is a better culture medium for it than other media commonly used, the organism remaining alive for months in the serum, merely losing for a time its toxicity, its power of forming false membrane, and its staining affinities. Tests *in vivo*, viz., in guineapigs and rabbits, showed that the virulence of diphtheria bacilli was not diminished by its passage through animals that had received antitoxine, but in some cases it was increased. These findings illustrate the fact that, in spite of the marked antitoxic value of the specific serum, it does not prevent the germ from vegetating, whether virulent or not, for prolonged periods in the throats of persons to whom the serum has been administered. It is advisable, therefore, to practise local antiseptics in the throats of diphtheria patients, great care being taken, however, not to injure the mucous membrane.

## BRITISH MEDICAL JOURNAL.

August 16, 1913.

**Chemotherapy.**—Paul Ehrlich here presents one of the clearest and most concise and understandable general summaries of the subject of chemotherapy yet published in English. The paper commends itself especially to the general practitioner, being free from the usual discursive and highly technical arguments. He cites a number of newer examples of the establishment of strains of

infecting parasites which have become "fast" or resistant to the chemotherapeutic agent aimed at their destruction. Such a drugfast strain is the result of a failure to sterilize the tissues of the host at a single, or with at most a few injections. This possibility, together with the difficulties encountered in man of giving a sufficient dose to bring about a complete sterilization without endangering the welfare of the patient, forms the basis for the use of combined chemotherapeutic measures. In this combined therapy use is made of the fact that most forms of infecting parasite have several receptors capable of uniting with different chemical molecules. These different molecules must have affinities for the parasitic receptors greater than their affinities for the tissues of the host. The different substances used as toxic agents, and to which the anchoring molecules are to be attached, are thus brought to act almost solely upon the offending organism. The combined actions in such cases may be simple summations of the several individual actions, or, more commonly, they are multiples of such actions. Thus, while the parasite is attacked in an intensive manner, the host is left unharmed, for, owing to the slight affinity existing between the several drugs used and the tissues of the host, their toxic actions are not multiplied, or even added, with respect to him. Salvarsan and neosalvarsan are defended, and the nerve lesions which are often seen after their use are once more attributed to the liberation of toxins through the destruction of foci of the spirochetes.

**The Necessity for a More Thorough Control of the Milk Supply in Combating Surgical Tuberculosis in Childhood.**—Harold J. Stiles and his assistants have studied sixty-seven consecutive bone and joint cases in children, finding the bovine bacillus in sixty-one per cent., human in thirty-four per cent., and both types in three cases. In those cases in which the human type of bacillus was found there was consumption in at least one member of the family in seventy-one per cent. of the instances. In all the children less than a year old the bovine bacillus was the one present, and each of these cases had been fed entirely on cow's milk. Seventy-two cases of tuberculosis of the cervical glands were operated in, and in ninety per cent. the infecting agent was the bovine bacillus. In none of the sixty-five cases of bovine infection was there a history of pulmonary tuberculosis. In three cases of infection by the human type each had a family history of pulmonary tuberculosis. In fifty-one of the cases the first gland to be infected was found to be the tonsillar lymphatic one. A further interesting finding is, that of the tonsils removed from ninety consecutive children having no clinical evidence of tuberculosis, ten per cent. showed tuberculosis when inoculated into guineapigs. As a result of these observations, Stiles calls attention to the need for greater control of the milk supply.

LANCET.

August 16, 1912.

**The Dosimetric Method of Administering Chloroform.**—Dudley W. Buxton lays down eight principles as underlying this method. 1 Chloroform acts upon the human tissues directly in proportion to the strength of its vapor contained

in air or other gaseous admixture, or if it is in solution, in direct proportion to the strength of its vapor as given off. 2. Its action is progressive in the sense that with a constant dilution administered over a long period the resulting narcosis continually deepens. 3. Although similar in kind, its action is different in degree on the different body tissues. 4. Chloroform ultimately acts as a protoplasmic poison, such action varying directly with the strength of the chloroform vapor which enters the organism. 5. There is no reason to believe that the action of the drug is capricious, but there is every evidence to show that it acts more vigorously on abnormal tissues. 6. There is a definite strength of vapor which in all cases will induce anesthesia; this is two per cent. for man, when this is exceeded deeper narcosis results which interferes detrimentally with the functions necessary for life, for example, the circulation, respiration, or the metabolism. 7. Further, there is a definite proportional strength of vapor which will maintain anesthesia, once it has been induced, without increasing the depth of the narcosis; this percentage varies inversely as the length of time during which the vapor has been inhaled. 8. Both the concentrations needed for the induction and for the maintenance of anesthesia are at the maximum for the adult of normal physique, while for persons of impaired vitality and for children they are lower. This statement is more especially true of the concentrations needed to maintain anesthesia after its induction. Buxton says that when the limit of two per cent.—the maximum for healthy adults—is exceeded the patient is always carried into the danger zone, this being associated with a dangerous fall in blood pressure and depression of the respiratory and cardiac centres. From wide experience, Buxton advocates the use of the Vernon-Harcourt regulator for the control of the percentage strength of the chloroform in clinical use. He combines oxygen with his chloroform administrations on the theory that its use serves to maintain the vitality of the tissues and lessens shock. He concludes by saying that he thinks that the dosimetric method is the only safe way of administering chloroform, and that by its use the dangers are abolished or rendered negligible.

BOSTON MEDICAL AND SURGICAL JOURNAL.

August 22, 1912.

**Description of an Abdominal, Lumboiliosacral Support and Its Uses, Advantages, and Limitations.**—H. W. Marshall describes the following apparatus for the support of the lower part of the spine and of the abdomen. It consists of two upright steel straps, each fitted to the contour of the lumbosacral region, one placed on either side of the spine, overlapping the ribs above and extending below to the lower limit of the sacroiliac articulations. Cross bars of steel, slightly bent to make room for the bony spinous processes, or riveted to the ends of the longitudinal ones, thus forming a single light rectangular steel splint. Metal buttons are riveted to each of the lower corners and upon each of the upright steels near the top, making four in all. The belt consists of three or four strips of webbing, which are fitted snugly while the patient is in a standing posture. It encircles the abdomen, extends approximately from the umbilicus to the symphysis



in front, passes just above the trochanters of the femora to extend low enough in back to include the sacroiliac joints. Adjustable straps and buckles are stitched in rows to the belt near the midline in front, also in other rows near the midline in back, after a three or four inch strip has been cut from the latter locality dividing the belt in halves. Additional tightening, if the webbing stretches, is thus made possible. Flexible thin steels keep it from wrinkling, and eight buttonholes are made to fasten it to the steel splint. The belt is finished, except the buttonholes, while the steel parts are riveted together, without tempering. Then the belt is put on the patient, the steel splint bent so it will take the pull off the back from the abdomen. The buttonholes and buttons are located accurately, the steel parts are tempered and padded, and the two portions are buttoned together to complete the apparatus.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

August 25, 1913.

**The Teaching of Therapeutics**, by R. L. Wilbur.—See this JOURNAL for July 5, p. 491.

**Care of the Umbilical Stump**, by F. L. Adair.—See this JOURNAL for June 28, p. 1360.

**Operative Treatment of Cancer of the Stomach**, by W. J. Mayo.—See this JOURNAL for June 28, p. 1360.

**Experimental Transplantation of Intestine after Extensive Excision of the Sigmoid**, by J. S. Hersley.—See this JOURNAL for June 28, p. 1368.

**The Healing Process of Osteosarcoma under the Influence of the Röntgen Rays**, by G. E. Pfahler.—See this JOURNAL for July 5, p. 50.

**What Can Be Done in Cancer with Röntgen Rays**, by W. A. Pusey.—See this JOURNAL for July 5, p. 50.

**Precocious Menstruation**, by F. P. Gengenbach.—See this JOURNAL for July 5, p. 41.

**The Future of the Medical Man**.—J. G. Adami states that true knowledge consists, not in cognition, nor in the possession of a store of facts, but in the capacity to use them, and urges the importance of hospital internship in order that the student may learn the art, as distinguished from the science, of medicine. Speaking of medicine as a business, he says that it is certainly true that an increasing proportion of medical men is more concerned over the means of improving its balance in the bank than over the means of improving the health of its patients, and regards social success as more to be considered than professional capacity. Deploping this tendency, he extols a high ideal of service in medical practice, believing that to-day and in the future, as even in the past, care must be, not for ourselves, but for our fellows. "If we desire not so much an upper seat in the synagogue, as a serene mind and self respect as the greatest of worldly possessions, let us not trouble ourselves about money making."

**Röntgenotherapy in Measured Massive Doses**.—S. Lange says that the problem for the röntgenotherapist resolves itself into the fulfilling of three requirements. 1. Certain cells or tissues must be supplied with the kind of rays or quality of rays which they can absorb. 2. The rays supplied to these must not injure the surrounding overlying

or underlying tissues. 3. The rays must be supplied in sufficient number or quantity to bring about the desired changes. It would seem that the ability to administer the massive dose is a *sine qua non* of successful röntgenotherapy. After the technic of measuring the dose in certain units has been mastered, the problem of how many units to give is still uncertain and to a large extent dependent upon individual judgment. In determining the amount required for the treatment of any condition it must be remembered that the biological or active dose is the physical (or crude) dose multiplied by the coefficient of susceptibility of the tissues under treatment. In applying these heavy doses we should not be unmindful of the possible dangers and possible late effects from the repetition of such doses; and it is apparent that a method like this must remain in the hands of those specially trained and skilled in röntgenology.

**The Minimizing of Insanity**.—M. L. Neff finds that the preventable cases of insanity contribute only a small part of the permanent institutional population. Hospitals for the insane are filled with the accumulating cases of dementia præcox, manic depressive insanities, and unclassified psychoses. The underlying somatic causes which produce mental symptoms in these groups we do not know, and it is idle to talk of prevention, in a strictly medical sense. From the advent of the psychopathic hospital we hope much, though we cannot ignore the possibility that its various other functions may overshadow its function as a hospital in which real therapeutic work shall take precedence of everything else. This concerns the problem of minimizing insanity quantitatively; and the author then considers it qualitatively, and asks, How far can the degree of insanity be minimized? How much of the mental deterioration to which we have become accustomed could have been prevented? In our hospitals for the insane that inhuman thing which is connoted by the term "institutionalism" has brought about conditions, under which none of us could remain normal. The patient becomes a sort of human palimpsest, and only the mental archæologist could say how much of that which can be deciphered is of the original writing. There are four main reactions to prolonged ennui—reactions not an essential part of the insanity, but such as would occur with ourselves if similarly placed; namely, apathy, violence, untidiness, and the elaboration of delusions, fears, and obsessions. The great majority of patients who have not been kept busy and contented will fall into one of these four classes, and the problem, then, is to find normal stimuli, incentives, rewards, and human reactions for the patients. Only by treating the insane just as we ourselves would like to be treated will practical and effective ways of helping them be found. The "normal areas" of the patient's mental life are the ones on which to base his treatment, rather than the abnormal ones. Since we cannot avail ourselves of the major stimuli of life, we must utilize to the fullest extent the minor ones. All forms of self expression should be developed in an institution, employing the play motive as largely as possible. The activities furnished for patients should be as normal as possible in every way, including carefully

adapted methods of teaching, a variety of work, liberal provision for recreation, respect for the "personal equation," reward for the work performed, and a "therapeutic disposition of the product."

#### MEDICAL RECORD

*Imprinted, 1913.*

**The Inheritance of Epilepsy.**—D'Orsay Hecht, in summarizing the facts which seem to him worthy of emphasis in a discussion of this subject, says he would urge the following points: 1. Human society must concern itself more and more with the qualities in man which are physical and vital, as opposed to those which are mental and moral. 2. In heredity we find the most potential factor in the evolutionary process of man. 3. Environmental influences may modify, but do not increase, our original endowment. 4. The essential thing in the preservation of the race is physical fitness, and inheritance, in its turn, is the essential and most to be desired thing in the development of such fitness. 5. The methods by which we are to-day better able to explain the qualities and attributes inherited by man are perhaps those referred to as Mendelian and biometric. It should, however, be thoroughly understood that no biological phenomena, either in full or even in large part, meet the theoretical expectations of either method. 6. Still, the inheritance of epilepsy is very worthy of being subjected to an analysis, Mendelian or biometric, in the hope that valuable data may be secured, and in the end enable us to invoke the proper measures against the spread of the disease. 7. The studies already made are highly instructive and suggestive, although there are many sources of error which appear to be almost impossible to overcome. 8. Society has the moral right to interfere with the continuance of any human stock definitely known to be unalterably unsound and, on the assumption that an overwhelming proportion of epileptics are of this type, the plan of segregation, efficiently and scientifically carried out, is a just one. 9. The act of sterilization, in the light of our present knowledge, is still open to criticism and objection, and may, therefore, be considered premature and, as a measure of legislative interference, should not be endorsed. 10. The mildly inferior epileptic constitutes a very great menace, and one concerning which scientists are not prepared to make recommendation. 11. There is greater need to point out the difficulties and discrepancies encountered in eugenic research than to proclaim its triumphs; it is vastly more in need of students who will investigate and diagnosticate the agencies contributing to the illnesses of the race, than of amateurs who announce the remedies and shout the cures.

**Feeble-mindedness and School Children.**—E. B. McCready believes that the question of the responsibility of the public school to the feeble-minded child should be considered in relation, 1, to the child himself; 2, to his fellow pupils; 3, to society in general. Neither restriction of marriage nor sterilization presents any real promise of assistance in the solution of the problem of adequate care and prevention of feeble-mindedness, and the only means by which the desired end can be accom-

plished is by segregation in institutions of all feeble-minded persons, with the possible exception of those who can be properly cared for at home under the supervision of the proper authorities. In the special or ungraded classes which are now a part of the school system in nearly all our large cities the feeble-minded child may, and usually does, progress up to a certain point; but the author is convinced that he should be allowed to remain in the special class only a sufficient length of time for his condition to be accurately diagnosticated, or until a place can be found for him in a suitable institution.

**The Uterine Syndrome.**—This, G. K. Dickin-son says, is a statement of the basic symptoms of the functional disturbances of the uterus. As there are three channels by which the economy is made cognizant of local conditions, so there are three classes of syndromes: Symptoms expressed through the branches of the spinal nerves, disturbances brought about by irradiation of the sympathetic proper, and either loss or imbalance of the internal secretions of the ovary. Through the pubic and sacral nerves passing to the sympathetic we have an appreciation of pain, the reflex phenomena induced being referred peripherally through either branch of these nerves. Through the sympathetic we have another type of syndrome, the visceral. Steady inhibition through this symptom leads to intestinal stasis, and this symptom is further aggravated by the pain often felt in defecation; which leads to a postponement of the evacuation act, vesical tenesmus, and dysuria. The third syndrome, due to loss of ovarian tissue or its gradual absorption (popularly known as "change of life"), is brought about by an incomplete balance of the internal secretions. The practitioner should be able to balance up the many symptoms and signs coexisting, weigh out their importance, and rationally deduce a helping therapy; remembering that tension is generally the original causative factor in the various lesions inducing these syndromes.

**Prolonged Precipitate Parturition Due to Disengagement of the Disproportionate Head,** by A. E. Gallant.—See this JOURNAL for August 16, p. 350.

**A Sphygmomanometer of New Principle.**—In the course of blood pressure research at the Harvard Summer School G. Van N. Dearborn has been again impressed with the needless clumsiness and general indeterminateness of the cuff sphygmomanometers in general use, and states that the simple and inexpensive instrument which he presents is the more or less tentative result of the obvious need for a more physiological form. This consists merely of a properly adapted endpiece of an ordinary stethoscope firmly attached by a screw thread to a spring dynamometer with a transparent handle (having at the bottom a flat vulcanite ring, one centimetre thick), by which it may be readily grasped and pressed against the artery. The dynamometer has two scales, one giving the reading of the brachial blood pressure in the conventional millimetres of mercury, and the other in absolute grammes. If found to be desirable, the long cylindrical spring may be replaced with one of spiral form, thus greatly shortening the instrument.

## AMERICAN JOURNAL OF SURGERY.

July, 1913.

**A Radical Treatment of Ingrown Toe Nail.**—

T. L. Deaver has had excellent results in the treatment of this condition by removing the entire nail with a complete destruction of its matrix. After careful preparation, a V shaped section is excised from the region of the root, and the soft parts turned back in all directions, exposing the limitations of the nail. The nail is removed. Then by cutting and scraping, the nail bed is cleared of all tissue, diseased or not, down to the periosteum, so that every vestige of the matrix, with the transition cells about the nail bed are destroyed. The toe is dressed antiseptically and allowed to heal. By the use of appropriate lateral incisions about the phalanx, and tight bandaging, the soft parts may be brought together so that when healing is complete, the area formerly occupied by the nail will be greatly reduced in size. The nail bed finally develops a fibrous covering which has all the protective qualities of a nail, without any tendency to irritation. A mild amount of supuration is to be looked for in most cases. There should be no sequel.

**An Operation for Flat Foot.**—W. P. Carr feels justified in reporting the technic of an operation for flat foot after a most satisfactory result on an extreme case. A curved incision three inches long is made behind the outer malleolus down to the os calcis, which is easily exposed by slight dissection, and divided close to the ankle joint with a modified Wyeth saw. The divided posterior part of the os calcis is now slipped down about three-fourths of an inch (if, however, there is any difficulty with this the tendo Achillis should be obliquely divided and lengthened, which can be readily done through the same incision used for sawing the bone). The sawed bone is now nailed in its new position, through a half inch incision over the heel with an ordinary wire nail, two and a half inches long. The improvement in the shape of the foot is noticeable at once. Both feet are put in extension in plaster for one month. Walking is allowed at the sixth week. In the author's case the nails were removed at the end of the fifth month because they were causing pressure on the shoes.

**Ectopic Gestation.**—John K. Freeman quotes Forssner's statistics which show: (a) 160 operative and thirty-four nonoperative cases; of the former ten died, while among the latter there was no mortality; (b) 164 operative cases with two deaths, and thirty-six nonoperative cases with no deaths; (c) 434 cases with sixteen deaths, of these 388 were operated in with mortality of 3.9 per cent. Notwithstanding the favorable nonoperative statistics, the author concludes the most important point in the treatment of extrauterine pregnancy is immediate operation even though the patient be in shock. The author emphasizes the point that an extrauterine pregnancy should be thought of when a woman of child bearing age gives the history of sudden, severe pain in the region of the ovary with a "show" or hemorrhage from the uterus, accompanied by collapse, and evidences of concealed hemorrhage, a pelvic mass helps to confirm the diagnosis. The

more urgent the symptoms, the greater the need of operation, as the collapse is due to hemorrhage and the vessels may still be bleeding or the hemorrhage be resumed. No vaginal puncture or exploration should be undertaken, for diagnostic or therapeutic purposes, unless preparation has been made for immediate laparotomy.

## INTERSTATE MEDICAL JOURNAL.

July, 1913.

**Prostatectomy in the Aged.**—From a study of this subject M. A. Moore arrives at the following conclusions: 1. The catheter treatment of enlarged prostate is, like the opium and poultice treatment of appendicitis, unsurgical and unsafe. 2. Prostatectomy is the best treatment for enlarged prostate. It would appear, from his investigations, that prostatectomy in the aged is nearly as safe as in younger men, and is good surgical practice wherever indicated, and whenever the physical condition of the man will warrant it. The consensus among a number of genitourinary surgeons in this country as well as abroad, consulted by the author by letter, was that age is no bar to prostatectomy, and that this should be performed whenever practicable. He states that he was stimulated to make the study by a personal experience in two successful cases of prostatectomy by the perineal route in men ninety years of age. Reports are given of two cases in patients of this age, one of which was operated upon in 1909, and one early in the present year.

**Fatal Case of Oil of Cedar Poisoning.**—R. L. Thompson and J. S. Archibald report this case. The patient was a married woman of twenty-two, previously healthy, who was found dead in bed. On the floor was a small amount of vomitus, tinged with blood. There was a history of one month's suppression of the menses, and at the inquest the fact was brought out that she had at previous times made use of cedar oil, but with no ill effects. The authors give the post mortem findings and the results of the microscopical examination, and among their conclusions are the following: In certain localities oil of cedar has been quite generally used as an abortifacient. In most instances the drug seems to be harmless, both to the individual and to the fetus. Occasionally, however, as in this case, a small dose acts as a fatal poison; and, strangely enough, as also in this case, a person who has been a more or less habitual user of it at monthly periods, without ill effect, may succumb to a small dose. A few experiments made on dogs served only to bear out the severe action, or the complete lack of action, of oil of cedar. In the animals employed they were unable to kill with the first use. In several instances rather large doses were given; but the same animal was killed by a smaller dose from one to three days later. The autopsy findings corresponded very closely to those in the human. Since attention has been called to drug supersensitiveness, there are increasing numbers of cases of poisoning which have to be considered as anaphylactic phenomena. Among these drugs are iodoform, iodides, antipyrine, and arsenic (salvarsan and neosalvarsan). It seems, from the case now reported, that oil of cedar may be included in the list.



## Proceedings of Societies.

### MEETING OF THE INTERNATIONAL CONGRESS OF MEDICINE

*Held at London, England, August 6 to 13, 1913.*

This Congress was the most remarkable Congress of Medicine which has ever taken place. It was remarkable in the number of those attending, nearly 8,000 medical men from all parts of the world having put in an appearance; in range of subjects which treated of everything connected directly or indirectly with medical science, and perhaps above all in the harmony and good feeling which characterized the proceedings from beginning to end of the meeting. There was a marked go and vivacity throughout, but at the same time a spirit of tolerance prevailed. Racial and international animosities were distinguished by their absence, a fair recognition of the claims of others was displayed on all hands, and the conference passed without any jarring notes whatever.

Of course, it is impossible not to compare the meeting just over with that other International Congress of Medicine held in London so far back as 1881. With regard to the outstanding figures present at each, the conference of 1881 was preeminent—Koch, Lister, Pasteur, Huxley, Virchow, Paget, Hughlings Jackson, Volkmann, Charcot, Verneuil, Austin, Flint, Billings, Baccelli were all there. At the conference of 1913 there were indeed some very eminent men but no such giants of science, of medical science, and chemistry, with the exception of Dr. Paul Ehrlich as the most renowned of those who took part in the proceedings of thirty-two years ago. In all other particulars the 1913 meeting was incomparable. In 1881 there were fifteen sections, while in 1913 there were twenty-three sections and three subsections and the demonstrations of the wonderful increase of medical knowledge which were therein given were almost staggering. At least, one pronouncement of great importance was made and those general addresses which were delivered were of high scientific and literary value. Dr. Harvey Cushing's address was of exceptional merit, but the general addresses will be referred to in more detail, later on. From a social aspect, the meeting was a triumph, receptions, garden parties, dinners and so on were numerous, and the medical men of London left no stone unturned to render the visit of their American and foreign confrères one to be remembered, and meted out hospitality with unstinting hand. The headquarters of the conference was that tremendous building situated in Kensington, raised to the memory of the late Prince Consort, and the sectional meetings were held in rooms in the University of London, the Imperial College, the Royal School of Science, the School of Art and the Central Technical College. All these buildings are within easy reach of the Albert Hall. Sectional meetings also took place in the buildings of the Royal College of Physicians, the Royal Society of Medicine, St. Thomas's Hospital, the Royal Army Medical College at Millbank and the Royal Dental Hospital. The

morning sessions were given over to discussions on stated subjects, which were introduced by well known authorities.

The organization of the meeting was excellent, without which no meeting can be a success and, when the immense unwieldy size of the gathering is taken into consideration, the task set the secretary general and his coadjutors may be better imagined than described. Dr. W. P. Herringham, the secretary general, and his aides performed their duties in so able and efficient a manner that the machinery worked smoothly and but few of its parts got out of order.

Before, however, reviewing the happenings of the congress in a necessarily somewhat brief manner, it will not be out of place to describe a meeting which took place the day before the formal meeting. This was the Fourth International Congress of the Medical Press in the Jehangir Hall of the Imperial Institute. Fifty or so representatives of the foreign and British medical press were present and Dr. Squire Spriggs, editor of the *Lancet* and president of the British section of the International Press, was in the chair.

Dr. Lucas Championnière, president of the association, opened the proceedings with a short speech, after which Dr. Squire Spriggs on behalf of the British branch replied. Dr. Spriggs, who spoke partly in French and partly in English, referred to the work done by the British medical press and especially by the independent organs in influencing the government to modify the Insurance Act in its original form to the great benefit of the medical profession in Great Britain. He pointed out that medicine had thus become a real force in the politics of that country, while at the same time the ordinary scientific work of medical journalism had not been neglected. Dr. Raoul Blondel, general secretary of the association, then read his report followed by a report on medical terminology.

On the conclusion of Dr. Blondel's paper, the congress adjourned for luncheon, given by the editor of the *Lancet* to the members of the congress, at the Hyde Park Hotel.

The afternoon session of the congress was taken up with a discussion of Dr. Blondel's paper on medical terminology and the presentation of a report by Dr. C. Posner, editor of the *Berliner klinische Wochenschrift*, on the Responsibility of Medical Journals with Respect to Advertisements. Dr. C. Dejae (Belgium) was elected president of the association and R. Blondel and Dawson Williams were reelected general secretary and treasurer respectively. The congress will meet again at the next International Congress of Medicine.

The inaugural ceremony connected with the opening of the congress proper took place in the Albert Hall on the morning of August 6. It was an impressive scene, and the word impressive describes it better than any other. The gathering was essentially that of learned men and a person of little discernment could see at a glance that it was one out of the common. Although the majority of the audience were attired in dark clothes, the *mise en scène* was not gloomy. Many ladies were present in costumes of bright hue, and these together with the uniforms of naval and military medical officers of the various nationalities and the gowns and hoods

of academic bodies relieved all appearance of sombreness and gave an air of brightness to the vast assemblage. Whatever, too, may be faults of the Albert Hall from an acoustic standpoint, at least in one respect it demonstrated its merits as a meeting place. It is well ventilated and airy, a quality in happy contradistinction to some of the halls in which previous meetings of a like nature have been held. Prince Arthur of Connaught, who had been deputed by the King to perform the inaugural ceremony, at eleven o'clock sharp appeared on the platform and without delay, in a clear voice, gave the opening address. Then Sir Edward Grey, the British Minister for Foreign Affairs, welcomed the congress on behalf of the government in an apt and commendably brief speech, after which the president, Sir Thomas Barlow, delivered the Presidential Address. The address was full of good things and well expressed, but space will permit of no more than a few short comments. He emphasized the progress of bacteriology, and paid high tribute to the splendid hygienic work done by American medical men and sanitarians in Cuba, in Panama, in the Philippines, and in Costa Rica. He referred to the magnificent triumphs of surgery and said that the supreme gain after all is that many more useful lives are saved than in the last generation, that the realm of grave and hitherto incurable disease is invaded on every side, and that the danger of operation is retreating to a vanishing point.

Speeches were afterward made in a variety of tongues by the chief representative delegates from other lands, each of whom was presented by Dr. W. P. Herringham, the secretary general, and the inaugural ceremonies were over.

In the afternoon of the same day the address in medicine was given by Doctor Chauffard, professor of Clinical Medicine in the University of Paris. A feature of the meeting and one that forcibly struck a person unaccustomed to hearing speeches in a foreign language was the eloquence, facility of expression, and clear enunciation of the French speakers.

Dr. Chauffard said in part, that prognosis was a matter that had confronted the profession daily since the origin of medicine. Diagnosis and prognosis were inseparable. Their progress had been interdependent. The methods of prognosis, however, were being modified, its limitations were being carried further back every day; it was in a state of perpetual transformation. He therefore thought it was a favorable moment to consider the stage it had reached, and for an appraisal of our acquisitions and desiderata. In the Hippocratic period the value of prognosis was placed in the front rank, and the general conditions and objective signs were studied in the most minute way, the only means indeed available for discovering data from which to form judgments. The principle laid down was that "the body should always be considered as a whole" and "all things should be judged by the study of signs and the estimation of their relative value." Plato upholds the same idea in his *Charmides* when he says: "It is impossible to cure a part without the whole."

It was not until modern times that Augenbrugger

and Corvisart by the introduction of percussion, Laennec by the invention of auscultation and Richard Bright by the creation of renal pathology pointed the way to the transformation of medicine. Direct exploration became possible and efforts were made in Laennec's own words "to place in regard to diagnosis internal organic lesions on the same lines with surgical diseases." To detect the lesion in the living subject, to identify it in the cadaver, and to deduce therefrom diagnosis and prognosis, such became the system of what was to be for more than half a century, *Organicism*, a noble system which contained a large share of truth, but a narrow doctrine which tended to confuse the lesion with the disease which caused it.

Claude Bernard advanced diagnosis and prognosis by seeking novel cases in the study of functional disorders, and we were still journeying in the same direction.

Our modern methods attempted to make diagnosis, as precisely as possible, a representation of the pathological condition of the system as regards its genesis, its present equilibrium, and its future evolution, and a diagnosis thus established amounted almost to a scientific prognosis. In any event, the two were very proximate modes of considering the same facts. Nevertheless, immediate prognosis should be completed by research of remote prognosis, an all important idea introduced into science by Borrillaud's discovery of rheumatic endocarditis.

Chronic infections, syphilis and tuberculosis afforded striking evidence of the importance of the remote consequences of disease. It might almost be said that nothing was forgotten in the system. The most conclusive proof of this was provided by Charles Richet's discovery of anaphylaxis. The individual prognosis, present or future, was completed by notions concerning the family, the collective prognosis, the social prognosis.

It was the latter that justified our law enforced measures of prophylaxis and preventive vaccination; it was from it that Sir Francis Galton's labors evolved the new science of eugenics. In conclusion, Professor Chauffard said: "Medical prognosis is, as it were, the corollary and the practical application of diagnosis; it borrows its methods, it follows its progress. In the course of its modern evolution it has taken its share of all the advances of scientific medicine; it has not ceased to walk in the paths of clinical analysis and of experimental pathogenesis; its aim has been raised, its scope extended. It appears as the synthesis of medical criteria; it precedes, checks and justifies treatment and prophylaxis. If we consider the constant advances of medical prognosis and the many opportunities it affords us for ascertaining the lessened gravity of disease, we can better appreciate the progress already achieved and our efforts will thus meet with their greatest rewards and incentive."

The address in surgery was given in the Albert Hall in the afternoon of August 7. Dr. HARVEY CUSHING's address was acknowledged by all who heard it, or read it, to have been a magnificent contribution to medical literature, and a really great defense of pathological and physiological experiment. In eloquent language he reviewed the progress of surgery during the past thirty years and

showed unmistakably how greatly human suffering had been relieved through the results of the investigations of physiologists and surgeons. He likewise laid stress upon the changed conditions under which it is now imperative to pursue medical education consequent upon the rapid advances made in the knowledge of disease.

The title of Doctor Cushing's address was "The Realignments in Greater Medicine, Their Effect upon Surgery." Doctor Cushing said in part that the weakest point in the opposition to experimentation on the score of cruelty is that the animals whose preservation is desirable benefit as greatly as man. A sentiment has arisen which would exempt the canine species from experimentation. But had such a law been put on the statutes Copeman's discovery of the bacterial cause of distemper and of a successful method of inoculation against this most fatal and distressing canine disease would have been impossible and the same is true of the fatal malignant jaundice, a parasitic disease conveyed by the bite of a dog tick, which is so prevalent in some parts of the world as to make the rearing of dogs impossible, and for which Nuttall has found an effective remedy and means of prevention. What a credit to the societies for animal welfare could such discoveries have come through their own efforts rather than through the efforts of those whose methods of research they are prone to question.

As a therapeutic measure human vivisection, to use this cruel word in a sacred sense, has almost wholly lost its terrors. The triumphs of surgery stand beside those of hygiene and preventive medicine as the notable medical achievements of these thirty years. Surgery has been one of the great factors in the present realignments of medicine, for from Lister and Pasteur as their fountain head the great streams of progress have flowed, in the case of the individual into the art of surgery, and in the case of the community into prophylactic medicine. Even the physician who has so long held himself aloof from anything savoring of handicraft, returns to it with that useful instrument, the hollow needle; and paracentesis, lumbar puncture, and the extraction of blood for diagnostic, or the administration of drugs and sera for therapeutic purposes, by a minor surgical act, are all acknowledged part of his therapeutic resources. By a strange transformation, too, he has become the phlebotomist, and the venesections and cuppings, formerly the overworked province of the barber surgeon, are largely practised by him to-day. Billroth said some thirty years ago: "*Die innere Medizin müsse mehr chirurgisch werden*," and this seems to be what is taking place.

The application of surgical principles, whether in laboratory or clinic, is constantly becoming more general. The slipper of surgery has been found to fit the Cinderella of medicine, experimental pathology, whose coach now has devoted outriders representing all departments. Observations which even in the hands of a Bernard or a Cohnheim were impossible before the era of reactionless wound healing now become possible; not only may the counterfeit of conditions of disease be produced and studied without the complicating element of sepsis, but with surgical methods the Pawlows and Carrels of the laboratory bring about altered con-

ditions which shed new and important light on physiological processes. All this led to the establishment of special laboratories of surgical research, where modern operative methods are particularly applied. They are really laboratories of experimental pathology or of experimental medicine, as the Institute in St. Petersburg and the Hunterian Laboratory in Baltimore are called. The establishment of similar institutions elsewhere indicates that an increasing number of surgeons to-day have instincts which lead them into the broader aspects of disease and away from the mere operative tasks that formerly kept them in the dissecting room.

The definite boundaries formerly separating these subdivisions of the curriculum have become so overgrown by surgical experimental pathology that it is sometimes difficult to tell when the investigators of one department are trespassing on the preserves of another, nor does it much matter, if the common goal is the advancement of medical knowledge. The glands of internal secretion and their interrelations, brought to the fore primarily through the clinic; the principle of intravital staining, with all its promising ramifications introduced by the experimental therapist; the studies of cellular physiology, which refined methods of tissue staining promise to make so fruitful; and the growth of tissue *in vitro* by the experimental anatomist, these occur as immediate illustrations. Through experimental or physiological pathology, biologist, morbid anatomist, therapist, hygienist and sanitarian, physician and surgeon alike, are brought into closer copartnership. Doctor Cushing discussed hospitals and medical education and gave it as his opinion that the methods in vogue in Great Britain would have to undergo radical change and conform more to the standards of Germany in this respect.

An address on Chemiotherapy was given by Dr. PAUL EHRLICH, of Frankfurt, in the Albert Hall in the afternoon of August 8th. As Dr. Ehrlich was the outstanding figure of the congress, so his address was the outstanding feature of the proceedings. The great interest taken in his address was testified to by the large audience present, while the esteem in which the discoverer of salvarsan is held by the medical profession was shown by the frequent applause elicited by many of his utterances. The address was given in German and was of a highly technical character. It consisted mainly of a description of the steps which led up to the discovery of salvarsan and to a demonstration of its beneficial properties in controlling and curing syphilis. The gist of Doctor Ehrlich's address was to the effect that the step to the laboratory to practice, that is to the bedside, was remarkably difficult and dangerous, and must be taken with the greatest care. Its dangers and difficulties consisted in the fact that in men idiosyncrasies existed, forms of supersensitiveness, which existed in no other animal. For example, with a large number of healthy persons the use of harmless articles of food, such as strawberries, crabs, etc., produced troublesome skin eruptions and almost half the known remedies could bring about like phenomena of supersensitiveness. It would not, therefore, be a cause for surprise that phenomena of this nature might occur in a particularly serious form with the employment of



therapeutic agencies which contained such powerfully acting radicals as arsenic and mercury.

The practical results of Doctor Ehrlich's system of treatment had been best shown in the group of diseases caused by spirilla. Thus a tropical scourge known as yaws had been so greatly overcome in Surinam that a hospital which contained formerly an average of three hundred patients was closed altogether after the introduction of the salvarsan treatment, as a single injection sufficed to cure all the patients but two. In the case of Vincent's angina the local application of salvarsan to the inflamed parts was sufficient; and there were a number of other diseases, both in man and in animals, for which the treatment was valuable.

Doctor Ehrlich professed himself an optimist as regards the outcome of the fight against disease and pointed out that discoveries with respect to the modes of spreading disease had been made good use of in the fight against epidemics and for prophylactic measures and had brought about improvements beyond all expectations. In addition, in the battle with diseases which had already broken out, advantage had been derived from such discoveries, the most remarkable example of this being diphtheria antitoxine. Now that the liability to, and danger from, the disease were greatly circumscribed, so far as epidemics and the spread of many other maladies were concerned, the efforts of chemiotherapeutics were directed, to as great an extent as possible, to fill up the gaps left in this circle and more especially to bring healing to diseases in which the natural powers of the organism were insufficient. Further, it was his belief that now, when definite and sure foundations had been laid for the scientific principles and method of chemiotherapeutics, that the way was in sight, not always easy, but yet practicable. There were many valuable indications that in a series of diseases, smallpox, scarlatina, typhus, exanthemata, and, above all, infectious diseases caused by invisible germs, the prospects of success were brightening. In contradistinction, however, to these superparasites the ordinary or common bacterial diseases, diseases due to the streptococcus and the staphylococcus, coli, typhoid, and dysentery, but, above all, tuberculosis, would still require a hard struggle. Nevertheless, he looked forward with full confidence to this development also, and might, without being set down as an optimist, put forward the view that in the next five years we should have advances of the highest importance to record in this field of research.

A very valuable general address was given by Doctor BATESON, of Cambridge University, on Heredity. Probably Doctor Bateson is the greatest authority in the world on genetics and his review of the present position of this science was intensely interesting. The address was not given in the Albert Hall, but in the Jehangir Hall of the University of London, in order that he might illustrate his text by slides showing in diagrammatic form the history of certain abnormalities persisting from generation to generation. In his introductory remarks Doctor Bateson pointed out that to the penetrative foresight of Francis Galton it was evident long ago that the aspects of physiology connected with family history must one day become a chief preoccupation of

reflecting minds. But no one before the rediscovery of Mendel's work had ventured to imagine that the confusion, the paradoxes, the capricious disorder of the phenomena of descent were, in a very great measure, capable of a simple and ready analysis. It is this knowledge which has given to genetic science a position paramount among the branches of physiology, showing that in accurate genetic analysis a means is given not merely of elucidating the interrelations of parent and offspring, but of contributing also to a right interpretation of various special problems of pathology and anthropology, perhaps, also to a true understanding of the course of human history. It would be impossible in the space at disposal to intelligently discuss the various problems of genetics so ably dealt with by Doctor Bateson; suffice it to say that the address was a clear and comprehensive review of the whole question. There was, however, one portion of his address to which reference should be made, inasmuch as it refers directly to certain action and contemplated action in the United States with regard to the regulation of marriage. On this point Doctor Bateson expressed himself as follows: "It is one thing to check reproduction of hopeless defectives, but another to organize a wholesale tampering with the structure of the population such as will follow if any marriage not regarded by officials as eugenic is liable to prohibition. This measure we are told is actually proposed in certain of the United States. Nothing yet ascertained by genetic science justifies such a course, and we may well wonder how genius and arts will fare in a community constructed by legislators in this way."

The last general address was delivered by the Right Honorable John Burns, president of the Local Government Board, and dealt with the economic view of health. It was eminently instructive and teemed with statistics, but there was nothing original or even novel in it. The address was interrupted frequently by militant suffragettes of the male and female sex who were promptly ejected as soon as their voices were heard and their situation located.

After the conclusion of Mr. Burns's address the formalities of closing the Congress were proceeded with. The invitation of the Bavarian Government and of the city and University of Munich to hold the next International Congress of Medicine there, in 1918, was accepted. The following award of Congress prizes was announced: The Moscow Prize to Dr. Charles Richet, of Paris, for his work on anaphylaxis. The Paris Prize, to Dr. A. von Wassermann, of Berlin, for his work on experimental therapy and immunity. The Hungary Prize to Dr. A. E. Wright, of London, for his work on anaphylaxis. The report of the Permanent Committee, which was adopted, contained a number of resolutions, sent up by the sections, among them being the following: That sensible of the ravages wrought by syphilis on the health of the community, and deploring the inadequacy of existing facilities for checking its dissemination, the International Medical Congress calls upon the Governments of all countries here represented: 1. To institute a system of confidential notification of the disease to a sanitary authority, wherever such notification does

not obtain. 2. To make systematic provision for the diagnosis and treatment of all cases of syphilis not otherwise provided for. With regard to vivisection the following resolution was sent up: That this Congress records its conviction that experiments on living animals have proved of the utmost service to medicine in the past, and are indispensable to its future progress. That, accordingly while strongly deprecating the infliction of unnecessary pain, it is of the opinion alike in the interests of man and animals, that it is not desirable to restrict competent persons in the performance of such experiments.

The President, Sir Thomas Barlow, made a farewell speech and the congress of 1913 was over.

Before concluding this brief, and in consequence inadequate, account of the congress which has just gone into the great past, it will be as well to comment on two occurrences. One was the discussion on salvarsan by the joint sections of Naval and Military Medicine with that of Dermatology and Syphilography, and the other the discussion on venereal diseases from the social standpoint by the combined sections in Dermatology and Forensic Medicine.

The discussion on salvarsan was opened by Dr. Paul Ehrlich himself, who considered the biochemical action on the spirochæta which caused the disease. He believed that the action of the drug was indirect and required a third factor for its completion. This factor must be sought for in the tissue fluids of the body. Salvarsan had no poisonous effect on the central nervous system, a fact which had been proved by Ullmann of Vienna. Referring to the causes of the commonly observed febrile reactions in its therapeutic use, he said that some of these were due to technical errors of administration; in a second, large class they were due to the drug being administered in the rosolar stage of the disease, in which the whole body is saturated with the spirochætes. The febrile reactions in such cases were due to destruction of the spirochetes, and the setting free of their toxine. It could be prevented by previous preliminary treatment with mercury, and it did not occur with subsequent doses of salvarsan. It must be remembered that salvarsan destroys all sorts of other organisms that may be present, and the death of these may also be productive of febrile reactions. As to recurrences, about which so much has been heard, Doctor Ehrlich gave it as his opinion that they were due to an insufficient treatment with salvarsan, and he thought a good many deaths must be ascribed to the same cause. Taking the chancre and general paralysis as the beginning of the end, respectively, of all manifestations of syphilis, he was of opinion that salvarsan could effect sterilization in the first instance and considerable alleviation in the second.

Lieutenant Colonel Gibbard, R. A. M. C., gave evidence as to the remarkably beneficial effects of the use of salvarsan in the British army, and declared that it had revolutionized the treatment of syphilis therein.

Dr. A. von Wassermann, Sir Malcolm Morris, Dr. McCormack, Dr. McDonagh, Dr. Saalfeld, Berlin; Dr. Fordyce, New York; Dr. Schreiber, Magdeburg; Dr. Ullmann, Vienna, all gave confirmatory

evidence, the last declaring that there was now no antisalvarsan party. Some of the French medical men, however, did not appear to be in favor of salvarsan, Dr. Levy-Bing, Paris, stating that his results in the treatment of early cases of syphilis by salvarsan had been unfavorable. On the whole, the conclusions were decidedly favorable. Doctor Hata, whose name will be always associated with that of the discoverer of salvarsan, related his experience of the value of salvarsan in the treatment of syphilis and of a disease known as ratbite fever.

As for venereal diseases, the social evil, all who joined in the discussion on this most important question were agreed that steps should be taken to prevent and control such diseases, of course, syphilis especially.

Various measures with this end in view were suggested, and, as mentioned before, a resolution was passed and sent up to the permanent committee. Among those who took part in this discussion were Dr. A. Blaschko, Berlin; Dr. Ernest Finger, Vienna; Major H. C. French, R. A. M. C.; Dr. Gaucher and Dr. Gougeret, Paris; Dr. Erik Pontoppidan, Copenhagen; Dr. Douglas White, London; Mr. Ernest Lane, London, and Dr. Woods Hutchinson, New York.

In the Section in Medicine, Sir William Osler, president of the section, in the chair, a meeting was held to discuss the cause and treatment of diabetes. Doctor Dock, St. Louis, opened the discussion and was followed by Doctor von Noorden. One point in Dr. von Noorden's speech was traversed by Dr. Saundby, Birmingham. The German authority advocated whiskey to the extent of two or three ounces a day in the treatment of severe cases of the disease, advice which Doctor Saundby deprecated.

The functions of the ductless glands were dealt with in the medical section in conjunction with the Section in Physiology, the subject chosen for discussion being "The Correlation of the Organs with Internal Secretions and Their Disorders." Sir Edward Schäfer, of the Edinburgh University, was in the chair. Among those who joined in the discussion were Sir William Osler, Oxford; Dr. M. E. Gley, Paris; Dr. C. A. Ewald, Berlin; Dr. A. von Korányi, Budapest; Dr. A. Biedl, Vienna; Dr. William S. Thayer, Baltimore; Doctor Cushing, Harvard University. The discussion was opened by Doctor Gley.

Dr. Harvey Cushing gave an admirable account of some of the researches and observations on affections of the hypophysis cerebri, or pituitary body.

In the Section in Surgery, Dr. Waters F. Burrows, New York, read a paper on postoperative intestinal stasis and the intraabdominal use of oil. Dr. F. H. Albee, New York, on bone transplantation, Dr. John B. Murphy, Chicago, on the clinical results of arthroplasty and osteoplasty, Dr. A. L. Soresi, New York, on the value of direct transfusion of blood, its indications and technic, with reports of over 600 cases. Dr. Ernest Laplace, Philadelphia, on arteriothrombosis and thrombophlebitis of the mesentery, and Dr. Charles Goodman, New York, on arteriovenous anastomosis for impending gangrene; a report of fifteen consecutive cases with arteriovenous anastomosis of the femoral vessels. Before concluding it should be

mentioned that at the instance of the Section in Physiology a resolution was passed upholding the value and importance of the experimental method of research. It goes without saying that the hospitals were thrown open to members of the congress and in many of them clinical demonstrations were given.

The entertaining was on a magnificent and profuse scale. A banquet was given by the Government at the Hotel Cecil on the evening before the congress opened, and after that the diversions of all kinds, public and private, provided were so numerous as to be almost confusing. Sir Thomas Barlow, the president, gave a soirée in the Natural History Museum, Kensington, on the evening of August 6th. Garden parties at Bethlem and at Regent's Park College; reception at King's College; dinner given by the Apothecaries' Society, and soirées at Grocers' Hall, Royal College of Surgeons, Royal Society of Medicine, and by the Royal Army College was the social programme for August 7th.

On August 8th, there was a reception at Lambeth Palace and at St. Bartholomew's and St. Thomas's Hospitals, and a soirée at the Guildhall. On August 9th, an excursion to Brighton and a Royal Garden party at Windsor. On Sunday, August 10th, there were special services at St. Paul's Cathedral, Westminster Abbey, and Westminster Cathedral. The Zoological Gardens were open to members of the Congress. A garden party was given by Mr. W. Astor at Cliveden, and there was an excursion to Harrogate.

On August 11th: Excursion to Stratford-on-Avon; Masonic meeting; garden parties at Guy's and University College Hospitals; garden party given by Sir W. Lever; soirée given by Lord Strathcona. On August 12: Excursions to Oxford, Cambridge and Canterbury; and on August 13th: Excursion to Bath.

It would require almost unlimited space to describe the congress and its proceedings and entertainments in detail, but possibly enough has been said to convey to the readers of the NEW YORK MEDICAL JOURNAL a fairly clear impression of in many respects the most notable gathering of medical and scientific men ever collected in one place. There was a very large number of American representatives of medical science in all its branches present, more in fact came from the other side of the Atlantic than from any one country. It may also be said that they well upheld the ever rising reputation of American methods of medicine, surgery, and research.

## Letters to the Editor.

### A FURTHER COMMUNICATION ON OXIDATION IN CANCER.

951 ST. MARK'S AVENUE, )  
BROOKLYN, N. Y., August 22, 1913.)

To the Editor:

Since the publication of my letter on "Oxidation in Cancer" in the *Medical Record*, January 18, 1913, reports have come in. A physician in Marion, Ohio, reports a case of cancer of the mouth involving the masseter from the ramus

of the jaw to the angle of mouth gradually improving, constitutionally as well as locally. His letter was received in April; he has not communicated with me since. Another case reported by a Chicago physician (last April) who states that the tumor seals over; he does not state, but I think he means a broken down inoperable carcinoma, though he mentions a very advanced case. Another case: formula given by a physician of Syracuse, N. Y., but patient is in communication with me; in two to three months the tumor has become softer and smaller, and the general health fine. This is a case of inoperable sarcoma of the right breast. I have since added nuclein to my treatments, as leucocytosis is produced by the saline portion of my formula. Metchnikoff states a trypsinlike ferment is found in leucocytes. Now, trypsin dissolves cancer cells. Nuclein produces xanthin bodies or purin bases; these bodies, when combined with globin, prevent the over-acidity of the epithelium; as for instance kreatin and globin. According to Ross, nuclein overcomes the excessive alkalinity of the organism which is found in cancer. The hemoglobin formula together with its other activities does the same, for wherever there is an excessive alkalinity, the epithelium and cells are increased in movement.

The method of using formula and nuclein:

R Sodii chloridi, .....	2.00 grammes;
Potassii sulphatis, .....	.070 gramme;
Sodii sulphatis, .....	.065 gramme;
Calcii phosphatis, .....	.075 gramme;
Magnesii phosphatis, .....	.055 gramme;
Hemoglobini, .....	3.25 grammes;
Aque bullientis, .....	250 c. c.

Dissolve the sodium chloride in the boiling water and filter, then add rest of the salts; when about to use add the hemoglobin. If hemoglobin is kept in this mixture for any length of time it is likely to decompose.

This dose is taken by mouth, an hour to an hour and a half before meal; more often if the case is severe (of course on an empty stomach).

R. Nucleini, .....

Sig.: To be taken half an hour before the hemoglobin mixture.

These formulas can be given intravenously, once a day, instead of by the mouth.

I wish to thank Dr. Rhu, of Marion, Ohio; Dr. W. Lammond, of Chicago, Ill., and Dr. Price, of Syracuse, N. Y., the gentlemen who have given the treatment a practical application.

CHAS. F. D'ARTEO-FRANCIS, M.D.

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*Experimental Physiology.* By E. A. SCHÄFER, F.R.S., Professor of Physiology in Edinburgh. With Eighty-three Illustrations. New York, Bombay, and Calcutta: Longmans, Green, & Co., 1912. Pp. viii+111. (Price, \$1.35.)

This book is based upon a smaller one issued by Professor Schäfer in 1901, and embodies descriptions of methods used in the classes of practical physiology in the University of Edinburgh. Electrical apparatus and methods in general are first considered, next their application in the study of muscle and nerve physiology, and finally, brief sections are devoted to the physiology of the heart and vessels, secretion in general, respiration, reflex action, and the special sense organs. The illustrations are numerous and good, and the text well adapted for students. The book seems incomplete, however, in that no laboratory work on the blood, such as is generally required in American medical schools, is provided for. The section on the eye, likewise, appears inadequate in that no mention is made of the "artificial eye," which affords so excellent a groundwork for later studies in refraction. Ferment action and the effects of various inorganic ions are other



subjects which, in view of their practical significance, one might now expect to find included in the student's "experimental physiology."

*Organic Chemistry. Including Certain Portions of Physical Chemistry. For Medical, Pharmaceutical, and Biological Students. With Practical Exercises.* By HOWARD D. HASKINS, A.B., M.D., Associate Professor of Organic Chemistry and Biochemistry, Medical Department, Western Reserve University. Second Edition. First Thousand. New York: John Wiley & Sons; London: Chapman & Hall, Limited, 1913. Pp. xiii-430. (Price, \$2.)

This is a work written expressly for students of medicine and cognate branches, and differs from Remsen's well known little book, which it greatly resembles in its mechanical features—in containing in particular the chemistry of those organic compounds which enter into the study of physiology, biochemistry, and pharmacology. After preliminary sections on the purification of substances and elementary analysis, consideration is given to such subjects of biological importance as the nature of solutions, osmotic pressure, ionization, colloids, surface tension, viscosity, etc. The customary description of the more commonly encountered organic compounds, with their mode of preparation and chemical relationships, is then begun, and occupies the remainder of the book. Practical exercises are included. In the second edition the author has striven to increase the value of the book as a work of reference and render it more complete from the standpoint of the student of medical sciences. On the whole, the text serves very well the purpose for which it is intended. Mechanically, occasional deficiencies in punctuation are noticeable.

*Cardiovascular Diseases. Recent Advances in Their Anatomy, Physiology, Pathology, Diagnosis, and Treatment.* By THOMAS E. SATTERTHWAITE, A.B., M.D., LL.D., Sc.D., Consulting Physician Post-Graduate, Manhattan State, Orthopedic, Babies', Champlain Valley Hospitals and North Eastern Dispensary; Member American Therapeutic, State, and County Medical Societies, American Medical and Greater New York Medical Associations, New York Academy of Medicine; Harvey Society; Life Member New York Pathological Society; Honorary Member Washington (D. C.) Medical and Surgical Society; First Lieutenant Medical Reserve Corps, U. S. A. Lemcke & Buechner, 32 West Twenty-seventh Street, New York City.

This little work comprises a series of monographs which have been published from time to time, now revised and collectively presented in book form. They can be especially recommended to the practicing physician who wishes to familiarize himself with the most recent and approved methods employed in the diagnosis of disorders of the heart and bloodvessel system. Beginning with the more recent discoveries relating to the anatomy and physiology of the heart, he next takes up blood pressure instruments, their use, various polygraphic methods, some of the newer instruments of precision; then, in the remaining chapters, deals with some of the special diseases of the heart and vessels and their treatment, laying emphasis on measures other than drugs. While many of the illustrations are quite crude, we have no hesitation in recommending the work as one which gives, in brief space, the salient features of the present day knowledge of this special group of diseases, both from the standpoint of diagnosis and treatment.

*General Paresis.* By Professor EMIL KRAEPELIN, of Munich. Authorized English Translation by J. W. MOORE, M.D., Nervous and Mental Disease Monograph Series No. 14. New York: Journal of Nervous and Mental Disease Publishing Company, 1913. Pp. 200. (Price, \$3.)

This volume renders accessible to English reading physicians the chapter on General Paresis from Kraepelin's *Textbook of Psychiatry*, and as such will be cordially received. The many additions to our knowledge of syphilis during the past decade have increased the interest in the paresis problem and brought about the conviction of most observers that paresis is inseparable from lues. This is Kraepelin's view, based upon an analysis of literature and statistics as well as upon his own experience. His conception of the relationship between the two conditions in-

clines rather to the theory of toxic or indirect influences than that of a direct specific action of the spirochete on the brain. Although admittedly the problem is not completely solved it is of interest to note that, since the publication of the present work, Dr. Moore, its translator, in collaboration with Noguchi, has reported finding the specific organism of syphilis in several brain specimens from paretics.

*Leifaden zur Untersuchung der Cerebrospinalflüssigkeit.* Bearbeitet von F. PLAUT, München, O. REHM, Bremen-Ellen, und H. SCHOTTMÜLLER, Hamburg-Eppendorf. Mit 5 Figuren im Text und 21 teils farbigen Tafeln. Jena: Gustav Fischer, 1913. Pp. vii-150.

It is only within the last few years that any attempt has been made to gain and utilize an intimate knowledge of the normal and pathological characteristics of the cerebrospinal fluid. How fruitful this work has recently been is attested by the present volume which is a capable review of the work accomplished in the chemical, cytological, and bacteriological studies of the cerebrospinal fluid in many diseased conditions. It may be said with conservatism that no clinical history in which organic disease of the central nervous system is considered is complete without a report of the condition of the cerebrospinal fluid, including a test for the Wassermann reaction. Besides descriptions of technic and the clinical significance of the various conditions and contents of the fluid are especially to be noted the numerous colored plates of the different cytological and bacteriological elements found in the fluid, their groupings, and relationships thus being presented graphically. This book should be especially valuable to those who are following this line of work.

## Meetings of Local Medical Societies.

MONDAY, September 8th.—Society of Medical Jurisprudence; Corning Medical Association; Williamsburgh Medical Society, Brooklyn; New Rochelle Medical Society; Waterbury, Conn., Medical Association.

TUESDAY, September 9th.—Medical Society of the County of Schenectady; Medical Society of the County of Rensselaer; Buffalo Academy of Medicine; Newburgh Bay Medical Society; Jamestown Medical Society; Rome Medical Society; Practitioners' Club of Jersey City, N. J.

WEDNESDAY, September 10th.—Medical Society of the Borough of the Bronx; Brooklyn Medical and Pharmaceutical Association; Richmond County Medical Society; Dunkirk and Fredonia Medical Society; Alumni Association of the Norwegian Hospital Brooklyn.

THURSDAY, September 11th.—Gloversville and Johnstown Medical and Surgical Association; Physicians' Club of Middletown; Blackwell Medical Society of Rochester; Auburn City Medical Society; Buffalo Ophthalmological Club; Jamestown Medical Society; Society of Physicians of Canandaigua.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending August 27, 1913:*

Ashford, F. A., Passed Assistant Surgeon. Granted one month's leave of absence from September 15, 1913. Brown, A., Acting Assistant Surgeon. Granted thirty days' extension of annual leave, on account of sickness, from July 2, 1913, and thirty days' leave of absence from August 1, 1913. Clark, T., Surgeon. Directed to proceed to Upperville, Va., for the purpose of making a diagnosis of a suspected case of smallpox and for con-

ference with local health authorities. **Friedmann**, H. M., Acting Assistant Surgeon. Granted twenty-four days' leave of absence from August 20, 1913. **Guiteras**, C. M., Surgeon. Granted seven days' additional leave of absence from August 24, 1913. **King**, W. W., Surgeon. Granted seven days' leave of absence en route to station. **Magruder**, G. M., Surgeon. Granted seven days' leave of absence from September 1, 1913. **Morse**, Stone, Special Expert. Directed, in compliance with a resolution of the United States Senate, to proceed to Asheville, N. C., and vicinity, for the investigation of a remedy for tuberculosis. **Wakefield**, H. C., Acting Assistant Surgeon. Granted twenty-one days' leave of absence from September 15, 1913.

#### *Boards Convened.*

Board of medical officers convened to meet at Norfolk, Va., at 11 o'clock a. m., on Monday, August 25, 1913, for the physical examination of Second Lieutenant M. S. Hay U. S. R. C. S., to determine his fitness for promotion. Detail for the board: Surgeon C. P. Wertenbaker, Chairman; Acting Assistant Surgeon H. C. Bradford, Recorder.

Board of medical officers convened to meet at Galveston, Tex., upon call of the chairman, for the reexamination of alien Schloime Selikowitz. Detail for the board: Surgeon L. P. H. Bahrenburg, Chairman; Acting Assistant Surgeon W. H. Gammon, Recorder.

#### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending August 29, 1913:*

**Bevans**, J. L., Major, Medical Corps. Ordered to Fort Constitution, September 4 to 11, 1913, on coast defense and militia duty. **Bradley**, A. E., Lieutenant Colonel, Medical Corps. Ordered to make an inspection at Fort Porter, Fort Ontario, Madison Barracks, Plattsburg Barracks, N. Y., and Fort Ethan Allen, Vt.; granted fifteen days' leave of absence from August 26th. **Clark**, J. A., Captain, Medical Corps. Relieved from duty at Plattsburg Barracks, N. Y., and will proceed to the Walter Reed General Hospital, Washington, D. C., for duty. **Connolly**, P. B., First Lieutenant, Medical Corps. Returned to Fort McPherson, Ga., from temporary duty at Camp Perry, Ohio. **De Loffre**, S. M., Captain, Medical Corps. On arrival at San Francisco, in compliance with orders already issued, will proceed to Plattsburg Barracks, N. Y., for duty. **Griffin**, J. C., First Lieutenant, Medical Reserve Corps. Resignation accepted, to take effect August 22, 1913. **Jones**, George B., First Lieutenant, Medical Reserve Corps. Left Camp E. S. Otis, Canal Zone, on August 19th, en route home on four months' leave of absence, at the expiration of which he will be released from active duty in the corps. **Kean**, Jefferson R., Lieutenant Colonel, Medical Corps. Relieved from duty in the surgeon general's office, Washington, D. C., effective about October 1, 1913, and will proceed to Fort Leavenworth, Kansas, for duty. **Kennedy**, James S., First Lieutenant, Medical Reserve Corps. Returned on August 24th to Fort Barrancas, Fla., from temporary duty at Fort McPherson, Ga. **Kerr**, R. W., Captain, Medical Corps. Left Columbus Barracks, Ohio, on August 27th, on fourteen days' leave of absence. **Lamson**, T., Captain, Medical Corps. Arrived at Camp Garrison on August 8th. **McKnight**, J. R., First Lieutenant, Medical Corps. Ordered to Plattsburg Barracks, N. Y., for temporary duty. **Macy**, F. S., Captain, Medical Corps. Appointed a coast defense surgeon and surgeon to Fort Columbia, with station at Fort Stevens, Oregon. **Mason**, C. F., Lieutenant Colonel, Medical Corps. Left Ancon, Canal Zone, on August 9th, on leave of absence in the United States. **Mitchell**, Leonold, First Lieutenant, Medical Corps. Relieved from duty in the Army Transport Service, Seattle, Washington, and ordered to return to Fort Lawton, Wash. **Scott**, G. H., Captain, Medical Corps. Ordered to Madison Barracks for temporary duty. **Shepard**, John L., Captain, Medical Corps. Upon arrival in San Francisco, Cal., in compliance with orders heretofore issued, will proceed to Fort Hancock, N. J., for duty. **Smith**, H. A., First Lieutenant, Medical Reserve Corps. Will remain on duty at Fort Porter,

N. Y., until September 6th, and will then return to his home. **Usher**, F. M. C., Major, Medical Corps. Relieved from duty at Fort Sam Houston, Texas, and from further duty as division surgeon, Cavalry Division, and will report to the commanding general, Second Division, Texas City, Texas, for assignment to command of Field Hospital No. 3, relieving Major John A. Murtagh, who, upon being thus relieved will proceed to Fort McIntosh, Texas, for duty. **Waring**, J. B. H., Captain, Medical Corps. Will proceed to Fort Leavenworth, Kansas, for temporary duty for a period not to exceed seven days, and on completion of this duty will proceed to Fort Logan, Colo., as heretofore ordered.

### Births, Marriages, and Deaths.

#### *Married.*

**Boice—Caughy**.—In Baltimore, Md., on Wednesday, August 20th, Dr. Edmund Simpson Boice, of Richmond, Va., and Miss Lyl E. Caughy. **Connor—Keightley**.—In Boston, on Tuesday, August 26th, Passed Assistant Surgeon William Henry Connor, United States Navy, and Miss Agnes Dodds Keightley, of North Castle, Australia. **Heath—Clark**.—In Chicago, on Wednesday, August 27th, Dr. George M. Heath, of St. Louis, Mo., and Miss Constance G. Clark. **McKay—Farnham**.—In Philadelphia, on Monday, August 18th, Dr. Robert Burns McKay, of Sunbury, and Miss Nellie E. Farnham. **Walker—Smith**.—In Brunswick, Me., on Monday, August 11th, Dr. Francis David Walker and Miss Ida Kilby Smith.

#### *Died.*

**Andrew**.—In Sparta, N. J., on Tuesday, August 26th, Dr. Theophilus H. Andrew, aged seventy-two years. **Bigelow**.—In Albany, N. Y., on Monday, August 25th, Dr. John Milton Bigelow, aged sixty-six years. **Boyd**.—In Goldsboro, Pa., on Thursday, August 21st, Dr. Isaac N. Boyd, aged sixty years. **Busch**.—In Sandusky, Ohio, on Friday, August 22d, Dr. William H. Busch, aged forty-nine years. **Eckert**.—In Fort Wayne, Ind., on Thursday, August 21st, Dr. Charles H. Eckert. **Ewing**.—In Tuckahoe, N. J., on Saturday, August 23d, Dr. Samuel Eldridge Ewing, Jr., aged thirty-five years. **Farmer**.—In Fairmount, Ky., on Saturday, August 23d, Dr. William Farmer, aged sixty years. **Fielder**.—In Selma, Ala., on Wednesday, August 13th, Dr. John W. Fielder, of Benton, aged thirty-one years. **Fitch**.—In Augusta, Me., on Thursday, August 21st, Dr. Calvin Huntley Fitch, aged eighty-four years. **Foster**.—In Mount Clemens, Mich., on Friday, August 22d, Dr. George E. Foster, of Springfield, Mass., aged sixty-three years. **Hunter**.—In Leechburg, Pa., on Wednesday, August 13th, Dr. Robert P. Hunter, aged seventy-seven years. **Jordan**.—In Wichita, Kansas, on Tuesday, August 10th, Dr. William A. Jordan, aged sixty-seven years. **Lee**.—In Easton, Pa., on Monday, August 25th, Dr. Alfred H. Lee, aged seventy-three years. **McCarthy**.—In Brockton, Mass., on Friday, August 22d, Dr. William Henry McCarthy, aged forty-six years. **Maverick**.—In San Antonio, Texas, on Monday, August 18th, Dr. Augustus Maverick, aged thirty-seven years. **Miller**.—In Cincinnati, Ohio, on Saturday, August 23d, Dr. Benjamin F. Miller. **Pierce**.—In Atlanta, Ga., on Monday, August 25th, Dr. George Y. Pierce, aged fifty years. **Pierce**.—In Rochester, N. Y., on Sunday, August 24th, Dr. Sidney A. Pierce, aged sixty-six years. **Ray**.—In Los Angeles, Cal., on Tuesday, August 12th, Dr. Charles Wilbur Ray, aged fifty-one years. **Reinsberg**.—In New York, on Wednesday, August 27th, Dr. Charles H. Reinsberg, aged forty-six years. **Shay**.—In Marlborough, N. Y., on Thursday, August 21st, Dr. Daniel Aloysius Shay, of Brooklyn, aged thirty-seven years. **Treadwell**.—In Portsmouth, N. H., on Saturday, August 23d, Dr. Robert O. Treadwell, aged eighty years. **Walton**.—In Mulga, Ala., on Monday, August 18th, Dr. Frank Walton, aged thirty-eight years. **Williams**.—In Richmond, Va., on Wednesday, August 20th, Dr. James Porter Williams, aged forty years.

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### Original Communications.

#### DISCARDED BATTLESHIPS TO BE USED AS SANATORIA AND OPEN AIR SCHOOLS.

*Preliminary Remarks and Resolutions on the Use of Discarded Battleships for Sanatoria, Preventoria, and Open Air Schools, Offered to the Fourth International Congress on School Hygiene in Buffalo, N. Y., August, 1913.*

By S. ADOLPHUS KNOPF, M. D.,  
New York,

Professor of Medicine, Department of Physiotherapy, at the New York Post-Graduate Medical School and Hospital.

I desire to bring before the congress at this time some resolutions regarding the utilization of our discarded battleships for open air schools, preventoria, and sanatoria for tuberculous children and adults. I include the adults because if we cure the parents from this disease we will not have to treat as many of our school children for the same affliction.

Before an audience of this kind it is unnecessary to emphasize the well known fact that there is hardly a community in these United States which has sufficient sanatorium and hospital facilities to take care of its tuberculous adults and children. But since this congress is particularly interested in the child, I wish merely to call attention to the fact that of the 20,000,000 pupils now attending American public schools at least five per cent. are tuberculous or so strongly predisposed to the disease that they should be immediately taken out of school and placed in special open air sanatoria, schools, classes, or preventoria. Carefully gathered statistics show that we provide open air instruction at this time throughout the entire country for scarcely more than 1500 pupils, and yet, as stated on another occasion,<sup>1</sup> if we wish to prevent tuberculosis in children the open air school must become the rule, the indoor school the exception.

According to the following list of obsolete ships and their original cost, the United States govern-

<sup>1</sup>The remarks and resolutions were first presented at the close of a Symposium on Tuberculosis, arranged for the congress by Doctor Farrand, the executive secretary of the National Association for the Study and Prevention of Tuberculosis, and presided over by its president, Dr. John H. Lowman. In accordance with the rules of the congress these resolutions were referred to the Committee on Resolutions. They were approved by the latter and passed unanimously without discussion at the final general meeting of the congress, August 29, 1913, President Charles W. Eliot in the chair.

<sup>2</sup>Knopf: Tuberculosis and Other Diseases in Schools and Colleges. An address before the Congress on Hygiene and Demography, New York Medical Journal, January 25, 1913.

ment has expended nearly \$130,000,000 for the construction and equipments of these vessels in less than twenty years' time:

BATTLESHIPS.		MONITORS.	
Ship.	Cost.	Ship.	Cost.
Alabama	\$4,665,820	Cheyenne	\$1,500,380
Indiana	5,083,371	Cesar	1,643,879
Illinois	4,621,408	Tallapoosa	1,518,179
Iowa	3,871,206	Tonopah	1,619,052
Massachusetts	6,047,117	Terra	2,217,102
Oregon	6,575,032	Monterey	2,761,371
Kearse	5,043,591	Puritan	1,305,465
Kentucky	4,998,119	Mem-inuek	2,259,760
Ohio	5,265,504	Amphitrite	2,145,986
Maine	5,381,903	Wyntonamah	2,540,136
Missouri	5,258,260		
Wisconsin	4,723,894		
Total cost of battleships	\$64,435,225	Total cost of monitors	\$22,218,364
PROTECTED CRUISERS.		ARMORED CRUISERS.	
Ship.	Cost.	Ship.	Cost.
Olympia	\$2,079,283	Brooklyn	\$4,423,790
Columbia	3,009,011	Saratoga (the old flag-ship New York)	4,346,642
Minneapolis	3,849,996		
Chicago	886,000	Total cost of armored cruisers	\$8,770,432
St. Louis	3,818,177	TORPEDO BOATS.	
Charleston	3,826,411	Twenty-eight vessels which average in cost about \$175,000	\$4,900,000
Albatross	3,935,225		
Newark	1,830,117		
Cincinnati	2,371,900		
Raleigh	2,199,729		
Total cost of protected cruisers	\$29,608,853		
GRAND TOTAL VALUE OF ALL SHIPS.			
Battleships	\$64,435,225		
Protected cruisers	29,608,853		
Monitors	22,218,364		
Armored cruisers	8,770,432		
Torpedo boats	4,900,000		
Total cost of all obsolete vessels	\$129,932,814		

Now, these ships have done their service. We have since built new ones and are building new ones at this moment. As representatives of all nations united here for the most peaceful purpose of all, the preservation of childhood, we pray that these new battleships, cruisers, and monitors may never go into action. In any case, in due time they will be discarded also. What I am pleading for to-day is that a good use be made of these discarded men of war. I would make them into life saving instruments, the very reverse of that for which they were created. These discarded battleships should not be turned into junk. They can be transformed into all year round sanatoria and open air schools with relatively little expense. If put to the use I suggest, they can still be considered nominally as units of a reserve fleet, but our hope is that there may never be any need of their use as such.

In a recent communication to the public press on this subject, Dr. Arthur C. Jacobson, of Brooklyn, pleading for the same cause, called attention to the fact that the secretary of the Italian navy recently

<sup>3</sup>For further details see the *New York Times* of August 3, 1913.



had decided to convert three of the old Italian warships into sanatoria for tuberculous children, and Doctor Jacobson very justly adds: "Why would it not be possible for the United States government to emulate the example of the progressive Italian statesman?"

I communicated recently with the head of our own government, President of the United States, the Hon. Woodrow Wilson, concerning the utilization of discarded battleships for open air schools and sanatoria for the tuberculous. He very cordially instructed his secretary to reply to me, saying that the matter would be brought to the attention of the Secretary of the navy. The proposition has the strongest approval of the president of our National Association for the Study and Prevention of Tuberculosis, Dr. John H. Lowman, professor of the Western Reserve University of Cleveland, Ohio, and also of our secretary general of this congress, Dr. Thomas A. Storey, professor of Hygiene of the College of the City of New York.

Before deciding on this important action I went for advice and counsel, as I have done so often before in my professional life, to my venerable teacher and friend, Professor A. Jacobi, former president of the American Medical Association, and the Nestor of the American medical profession. He heartily approved of the scheme and urged me to present these resolutions. My friend, Dr. John H. Huddleston, the director of the Gouverneur Hospital Tuberculosis Clinic and the physician to the Tuberculosis Service on the ferryboat anchored near that hospital, writes me enthusiastically about the splendid results obtained in the boat service, which he considers one of the most valuable adjuvants to our antituberculosis institutions of the city of New York.

Doctor Jacobson, whom I mentioned before, is the examining physician of all applicants for the preventoria, sanatoria, and hospitals for the tuberculous of Brooklyn. After telling him of my intention to bring this matter before this congress he wrote me enthusiastically about it, saying: "If we could permanently moor a battleship in the roadstead of Staten Island, and then use smaller craft for ferriage and excursions 'round about the sound and elsewhere, then we would not have that long waiting list for the preventoria at Farmingdale and Nanuet. If the government could not give such a craft away doubtless a sale could be arranged with a sympathetic navy department."

Mr. Frank H. Mann, the secretary of the Committee on the Prevention of Tuberculosis of the Charity Organization Society of the City of New York, when he heard of my intention to bring this matter before the congress, wrote:

I am much interested in your plan of presenting a resolution at the Fourth International Congress on Social Hygiene, calling upon the government of the United States and other countries to make use of their abandoned war vessels for the purpose of open air schools and hospital sanatoria. As you probably know, the first day camp in this city was opened by this committee in 1906 on an old ferryboat loaned by the Department of Docks and Ferries. The use of the boat proved so successful that other boats have been pressed into service. With the exception of the Vanderbilt Clinic Day Camp, which is held on the roof of their building, all of the day camps in New York city are conducted on ferryboats. These camps are operated both summer and winter, with best results in winter per-

haps because the camps are then used for special outdoor classes for tuberculous children excluded from the public schools. Were it not for the use of these boats I do not know what would become of the poor children who cannot attend school on account of having open tuberculosis. The Camp at Bellevue Hospital has supported two fresh air classes for a number of years and I understand that the boat used by the Health Department is to have three fresh air classes this year.

The result of treatment on the boats, especially in children, compares very favorably with the results obtained by our best sanatoria, and the cost is a great deal less. In some quarters, New York for example, we are shut up almost exclusively to the use of boats for institutions of this type, and anything that can be done to increase the facility of establishing day camps and hospital sanatoria, particularly where children may receive treatment, ought to receive the endorsement of everybody interested in public health and hygiene.

From conversations and correspondence with men qualified to know something about the subject, including our acting secretary of the navy, I learn that some objections have been raised because of the perhaps considerable cost which the transformation of a discarded battleship into a floating sanatorium or open air school might involve. To these critics I should like to reply that the cost of such alterations would not possibly compare with the purchasing of a site in the vicinity of a city and the erection of an expensive building. Last but not least, one of the greatest hindrances in our endeavors to provide sufficient institutional treatment—the prejudice of neighboring districts to the establishment of tuberculosis institutions of any kind, unfortunately still so prevalent—is by the utilization of boats floating in rivers or moored in the harbor, entirely removed.

In justice to those States which by reason of their location can not make use of discarded battleships, I suggest that a nominal sum should be paid for these vessels by the States desiring them and the money proportionately turned over to inland States for the establishment and equipment of open air schools, preventoria, sanatoria, or hospitals for consumptives. By such a policy the greatest possible good for the greatest number of American citizens afflicted with tuberculosis will be attained. As for my own community, New York city, I have not the slightest doubt that our charity associations as well as our many philanthropists would only be too glad to purchase a discarded battleship, transform it into a sanatorium, preventorium, or open air school, and equip it so as to make it an important factor in the antituberculosis campaign in our city.

We have enough discarded battleships and cruisers to make use of them in a goodly number of States not only as sanatoria and preventoria for tuberculous adults and children, but also to have a number of them utilized as open air schools, not only to prevent and cure tuberculosis, but to make the weak strong by means of open air life during school sessions. Therefore, I beg leave to offer the following resolutions:

WHEREAS, Nearly a million tuberculous children, or children strongly predisposed to tuberculosis, are attending our public schools, and there is hardly accommodation for 1,500 to receive instruction in the open air; and

WHEREAS, The congress is convinced that the open air school is one of the most powerful agents in the prevention and cure of tuberculosis in childhood, and it has been furthermore demonstrated that nearly all climatic conditions, providing the air is dustfree, lend themselves to the

prevention of tuberculosis in the predisposed and the cure of the afflicted; and

WHEREAS, Statistics show that there are not nearly enough hospital and sanatorium accommodations for adults and children afflicted with pulmonary tuberculosis or children suffering with tuberculous joint or bone diseases; and

WHEREAS, It has been demonstrated in New York and other cities that discarded vessels lend themselves admirably to transformation into all year around hospitals and sanatoria for consumptive adults, sanatoria for children afflicted with joint and other types of tuberculosis, and into open air schools for tuberculous, anemic, and nervous children;

*Resolved*, That the Fourth International Congress on School Hygiene petitions the United States government to place at the disposal of the various States of the Union as many of the discarded battleships and cruisers as possible to be anchored according to their size in rivers, or at the seashore, and to be utilized by the respective communities for open air schools, preventoria, sanatorium schools for children, or hospital sanatoria for adults. Be it further

*Resolved*, That the congress expresses its appreciation to the Italian government of the example it has given by consecrating three of its discarded men of war to the combat of tuberculosis. Be it further

*Resolved*, That this congress expresses the sincere wish that other governments may follow the example of Italy; and be it finally

*Resolved*, That copies of these resolutions be presented to the American and other governments represented at this congress.

16 WEST NINETY-FIFTH STREET.

## THE RELATIVE VALUE OF TURTLE TUBERCULIN IN THE TREATMENT OF TUBERCULOSIS.

By WILLIAM J. BEATTIE, M. D.,

Littleton, N. H.,

Formerly Assistant to Professor Piorkowski in Berlin.

AND EDWARD E. MYERS, M. D.,

New York,

Assistant Laryngologist and Rhinologist to Outpatient Department, New York Polyclinic School and Hospital; and Assistant Laryngologist to the Vanderbilt Clinic, Columbia University.

The history of medicine is accentuated by progress. In glancing over its pages the student is astonished at the rapid strides and wonderful discoveries made to alleviate human suffering. New operations, improved surgical technic, and new therapeutic remedies have been the means of giving suffering humanity new leases on life. One of the most notable discoveries in the history of medicine was the introduction of vaccine against smallpox. Other wonderful lifesaving discoveries have been made by Lister, O'Dwyer, Morton, Long, Ehrlich, von Behring, Koch, von Ruck, and others.

Progress along all lines of medical endeavor, as well as all epoch making discoveries in the field of medicine for the relief of diseased humanity, have been hindered by the ultraconservatism of the medical profession. The discovery of vaccination was pooh poohed by the London profession, who bitterly attacked Jenner, the discoverer, and when compelled, acknowledged its lifesaving virtues with profound professional skepticism. All new methods and measures—all new drugs and discoveries ought to, and should hold the attention, and command the cooperation of every thoughtful, earnest, honest physician, who must forsake his ultraconservatism and pay due homage to the newer discoveries, espe-

cially specific serum and vaccine therapy, which while only in its embryonic stage, as it were, have contributed to the amelioration of the ills of mankind.

The treatment of individual diseases with medicines, or by methods having a selective curative action, has until recent years been limited. With the establishment of the germ therapy of certain diseases and the development of information concerning immunity, new methods of specific treatment have been made possible, and are now practised under the terms serum and vaccine therapy. Its development has been slow, the methods have undergone revision from time to time, and in some cases results have been disappointing. Because of this much confusion has arisen concerning serum and vaccine therapy.

To Robert Koch belongs the honor of giving to the world tuberculin twenty-three years ago. This was the first great advance in the diagnosis of tuberculosis. Prior to this the disease was generally recognized as a fatal malady; it was not diagnosed until the symptoms were marked and then death was required to substantiate the diagnosis. Koch has been blamed for many things for which he was not responsible. He was utterly helpless in controlling the early administration of his tuberculin or in having it administered in strict accordance with his ideas, but it is an indisputable fact that he had a grasp of this new subject which was truly marvelous. It must be remembered that nothing like tuberculin had ever been produced before. He was tilling virgin soil with nothing as a precedent to guide him, except his own broad comprehension of scientific principles, especially those of bacteriology. That he did not understand fully the action of tuberculin is not to be wondered at, and his errors of doses should not be held against him. Had he been able to transfer his grasp upon the subject, in all its details, to clinicians who followed in his wake, no doubt the early disaster of its being vaunted as a long looked for specific would have been avoided. His discovery of the differences in the action of this remedy on the healthy and tuberculous, has proved to be one of the most important discoveries in the modern study of tuberculosis. It has given us the tuberculin test, which not only makes possible an early diagnosis of the presence of tuberculosis, but also has given us a more thorough understanding of the nature of the disease and the essentials of its prevention, as well as, led to its specific treatment. His descriptions of the symptoms of reaction are accurate and complete.

The tuberculin treatment, sternly rejected after its unsuccessful introduction by Koch, has again become extremely popular. A voluminous literature has sprung up, and until recently there was much uncertainty as to its real therapeutic value, but recent developments in biology and bacteriology by von Behring, Bordet, Wright, Wassermann, von Ruck, Calmette, and Piorkowski have cleared away the mists of uncertainty sufficiently, to permit us to take our bearings for a practical course. During the past decade the use of tuberculin as a diagnostic and curative agent has received considerable atten-

tion. The new methods of application in diagnosis, brought out by earnest investigators, have stimulated a desire on the part of the profession to determine their value, and recent changes in their attitude, toward important questions bearing upon immunity, have provoked extensive researches, undertaken to make clear its mode of action.

The most earnest investigator along these lines, in our own country is Dr. Karl von Ruck, a learned scientist, of Asheville, N. C., who for the past twenty years has devoted his time and energies to the clinical, biological, and bacteriological study of vaccine therapy. He has administered human tuberculin in many thousands of cases and summing up the subject says: "Products derived from human tubercle bacilli, in the form of tuberculins and emulsions of their bodies, have been in the hands of the profession for more than twenty years, and in hundreds of thousands of cases of tuberculosis they have been employed with more or less success, and not infrequently with failures, while occasional detrimental effects have been ascribed to their action."

Von Ruck referring to Dr. Franz F. Friedmann's claim of the superior value of living tubercle bacilli in the treatment of tuberculosis, and his spectacular advertising propaganda in the daily press, says: "Inasmuch as living tubercle bacilli of the human type have been found in vaccinated cattle, both in their flesh and in their milk, as long as three years after their intravenous injection, the objection to the use of the living tubercle bacilli as an antigen, or vaccine, for prophylactic purposes in the human subject is well founded." A more formidable objection is, however, the danger of virulence. That this can recur in the case of tubercle bacilli, the same as of other pathogenic bacteria, is a well known pathological fact.

Max Piorkowski, working along the lines of Koch's discovery, isolated a living antigen in the form of tubercle bacilli recovered from a turtle, as far back as 1903, without in any manner questioning their nonvirulence. Since that time he has continued his researches on this subject in his well appointed biological and bacteriological laboratories in Berlin, and has at last succeeded in perfecting a tuberculin, produced from the tubercle bacilli of a cold blooded animal—a certain species of turtle—which is nonvirulent, and with which he has successfully experimented in hundreds of cases during the past two years at his laboratory in Berlin. It was from Piorkowski's laboratories that Dr. Franz F. Friedmann learned of the former's work of isolating a living antigen from the tubercle bacilli recovered from turtle serum, and it was these living turtle tubercle bacilli which Friedmann used, thinking he had Piorkowski's nonvirulent turtle tuberculin. In this he was mistaken. In the light of the present it remains for Friedmann to show "that his particular culture is permanently avirulent for the human subject, which he has not done, and which he is unable to do, because he has the living antigen in the form of tubercle bacilli from turtle serum." (von Ruck—*Journal of the American Medical Association*, 1913.)

Piorkowski, in a lecture delivered at the Royal

Hospital for the Diseases of the Chest, London, England, on April 1, 1913,<sup>1</sup> on referring to his turtle tuberculin, says: "We must differentiate between mammals which produce their offspring alive, the class to which human beings and oxen belong, and birds, i. e., that is, animals which lay eggs; and, thirdly, reptiles, which possess horny or long integument and also lay eggs. Lizards, crocodiles, and turtles belong to that last class. Finally, we have to think of fish which breathe, as long as they are young, through gills or by their lungs, and also lay eggs. We thus see very clearly that resemblances are to be found only among lung breathing animals, and it is for this reason, probably, that the results described are obtained on the injection of tubercle bacilli of similar kind. It became very evident that turtles were especially adapted for our purpose."

He further states that in 1901 two large turtles were brought to his laboratory which had become spontaneously tuberculous, their lungs containing a large number of tuberculous nodules from which he made pure cultures on suitable nutrient media. His experiments with turtles extended over many months, and he finally concluded that he was dealing with a special strain of bacillus which, when developed on a specially prepared nutrient medium, exhibited the symptoms of tuberculosis. In further describing his work along this line he says: "It is very noteworthy that the turtle tubercle bacillus in its further behavior, both culturally and morphologically, displayed an extraordinary resemblance to the human tubercle bacillus. Its growth at 37° F. is remarkably characteristic. The main point about this strain is that it can be used without the risk of any manifestations—a circumstance which may be ascribed to the fact that for the last ten years it has been reinoculated afresh daily, and thus has acquired generally an extraordinary innocuousness, becoming both avirulent and atoxic."

He explains the differentiation of the various tubercle bacilli by citing Knoll's modification of Unch's method, which consists of a double stain by means of fuchsin, methyl violet, and resorcin, and concludes "this method reveals long slender structures with regular nuclei in human tubercle bacilli, but in this variety the nuclei are often seen to be irregularly divided and of a variable size. In avian tubercle bacilli, they are somewhat shorter, and in turtle bacilli they are very small—almost like dots. In my opinion the extraordinary resemblance of the various tubercle bacilli is to be attributed to the zoological grouping, and such resemblances only occur in lung breathing animals."

The method of working with living bacilli is by no means new to pathologists. Piorkowski and von Ruck both used this same principle years ago, and von Behring used it in his experiments when attempting the extermination of bovine tuberculosis. He used human tubercle bacilli, which are atoxic to cattle, with good results. Reasoning on this analogy, Piorkowski believes the use of turtle tuberculin in human beings, as a curative and immunizing agent, is quite rational. He explains its biological action very satisfactorily by citing Ehrlich's side chain theory of immunity. According

<sup>1</sup>British Journal of Tuberculosis, July, 1913.



to this theory every living cell consists of a dominating nucleolus and of side chains, or receptors. The side chains or receptors of a cell are of many different kinds, and, usually serve to anchor food-stuffs. When nutrition reaches the cells by this method—through the receptors—a most remarkable biological phenomenon occurs, according to Piorowski, in the following way: "The portion of the cell which has absorbed the nutriment breaks away from the rest, becomes metabolized, and a new receptor is developed in the original cell; but not merely one receptor—an actual outgrowth of receptors takes place (Weigert's law of overcompensation). The new receptors having been charged with nutritive material, break away, and carry the nutriment to different parts of the organism, thus effecting nutrition." This theory not only accounts for the method of nutrition, but it also explains how toxic action occurs; because cells not only possess receptors for food molecules, but also for other substances, and these receptors are as numerous as they are varied. Some of them take up particles of nutriment, others take up poisons and absorb ferments, while others are the products of bacterial fermentation or similar processes.

It will be understood that the principal function of all receptors and side chains is to provide for the nutrition and metabolism of the cells. Receptors, and hence immune bodies, however, are not of the same general structure. In order to explain the different functions and actions of different immune bodies, Ehrlich assumes that the receptors may be of simple constitution and structure or they may be complex. Any cell of the body may have large numbers of the same and different kinds of receptors, which he divides into three orders:

*Receptors of the first order* are of relatively simple constitution and structure and combine with substances that are easily and readily anchored, such as bacterial toxins. The receptor here consists of only one haptophore or combining group, which combines directly with the haptophore group of the bacterial toxine. This order of receptors and immune bodies represents the type of receptor on which is based the action of bacterial toxine and the formation of antitoxine.

*Receptors of the second order* are distinguished from those of the first by the fact that the receptors here have in addition to the haptophore group a zymophore group, which latter group acts on the larger food particles, making them more readily and easily assimilable. In a similar manner it also acts on the bacterial cells. Schorer<sup>2</sup> teaches that "receptors of this kind, possessing both haptophore and zymophore groups, are broken off from the cells and circulate in the blood as agglutinins and precipitins after immunization by the injection of certain bacteria. The haptophore group of the immune body in an agglutinating or precipitating serum combines with the bacterial cells. The zymophore group, however, does not combine with anything, but exerts its influences entirely through the haptophore group. The zymophore group is destroyed by age, acids, heating to 65° C., etc."

*Receptors of the third order* are likewise adapted

to the anchorage of bacteria. "These receptors, however, have two combining groups: one for the anchorage of cells for the reception of nutrition and the other for the anchorage of substances which, acting through the receptors, can produce a fermentlike action. This latter substance is called an activating substance, which is present in normal sera and is known either as complement or alexin."

Schorer commenting on Ehrlich's side chain theory of immunity avers: "When receptors of this order are anchored by bacteria in numbers not sufficient to kill the cell, but to stimulate it to overproduction of receptors, the extra receptors are thrown off. The receptors thrown off constitute the immune body, amboceptor, or *substance sensibilatrice* of Bordet. They have two combining or haptophore groups, one for the combination with bacterial or other cells and substances, called the "cytophilic" group; the other for combination with alexin or complement, called the "complementophore" group. It is by means of complement, that the amboceptor is able to dissolve bacteria, red blood cells, and other substances. Immune sera containing receptors of the third order are, bacteriolytic, hemolytic, or cystolytic, depending upon whether they, together with complement, can dissolve bacteria, red blood cells, or other cells."

It is enunciated by Ehrlich's side chain theory that receptors of the first, second, and third orders can be produced in excess to form immune bodies or antibodies. "Specific immune bodies are produced from a variety of substances, toxins, bacterial cells, red blood corpuscles, ferments, etc. On account of the multiplicity of substances which the cells may use to produce antibodies, antibodies may be antitoxic, agglutinating, precipitating, lytic, etc." Schorer believes that in order to produce agglutination, precipitation, or lysis it is necessary that a fermentlike substance be a part of, or able to combine with, the immune body. This fermentlike substance, as stated before, is labile and lost through age, heat, etc. When this is lost the serum containing the immune body is said to be inactive. Piorowski, in explaining Ehrlich's side chain theory, says:

Let us, for example, consider a toxic action a little more closely. When a poison enters the body, e.g., tubercle toxine, the first point concerns the existence of receptors which can take up the tuberculous poison. If these do not exist, no infection by tubercle bacilli can occur, for the organism possesses congenital immunity toward the action of these bacilli. But if there be some arrangement for receiving them, and appropriate receptors for the tubercle bacilli exist, these take up the poison, and if absorbed in sufficient quantity, a general toxemia ensues, which may lead to the destruction of the organism. If, however, the receptors have the opportunity of loading themselves with the poison, and if they drop off the cell after they have become useless and harmless, then an excessive production of these receptors occurs, as stated previously. A constant succession of new receptors become formed; but if there is not room enough on one cell for the attachment of so many receptors, and the result is that the newly formed elements become discharged into the serum before they have been able to take up any of the toxic material, the receptors thus discharged come into contact with poison in regions far distant from the site of the sensitive cells, and are there seized upon, whereby a ventilization of the poison takes place and it is rendered injurious. In this manner an acquired specific

<sup>2</sup> *Vaccine and Serum Therapy*, 1909, St. Louis.

immunity is developed, and the newly formed bodies are termed "antitoxines."

The harmless turtle tuberculous toxine combines with the receptors, and the combination is thrown off into the blood as antitoxine. Now, receptors are formed in large quantity, but they are capable of seizing not only the turtle tubercle bacilli, with which they have been hitherto dealing, but also human bacilli, and thus render them harmless. If there is a profuse formation of new receptors, and if the human tubercle bacilli have increased unduly, complete recovery may be effected. The rationale of the cure is along these lines. There is also the additional advantage that turtle tubercle bacilli are innocuous and harmless, and therefore this method is especially well adapted for protective inoculation. But even if the body is already affected with tuberculosis the disease can be suppressed, because its course is so protracted.

The process is very much the same as that of Jenner's vaccination against smallpox, except that in the latter case the agent is calf lymph, whereas here it is the turtle tubercle bacillus. All the endeavors in the therapeutics of tuberculosis based upon Koch's work, which consist of injections of living tubercle bacilli or the virus, attain a certain result, but, if accurately judged, fail to reach their ultimate aim. In order to attain this end it is necessary that the antigen which is to invoke the protective and curative powers of the body should be alive, but deprived of the poisonous properties—avirulent and atoxic. It is, further, necessary that the tubercle bacillus which is concerned in this matter should be treated as carefully as possible, and should be both active and specific. To a very considerable extent these desiderata have been arrived at in my laboratories.

Recent investigations with turtle tuberculin, in Piorkowski's laboratory, made by Dr. W. J. Beattie, of Littleton, New Hampshire, have shown that tubercle bacilli, when grown in the blood serum of turtles (cold blooded animals), change quite distinctively its bacteriological characteristics, particularly in lessening its virulence and at the same time increasing its power to form antibodies in the blood of tuberculous patients. This turtle tuberculin acts as a direct stimulant to the antibodies of tuberculosis exerting far greater beneficial effects than human tuberculin, even when the latter is given in the most carefully guarded and graded doses. Furthermore, turtle tuberculin produces only a very slight reaction, besides it possesses far greater immunizing properties than does human tuberculin with none of the latter's untoward effects.

Turtle tuberculin is a clear port wine, reddish, brown liquid containing the products of the tubercle bacillus of a certain species of turtle.

**Dose.**—Piorkowski's turtle tuberculin is prepared like Koch's; but no temperature higher than 35° C. *in vacuo* is employed in its preparation. Piorkowski lays down the following directions for estimating the dose: "The administration should be intramuscular, but it may also be given subcutaneously, or intravenously. The turtle tuberculin in doses of 0.1, 0.3, and 1.0 c. c., according to the stage of the disease and the temperature—in other words, according to the clinical condition. It is best to begin with 1.0 c. c. of the tuberculin, after another eight days repeating the latter injection at frequent (weekly) intervals. Numerous experiments on animals and the treatment of a large number of cases have confirmed the absence of any toxic effects. Owing to the careful methods of preparation of this remedy, there have hitherto been no instances of induration or abscess; there have only been slight infiltrations which subsided very satisfactorily. The most striking clinical results have

been the rapid subsidence of fever, night sweats, pain in the chest, and other pains. Very soon there is an increase in weight, appetite returns, and the feeling of fatigue disappears."

By repeated injections, personally made by Doctor Myers in fifty odd cases and observation on about one hundred and twenty-five patients injected by Doctor Beattie, the smallest immunizing dose was one minim of turtle tuberculin administered in sixteen minims of normal salt solution. The interval between doses depends upon the recurrence or exacerbation of the original symptoms; it is usually about seven days. Very slight reactions such as a rise of temperature to 100° F., and more or less languor for about twenty-four hours following the injection, are the only reactions which occur even with a maximum dose. These slight reactions are desirable because all study of tuberculin therapy shows that a slight reaction is the indication of the reactive process produced about the lesion.

**Site of injection.**—The best site for the injection of turtle tuberculin is in the fold of the gluteal region between the gluteus maximus and minimus muscles which location will facilitate its rapid absorption.

**Contraindications.**—Advanced types of pulmonary tuberculosis, and moribund cases of all types do not hold out the encouraging possibilities for cure that the first and second stages do.

**Choice of patients.**—The most suitable cases are the incipient pulmonary, glandular, laryngeal, and joint cases.

#### Local reaction.

**Human Tuberculin.**  
Redness and infiltration begin in area of injection in from four to eight hours. No thickening of skin. Area of infiltration usually very tender. Abscess sometimes follows injection. Adjacent lymph glands swollen.

**Turtle Tuberculin.**  
Redness and infiltration begin in area of injection in twelve hours. Slight elevation and thickening of skin. Area of infiltration not tender. No abscess follows at point where needle pierces skin. Lymph glands not swollen.

**Comparisons between human and turtle tuberculin.**

**Human Tuberculin.**  
Doses smaller.  
Effect slower.  
Reaction marked.  
Length of treatment prolonged.

**Turtle Tuberculin.**  
Dose greater.  
Effect more rapid.  
Reaction slight.  
Length of treatment short.

**Comparisons between hygienic treatment and turtle tuberculin.**

**Hygienic.**  
Not always feasible.  
Treatment prolonged.  
Necessitating interference with daily avocation.  
Results not always satisfactory.  
Recurrence frequent.

**Turtle Tuberculin.**  
Always feasible.  
Treatment shortened.  
Does not interfere with daily avocation.  
Results very encouraging.  
Recurrence improbable.

**Constitutional effects.**—About twelve hours after the injection the patient experiences a feeling of lassitude and languor, the temperature rises from 99° to 100° F.; the appetite diminishes, but at the end of twenty-four hours the patient feels as well as before the injection.

**Effects in glandular cases.**—The most striking

beneficial effects of turtle tuberculin is observed in glandular tuberculosis or scrofula. Improvement is noticed after three weekly injections have been made. The glands gradually become smaller and, where there is a discharging sinus, the secretion progressively diminishes, the opening becomes smaller and the sinus finally closes up, and the temperature gradually returns to normal. The patient gains in weight, his appetite improves, and a feeling of buoyancy replaces that of languor and lassitude.

**Effects on joint tuberculosis.**—After about four weeks there is a noticeable diminution of the swelling about the joints, the pain is diminished or disappears, and the amount of motion is increased from five to ten degrees. The patient gains in weight; the temperature declines; the appetite improves; and the patient notices a feeling of buoyancy and strength, and follows usual avocation without unusual fatigue.

**Effects on pulmonary tuberculosis.**—About six weeks after beginning treatment the patient's general condition improves. His cough becomes less, and his sputum diminishes and becomes more mucoid in character. The pains in the chest disappear; the night sweats become lessened and gradually disappear.

**Objective signs.** If a patient has a localized bronchitis the signs in the lungs gradually become changed, and the râles gradually disappear. Where the patient has an area of consolidation, the area is occasionally noticed about the end of the eighth week.

**Effects on laryngeal tuberculosis.**—In laryngeal tuberculosis the ulcerations slowly but progressively diminish and soon heal. The infiltrations become lessened, the mucous membrane assumes its normal color, and the pain on swallowing and hoarseness become markedly diminished and entirely disappear at the end of (about) eight weeks.

**Duration of treatment.**—The treatment is usually continued until all objective and subjective symptoms disappear, which is generally in from six to nine months. The duration of the course varies with the stage of the disease and the type of the case. Glandular and joint cases usually respond in six months.

That the effects produced are due to the direct action of the tuberculin and not to any mental suggestion have been proved by the beneficial results obtained in children too young to be influenced by mental suggestion.

To prove that turtle tuberculin is the cause of the beneficial effects produced, patients treated can be shown where pleasing results have been obtained in cases in which other methods of treatment have completely failed.

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## HYGIENE OF THE SKIN.\*

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The structures composing the skin consist of several forms of tissues arranged in a complex manner to fulfill the physiological actions pertaining to this part of the human body. The skin is not only a protection against external injurious conditions, but it has functions to perform in the life activities of the organism as a whole, exercising the following ones: Protection to subjacent tissues, heat regulation, tactile and thermal sensation, respiration, secretion, and elimination. It has its anatomy, its physiology, its pathology, its different characters in different races, and its peculiarities in different men, women, and children, and it varies in thickness, color, quality and sensibility. It has its epithelium, with its special developments, the hair and nails; it has its bloodvessels, its lymphatics, its nerves of various kinds, and its connective tissue.

Since the hygiene of the skin consists in keeping the structures in a normal condition of nutrition, in order that their physiological functions may be performed in a proper manner, it will be necessary first to state briefly the anatomical structure of the skin; then to consider the conditions of the general system that contribute to the normal activity of this part of the body, and those that interfere with its normal structure and physiological action; and, lastly, to mention the various kinds of external agents that can act injuriously, their method of action, and the best means of protection against them. The latter will receive some attention, as it is assumed that most interest is attached to the hygiene of the skin in reference to external measures, such as the use of powders, soaps, ointments, baths, etc.

For a more direct comprehension of the skin, we must first examine into its anatomical characteristics. The skin is divided into two layers, the epidermis proper or external layer, and the cutis, or so called true skin, lying beneath. Both layers are further subdivided—the epidermis into four; corneous layer, stratum lucidum, granular layer, and rete mucosum; the cutis into three—papillary layer, corium, and subcutaneous layer. The corneous layer of the epidermis is composed of so called horny cells, which undergo a peculiar transformation in their chemical structure in passing from the lower layers to the free surface of the body. They may be regarded as

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cells undergoing degeneration, or, rather, a process of death—to be finally cast off when they reach the surface. This casting off, or separation from the body, is a continuous process, varying in degree under different conditions. From the character and arrangement of the cells, it acts as a protection, forming a firm, closely attached cell membrane. As it is free of bloodvessels and lymph channels, it protects the body, when in a normal condition, against the invasion of many pathogenic or disease producing organisms. It is only when from some cause, such as an injury producing a break in this tissue, a cut with a sharp instrument, or an abrasion from scratching, etc., that the deeper tissues are reached, and disease processes thus started. It is on account of such breaks in the epidermis, in the form of cracks or raw surfaces, that so many physicians, for instance, become infected by a serious blood disease in the treatment of patients in whom the disease microbe exists. It is known that such a disease cannot be contracted when the epidermis is absolutely intact. This knowledge is utilized in the operation for vaccination; the corneous layer is injured or partly removed in order that the vaccine may reach the deeper living tissue, for instance, the rete, from whence the microbes can pass into the system and produce the disease vaccinia, which protects against smallpox. The importance of all this shows the necessity of keeping the corneous layer in a normal condition. The thickness of this layer varies in different parts of the body, being thickest on the palms of the hands and the soles of the feet, where it also acts specially against mechanical injury to the deeper tissues, as in walking and in many kinds of handwork. The shafts of the hair and the nails are almost entirely composed of these horny cells.

The next two layers, the stratum lucidum and the granular layer, representing stages of transition from the rete to the corneous layer, need on this occasion no special description, although in many disease conditions they are subject to variations in character, especially the granular layer. For instance, in warts it is increased in thickness. The next layer, the rete mucosum (lower layer of the epidermis) is composed of living cells, united to each other by so called spines between the cells with intercellular spaces, through which nourishment is furnished from the underlying tissues. Owing to the character of this structure, substances can be absorbed from without, whether applied in the form of ointment, powders, or solutions. The lowest layer of cells is called the germinal layer, because all the other cells of the entire epidermis are formed from it, and the majority of cutaneous cancers arise from these rete cells. It is the rete layer that is especially affected in many of the inflammatory affections of the skin, such as eczema. It is in the lower layers of the cells of the rete that the pigment is contained, the color and quantity of which influence the color of the skin. This pigmentation is very marked in the colored races as compared with the white races. In certain instances it becomes so excessive in amount as to constitute a condition which has been classified as a disease, namely, that so frequently observed as brownish patches on the faces of women. These are incorrectly called by

the laity, liver spots. This increased pigmentation may be considered as the result of an abnormal condition in the system, probably the genital system, and not from the liver. From the deep seated location of these pigmented cells, the uselessness of attempting the removal of this condition by external applications is evident, although beauty specialists advertise their secret methods as being able to accomplish this impossible feat.

The structures just described are composed of epithelial cells, the kind of structure that forms all the secreting organs of the body and lines all mucous membranes—that of the respiratory channel from the nasal openings to the air cells of the lungs, and of the digestive tract from the lips to the end of the intestinal canal. In the skin there are specially changed and arranged epithelial cells to form secreting structures called glands, with special physiological functions to perform, such as the hair follicles, the sebaceous or oil producing glands, and the sweat glands. As a normal condition of these glands plays a part in the maintenance of the health of the body in general, and of the epidermis in particular, especially of the corneous layer, I shall briefly consider their functions, and how they may be preserved, or interfered with to the injury of the skin, thus taking part in the causation of some of the most frequent diseases of the skin. A sebaceous gland consists of the secreting portion of the gland proper and the duct, containing the sebum, an oily substance which oils the hair and to some extent the corneous layer of the skin. If the functions of these glands are impaired, the result is a dry and scaly skin, or it is covered with a greasy liquid, which may lead to loss of hair. An example of interference with the normal action of the sebaceous glands is afforded when there is an excessive production of sebaceous gland cells, whether caused by microbes or not, or when there is an obstruction to the passage of the oily material to the free surface resulting in the formation of a plug, the so called fleshworm. It is this plug which forms the habitat for the organisms or the microbes concerned in the production of acne, or, as it is usually termed, pimples, seen on the faces of young persons. The maintenance of the glands in a normal condition by suitable local hygienic measures is the best means for the prevention of this condition.

The sweat glands are situated deep in the corium and subcutaneous tissue, having tubes twisted upon themselves in the shape of a coil and long excretory ducts which open upon the surface of the skin, and it is these microscopic mouths that are ordinarily called pores of the skin. The object of the sweat secretion is the regulation of the body temperature by the elimination of water. This cutaneous respiration plays an important part in the purity of the blood. The odor of perspiration varies with the race and with the individual, and in different parts of the same person. Decomposition of fat into the fatty acids is the usual cause of the odor perceptible in many persons, and is most marked in those parts of the body where there is a large amount of fat secreted, as in the arm pits. In the disorder of the sweat glands known as bromidrosis the sweat has a markedly offensive odor.

The hair has its origin in the hair papillæ, situated at the bottom of the hair follicles, and these papillæ are found at different depths of the skin in different parts of the body; being deepest where the hairs are most developed. The hair of the human subject is not shed at definite periods, as in many of the lower animals, but there is a constant falling of the hair and a replacement by new hairs. Sometimes a large number of hairs fall out within a short period, leaving persons to believe that they are about to lose their hair, but, unless this is associated with some local or general disease, they may be assured that new hair will take the place of the lost hair. The growing gray may be either premature or a normal physiological process. Some instances of premature grayness depend upon heredity, in which case it may be considered a physiological process and beyond treatment. Other cases may follow some of the infectious diseases, as typhoid fever, or may result from neuralgia or psychic shocks. The physiological senile grayness admits of no treatment beyond that of general hygiene of the skin. The view that hair can become white in a single night, whether from sudden fears or otherwise, has lately been questioned by some writers. The prevention of the falling out of the hair in consequence of conditions such as dandruff, the most frequent cause of premature baldness, depends upon the success of measures for the prevention of the causative condition. If the changes in the skin in cases of dandruff have extended below the neck of the hair follicle, a restoration to a normal growth may be considered as beyond our present measures of treatment. All preparations advertised or recommended to produce a normal growth of hair in cases of baldness, secondary to a long standing dandruff, are absolutely worthless. A cranium which has only very small fine hairs, few in number, irregularly distributed, and associated with a shining surface, is beyond the stage for successful treatment. Where the hair falls out originally in roundish spots without signs of inflammation or scaling, even though the whole scalp be affected later, it can, as a rule, be quickly cured by active and correct treatment, which should be directed by an expert physician. Hygiene of the skin has nothing to do with this form of disease. Dyeing of the hair, when the application is confined to the hair shaft, does not injure the skin, but some hair dyes, if applied to the scalp, may produce a severe inflammation of the skin in some persons. In such cases some preparation of different chemical constitution should be employed. The fault in these cases is not necessarily with the character of the dye, but lies rather in the susceptibility of the individual, and is certainly not a just claim for damages from a hairdresser.

Hypertrichosis, or hirsuties, which is an abnormal growth of hair upon any part of the body, is a condition for which treatment is frequently requested. When this increase is situated upon the face, for instance, sufficiently to cause a marked deformity, the hairs, if not too numerous, may be removed by electrolysis or other means. The use of depilatories has a tendency in time to stimulate the growth, on account of the irritation resulting from the application causing increased blood supply to the part. It is probable that the growth of hair

sometimes observed after the use of cosmetics of an oily nature, as cold cream, hydrous wool fat, or petrolatum preparations, is due more to the increased blood supply brought to the parts from the application than from the supplying of any special food substance to the hair directly. In any case, it is not advisable to make use of these preparations on the skin if avoidable. In those unusual cases where there is a marked increase in the growth of the hair on the face or some other part of the body during pregnancy, the hair after parturition has a tendency after a time to return to its normal condition. The growth, no doubt, depends upon some substance, a hormon, possibly present in the system at that period. The frequency in the washing of the hair depends largely upon the condition of the scalp—in other words, it is merely a question of cleanliness. No soap should be used that injures the scalp. As a rule, a good castile soap, with or without the yolk of an egg, is a suitable application for a shampoo. A thorough brushing in a scalp somewhat anemic may promote the growth of the hair by stimulation of the scalp, but otherwise has no effect upon the hair.

The corium, or cutis proper, derma, or true skin, consists of connective tissue, muscle, nerves, blood-vessels, and lymphatics. The fat connective tissue lies in the deepest layer and gives to the body its appearance of roundness or plumpness when plentiful, and its disappearance in wasting diseases or senile changes produces the wrinkled or flaccid character of the skin. The nutrition of the epidermis is through the vascular supply of the corium, which is under the influence of the nervous system—hence the value of a normal condition of the nervous system regulating the blood supply that should be rich and pure.

Due consideration should be given to various habits of life: to proper foods, clothing, cleanliness, light, and exercise. The condition of the skin is influenced by diet, an improper one causing digestive disturbances which result in a toxemia that may produce a flushing of the face especially, or of other parts of the body, or lead to some form of skin eruption. It will scarcely be necessary to enumerate the various kinds of foods which are indigestible, especially when they are taken at improper or irregular hours, which is the cause directly or indirectly of many diseases of the skin. Alcohol frequently plays an important part as an indirect cause of acne, rosacea, and eczema, for instance; beer may, and often does, cause spots and redness of the face and nose, but a large majority of the cases, occurring as they do in young women, or in middle aged women, many of whom do not touch beer at all, much less brandy or other spirits, have been caused, not by alcohol but by improper foods, especially sugar. The diet should therefore be simple and wholesome, one which produces no indigestion and consequent toxicemic conditions; and where there are individual peculiarities certain articles of food, such as shellfish, strawberries, etc., must be avoided.

The skin in a healthy state cannot be considered an absorptive tissue, as, for instance, it does not, beyond the outer layer, absorb water or watery solutions of any kind. This is also true of alcohol and alcoholic solutions. Any substance which de-

stroys the epidermis or exposes the rete layer can be absorbed, and any substance which when rubbed firmly into the skin and into its pores, causing a separation of tissue elements, can be absorbed. All substances that dissolve in hydrous wool fat, or mix with it, can pass through the epidermis, as nicotine, camphor, etc.; while those substances which are insoluble in lanolin and which also do not dissolve in neutral fats are not absorbed—such as potassium iodide, sodium chloride, arsenic, etc. Fats or oily substances may be passed into the pores if much friction with considerable pressure is used in the process of application to the skin, as some portions may be taken up and carried by the lymph or bloodvessels into the general system. There is in reality no such thing as a skin food in the ordinary use of this term.

Among other important influences operating on the skin in an injurious manner, unless properly regulated, are the extremes of temperature to which we are subjected by the character of the climate we live in, with its very great changes. The influences of climatic conditions and weather changes on the skin, as an organ of secretion and excretion, are marked and of great importance. Increased temperature of the surroundings causes the skin to become red, while there is profuse secretion of sweat. Heat produces directly some diseases of the skin; cold also may act in a similar manner. Care should be exercised in the selection and wearing of clothes. The following requirements are given by Treves: First, a perfect covering for the body; second, maintenance of an equable temperature; third, absence of superlative material or needless weight; fourth, noninterference with any of the functions of the body.

Cleanliness is absolutely essential to the correct performance of the functions of the skin, as dust and cast off epithelial scales must be removed by frequent washings. For the preservation of the skin, particularly where a tendency exists to irritation and tenderness of this structure, one must regulate the use of soap and the bath. By the use of soap the fat on the surface of the skin is emulsified, and with a normal skin no decided stress need be placed upon the kind of soap used, except that it should be of good quality. All soaps are combinations of fatty acids with alkalis. Potash is the alkali used to form soft soap, while soda in combination with fat produces a hard soap. A soap is neutral when the alkali merely balances or is in very slight excess of the fat. Medicated soaps have no special therapeutic value. Where there is sensitiveness of the skin, irritation, or inflammation, it is advisable to use a neutral soap, as the action of a strong soap is like that of caustic. As an example of a non-irritating soap, genuine castile soap may be mentioned. Such a soap, if any, should always be used on a tender and dry skin, as it does not remove too much of the normal fats of the skin: the latter being necessary for a soft and supple epidermis. The object of a bath is to promote cleanliness of the skin and to exercise a tonic influence on the general system. In the so called blackhead, or comedo, condition there is always a thickening of the outer layer of the skin that prevents the passing out of the fatty matter and the excessive number of cells collected. This condition may be improved

by the use of soap and water. One who has a thickened skin, with a comedo condition, should wash the parts daily with soap and water, using friction. The products of decomposition, such as the fats turning into fatty acids, can thus be removed. The softening effect of water on the skin is marked. It is shown in the Turkish bath on persons who do not bathe frequently, when the upper layer of the skin comes off in rolls. This effect of water should be utilized for the prevention of localized thickenings. The daily use of a foot bath for ten minutes, with or without the addition of soap, followed by rubbing to remove the superficial layer, often protects from the formation of corns. The cold bath is valuable in maintaining the normal nutritive condition of the skin. It acts as a tonic measure through the nervous and vascular system. The addition of various mineral substances (such as table or sea salt) are of no benefit regarding the nutrition of the skin, and may do harm by causing irritation. Oily, fatty substances, such as olive oil, hydrous wool fat, petrolatum, cold cream, or glycerin and water, should be used to supply the loss of the natural oil in cases of frequent washings where the excessive amount of fat has been removed by soap and water. Persons having thin skins do not require as frequent washings as those with thick and oily skins. Massage is used with the idea of toning the skin, removing or preventing wrinkles, and for removing fat in cases of double chin, but it is more of a luxury than a benefit, and can be replaced by the ordinary means of cleansing the skin with soap and water and by friction. Steaming of the face, with subsequent washing with soap and water, is of no benefit excepting in so far as it thins the upper corneous layer, possibly making a clearer complexion. Previous inunction of the skin with hydrous wool fat, or with pure white petrolatum, is the simplest way to avoid solar erythema and pigmentation.

#### CONCLUSIONS.

The use of ointments, so called skin foods, and chemical depilatories for cosmetic purposes should be avoided.

The natural complexion resulting from correct diet, regular hours, rest, the use of a neutral soap, and the avoidance of all foods and drinks that cause indigestion and lead to toxemias and disturbance of the nutrition of the skin, is preferable to all artificial ones, and prevents the premature old age condition of the skin.

When the condition of the skin depends upon the abnormal action of some other organ or organs of the body, a competent physician should be consulted.

The alluring advertisements of beauty specialists should be disregarded.

For the normal nutrition of any tissue or organ of the body there must be a normal amount of healthy blood passing through the part, nourishing it in a given unit of time, and the tissue itself must not be acted upon by injurious agents from any direction, within or without. The statements contained in this paper are based upon this fundamental fact, and a due appreciation of its correctness must be the guidance in matters concerning hygiene of the skin.



## INTERNAL CAUSES OF SKIN DISEASES.\*

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If I can, in the space of time allotted to me, impress upon your minds the very important fact that the skin is not only a covering for the body, to protect the other tissues, and for the adornment of both sexes, but that it is also an exceedingly important organ of secretion and excretion—being intimately connected with the life and health of the bearer—I will feel that these few words on the internal causes and the relations of skin diseases have not been without avail.

Physiologically, I have but to mention its importance in the preservation of the normal body temperature, by the myriads of sweat and oil glands and minute bloodvessels with which it is supplied, and not solely by virtue of its use as a simple covering, as we are so apt to think. Also, that as an organ of excretion it rids our bodies depending on the degree of activity required of it of from one half to even more than the amount of waste and poisonous products that are regularly excreted by the kidneys, which of course explains the deaths reported as the result of gilding and varnishing the skin of the entire or greater part of the body, and in a measure also the seriousness of extensive burns of the body surface, though to my mind the toxemia or poisoning resulting from absorption of the destroyed tissues plays an equally important rôle. And, again, that in various constitutional diseases certain regular skin manifestations are present and traceable directly and solely to this internal cause, i. e., the eruptions of the various exanthemata such as measles, scarlet fever, smallpox, etc. the cachexia of cancer, jaundice in diseases of the liver and its ducts, and the various eruptions following the internal administration of certain drugs and the ingestion of various articles of food, such as shellfish, strawberries, tomatoes, etc.

May I here also advocate my belief in a general way in the importance of the consideration of the internal secretions and excretions and the constitutional condition as a whole, as predisposing causes in skin diseases of a distinctly parasitic origin and those precipitated by other external causes, for, by such a consideration can we, in the treatment of this class of skin conditions, often shorten their duration, and even quite quickly and permanently relieve some of those, which have for long periods of time proved rebellious to purely local means of treatment; indeed, the internal inherent resistance against the various microorganisms that are constantly present on our skins saves us from frequent or constant afflictions with pimples, boils, the contagious form of dandruff, barber's itch, the so called parasitic eczemas, and various other skin diseases, to say nothing of the more serious and general infections with tuberculosis, syphilis, and the other blood poisons that so often have their portal of entry in the skin. Given an unhealthy

skin, which usually implies an unhealthy body, and these germs creep in, like the thief in the night, through the smallest crack or cut; but, given a healthy body with a healthy skin, or make that body and skin healthy, and they cannot enter, or in the morning they wither and are cut down. This immunity, natural or acquired, applies to the skin infections in the same way in which it does to diseases of the other organs of our bodies, such as diphtheria, typhoid fever, and the various general infections.

The previous speaker has told you of the external causes of an unhealthy skin—will you let me in a general way recall to you some of the internal causes occurring in our daily lives, of which all of you have so often heard, but equally often most of you, I am afraid, have forgotten to avoid, before I go on to a more specific classification and particularization. Of prime importance I would mention an insufficient intake of water during each twenty-four hours. Women are particularly poor water drinkers, and too often pay the penalty with a chronic constipation, faulty skin elimination, and kidney irritation. Eight glasses of water a day for the average male and from six to seven for the average female is the smallest daily allowance that should normally be considered. The taking of fluids with the meal, whereby a proper mastication is avoided, gastric juices are diluted, and stomach digestion as a result is incomplete, is a frequent cause of skin and body troubles. Overindulgence in eating, with a resulting deficient oxidation in the liver of the excess of foodstuff and an increased elimination of toxic products through the skin, of course, as well as through the kidneys, predisposes to skin irritation and disease. The obesity often resulting, with its accompanying relaxation of the muscles and tissues is so frequently accompanied by acne, eczema, and rosacea that it cannot be disregarded as a predisposing condition. Rapid eating and insufficient mastication, favoring excessive eating and imperfect digestion, is a frequent cause of kidney, liver, and skin diseases, and eating between meals, which ordinarily implies the eating of cooked sweets (in themselves frequent causes of digestive disturbances) requires an excessive amount of work on the part of the digestive apparatus, without suitable periods of rest; resulting in loss of appetite, impaired nutrition, and indigestion, and has a consequent effect on the skin. The lack of fresh air, exercise, sufficient rest, and the other sins of omission, and overwork, worry, abuse, the habitual use of poisons, and the sins of commission that harass our nervous systems are contributing causes, because of the intimate relation between the body and the skin. And finally, tardy and incomplete evacuation of the bowels, the so called constipated habit, is the last contributing stroke, and the pasty yellow skin that signifies this condition you have all frequently recognized. In short, all these general conditions I have enumerated as contributing to disturbances of the skin are exactly the same general conditions that make for ill health in the body at large, and I have come to regard certain toxic skin manifestations of the greatest ultimate benefit to my patients, in that they

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serve as red flags of danger of more serious internal conditions to follow; so that when they will take these warnings to heart they can frequently be restored to good health, and irreparable damage to their livers, kidneys, and other vital organs be avoided. Exactly what the predisposing cause in each particular case is, it is often difficult to determine, but a complete and painstaking examination of the patient subjectively and objectively, of his urine, blood, and spinal fluid, and by inoculations, one can frequently discover excellent suggestion for lines of treatment productive of a most happy result from the patient's point of view, as well as the doctor's.

The internal causes of skin diseases may be classified, if you like, in the following way:

#### I. TOXIC CAUSES.

##### A. Of intestinal origin:

1. Toxic foods and drinks, i. e., shellfish, strawberries, tomatoes, stale foods of any kind, wines, liquors, tea, coffee, and tobacco.

2. Protein toxemias from imperfect digestion of animal foods; individuals often evince an idiosyncrasy for some particular meat, while even milk is toxic for some persons.

3. Carbohydrate intoxication from faulty digestion of sugars, starches, and, particularly, cooked sweets.

4. Intoxication from imperfect fat digestion, such as is frequently seen in babies. There is an old and true adage that a baby who spits up rarely has eczema. Eczema babies do better on a low fat content in their feedings.

B. Of autotoxic origin. About these intoxications we know, I regret to say, comparatively little as yet, but they have to do with disturbances of the internal secretions, i. e., of the thyroid gland, pituitary body, adrenals, spleen, etc., and are disturbances of metabolism.

C. Originating from the toxemias of certain diseases, i. e., the contagious eruptive diseases, diabetes, Addison's disease, etc.

#### II. NEUROTIC CAUSES.

1. Mental overwork, worry (often seen in the circumscribed, patchy eczema on the hands and arms of school teachers).

2. Severe shock, neurasthenia.

3. Reflex, as, for example, the eczema of dentition, which certainly is in part, at least, of neurotic origin.

#### III. CIRCULATORY CAUSES.

From various diseases of the heart and blood-vessels, resulting in more or less severe and constant changes in the circulation of the skin, as in varicose eczema of the legs.

#### IV. ELIMINATIVE AND SECRETIVE CAUSES.

1. Imperfect elimination on the part of the skin itself, with retention of toxic and other products in the skin for a greater or less length of time, and imperfect functioning of its subcutaneous and sweat glands.

2. Deficient kidney elimination, either functional or organic, resulting in extra work being forced on the skin as an organ of excretion.

3. Torpidity, congestion, or disease of the liver, as in the so called gouty and uric acid eczema, whatever that may mean.

#### V. SEXUAL CAUSES.

1. Disturbances of menstruation of whatever origin.

2. Pregnancy.

3. The menopause.

4. Sexual abuse.

#### VI. ANEMIA AND DEBILITY.

Illustrated by the acne of chlorotic girls and the eczema and pruritus of old age.

I will now take up briefly a few of the commoner skin diseases and mention the more important predisposing causes in each particular instance, as determined by competent observers.

*Eczema.* The most frequently observed of all diseases of the skin. Among the internal causes may be included:

Prolonged administration of certain drugs, i. e., arsenic, the bromides, iodides, etc. Also the use of alcohol, tobacco, tea, and coffee.

Excessive eating of meats, particularly fried and salt meats and those of the higher protein content, i. e., liver, sweetbreads, kidney, etc. Individuals often have a susceptibility to untoward effects from some particular meat, and don't let us forget that it is sometimes one of the so called white meats too. A safe rule is never to take meat of any kind more than once a day.

Sweets in excess, and especially cooked sweets, such as pastries, pies, cakes, candies, and sweet desserts. There is a recognized patchy eczema around the mouths of boys and girls with a more or less constant history of excessive candy eating.

Eczema in fat babies (and here is where it usually occurs) can often be permanently relieved only by lowering the fat content in the feedings, or even putting the baby on a fat free milk until a well marked improvement is established. Any article of diet producing gastric or intestinal indigestion, whether from a personal idiosyncrasy or from its method of preparation, as very rich or fried dishes, predisposes to eczema in people whose skins are inclined that way. Overwork and worry are frequent causes, as evidenced by the anal and scrotal eczemas of many of our men of affairs. A chronic congestion in any part of our skins, but particularly that of the extremities, makes us susceptible, as in heart disease, thickening of the arteries, and varicose veins. Constipation, the gouty and uric acid diathesis, diabetes, organic and functional kidney disturbances, torpidity of the liver, and the other metabolic disturbances less well known and depending on the activity of the internal glands are too frequently the cause of an attack or a recurrence of an old eczema. The menopause often marks the first appearance of an eczema, and some women have eczema throughout their pregnancies. The menstrual period is often the time when eczema patients will be most annoyed, and this is particularly true if there are menstrual difficulties present. There is quite a characteristic papular eczema in young children and chlorotic girls which cannot be cured until the general condition

is improved and the anemia relieved. Eczema and pruritus in the very old are exceedingly chronic, and can be relieved only by constitutional treatment, if at all.

*Acne* and *acne rosacea* are two diseases closely allied, in which the predisposing causes play by far the larger rôle. Certain drugs are prone to produce the former when administered internally. Prominent among these are potassium iodide and the bromides, the so called spring tonics and blood purifiers, and the various bromo preparations sold over the drug counter being large contributors. Alcohol, tea, coffee, and tobacco are causative in both acne and rosacea. In a general way gastric indigestion predisposes to rosacea and intestinal indigestion to acne, and the constipated habit is a predisposing cause in both conditions. Circulatory disturbances resulting in a congestion of the skin also favor both conditions; in fact, a congested sluggish circulation with capillary dilatation is itself a part of rosacea, and how frequently do we hear complaints of a cold and clammy skin, particularly of the hands and feet, in persistent acne cases. We all know how prone acne is to appear at puberty, and to flare up at each menstrual period, or be aggravated by sexual abuses. Torpidity of the liver, overeating or improper eating, and imperfect kidney elimination of the suboxidized products of digestion are quite regularly present in acne rosacea. Anemia, debility, and malnutrition, with the resultant relaxation of the tissues, are conditions that often have to be combated before we can make any permanent impression in some acnes.

*Urticaria, toxic erythema, erythema multiforme, purpura, and angioneurotic edema.* These may be grouped together from a causative point of view, and frequently the internal causes are the only ones that can account for them. Among these are:

Certain drugs, i. e., cubebs, copaiba, quinine, belladonna, the coal tars, veronal, and others of the hypnotic group, and, not infrequently to-day, anti-toxines, vaccines, and serums.

Intestinal toxemia from stale articles of food, especially cold storage meats (particularly pork and veal), oysters, fish, crabs, lobsters, nuts, mushrooms, strawberries, and tomatoes.

Intestinal worms in children.

In their more chronic form from proteid and carbohydrate indigestion, these skin conditions frequently cannot be modified until the patients are put on a meat free or starch free diet. What is one man's meat is so often another man's poison, and idiosyncrasy enters so strongly into the causation of these conditions, that they are often hard to control and to prevent from returning. Again, constipation, the gouty and uric acid condition, and the torpidity of the liver that usually go hand in hand with them, together with an imperfect kidney elimination, constitute a symptom complex frequently to be combated. Pregnancy, menstrual disorders, and the menopause favor their chronicity. Many observers go so far as to say that there is always a neurotic element present, and they may be borne out by the sudden appearance of one of these troubles following shock, fright, anger, or grief. These, however, may act only indirectly by

causing a sudden stopping of the digestive process, with fermentation and intoxication resulting. Personally, I believe, from the effect I have seen from adrenalin in urticaria, the disturbances in the adrenals, thyroid, and pituitary body have an important bearing; but in exactly what way, I cannot say.

*Dermatitis herpetiformis, pemphigus, and other bullous eruptions.* These were formerly believed to be of neurotic origin, but various authors of late have ascribed an internal toxemia, probably of intestinal origin, as causative in these diseases.

*Lichen planus.* This seems to occur in neurotic persons, and frequently follows worry, overwork, anxiety, nervous shock, and exhaustion.

*Alopecia areata.* This, as has recently been observed, frequently occurs in individuals with disturbances of vision.

*Herpes zoster, or shingles.* With its severe neuralgic type of pain, this skin lesion is regularly located in the skin over the nerve terminals.

*Folliculitis, boils, and carbuncles.* These have for a long time been considered indicative of a run down state, and the lack of resistance against these infections is certainly of internal origin.

And so might I go on, if time would permit, enumerating internal predisposing and exciting causes of specific skin diseases. Suffice it to say that they do almost invariably exist, and that the successful dermatologist must be a reasonably good internist. Preventive medicine is as applicable in diseases of the skin as it is in diseases of the other organs. If you would preserve your skin, conserve your health by moderation in all things.

38 EAST FORTY-NINTH STREET.

## THE EXTERNAL CAUSES OF SKIN DISEASES.\*

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This, the external causes of skin diseases, is a subject that is associated with considerable interest and importance. It would be possible, under favorable circumstances, to write a long paper, dealing with the question, that would be very instructive and entertaining. For instance, in the case of cutaneous inflammation due to poison ivy, it would be valuable indeed to enter into a description of the various poisonous members of the rhus family, where they are found, how to avoid them and, finally, the symptoms, complications, sequelæ, and treatment of the affections caused by them. That I have limited myself strictly to an enumeration of the external causes of skin diseases, as recognized by dermatologists, and have avoided references to prophylaxis, consequences, description of disease, and hygiene

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and treatment is partly because of the fifteen or twenty minute time limit, and partly because the other essays of the afternoon will elaborate on the questions that I have avoided.

The external causes of the various cutaneous disorders may be divided into two general divisions: First, parasitic; second, nonparasitic. The parasitic can now be subdivided into animal and vegetable.

#### ANIMAL PARASITES.

*Acarus scabiei*. In this country one of the commonest animal parasites is the *acarus scabiei* (itch mite). The female insect burrows under the epidermis looking for a suitable place to deposit her eggs, leaving a trail of excrement that excite itching, inflammation, and other symptoms, and producing a disease known as scabies or the itch.

*Pediculi*. Equally common are the various forms of pediculi or lice—*pediculus capitis* (head louse), *pediculus corporis* (body louse), and *pediculus pubis* (pubic or crab louse). The body louse inhabits the underclothing, the head louse ranges freely over the scalp, being protected by the hair, and the pubic louse attaches itself to a hair close to the skin. The saliva of these insects produces intense itching, with consequent excoriations, infections, etc., the sum total of which is known as *pediculosus capitis*, *corporis* or *pubis*.

*Miscellaneous animal parasites*. The brown tail moth (1), a recent arrival in this country from Holland, produces an inflammation of the skin known as brown tail moth dermatitis. It is probable that the "netting" hairs of the moth and its cocoon and caterpillar are responsible for the cutaneous irritation which is usually on the exposed parts of the body. *Pediculoides ventricosus* (2). The dermatitis produced by this insect is known by the names, straw or grain itch, *acarodermatitis urticarioides*, mattress itch, etc. The eruption is widespread and consists of papules, macules, urticarial wheals, vesicles, and pustules. The flea, the bedbug, wood-tick, guineaworm, *Acarus folliculorum*, gadfly, and various other animal parasites of temperate and tropical climates (3), too numerous to mention, may produce inflammation of the skin. It might be added that as a rule the eruptions caused by animal parasites are not difficult of diagnosis, but associated secondary eruptions, such as eczema, may prove an embarrassing complication.

#### VEGETABLE PARASITES.

The vegetable parasites are of rather more importance than those of the animal kingdom because of the numerous and complex types of eruption produced and, at times, the difficulty of diagnosis.

*Achorion Schoenleini*. This is the etiological factor in favus, a disease which may attack any part of the body at any time of life.

*Trichophyton*. There are several varieties of the ringworm fungus, but time will not allow of their enumeration. Suffice it to say that these fungi cause a rebellious inflammation of the scalp in human beings under the age of puberty. Thus, *tinea tonsurans* is a rare affection in the adult, but extremely common and troublesome in children. According to the variety of fungus, there may be only a scaliness and alopecia, or there may develop large

vegetating tumors. Parasitic sycosis, or *tinea barbæ*, is a similar affection of the bearded region of male adults. In the skin the fungi produce scaly, circinate, easily cured lesions familiar to you all. Quite recently Whitfield and Sabouraud (4) have demonstrated that the so called eczema of the groin and that between the fingers and toes is of vegetable parasitic origin. And in this connection it must not be forgotten that the so called eczema marginatum is caused by the ringworm fungus. There are some special forms of ringworm which should be briefly mentioned. *Tinea imbricata*. This is a disease of tropical countries due to a fungus closely resembling the trichophyton but possibly belonging to the aspergillus. *Microsporon furfur*. This fungus produces a fawn colored, slightly scaly eruption known as *tinea* or *pitryiasis versicolor*. It is at times confounded with chromophytosis and other forms of pigmentation. In passing, erythrasma, dhobie itch, and pinta may be mentioned. Most of the vegetable parasites are transmitted from one patient to another, but it must not be forgotten that domestic animals harbor some of these organisms.

Leaving the ringworms, we come to parasites which by local inoculation produce cutaneous affections of a serious nature.

*Actinomyces* or *ray fungus*. This parasite is the causative factor in actinomycosis or lumpy jaw, a serious diseases that is often confounded with syphilis, tuberculosis, and other diseases. The symptoms consist of nodules and ulcerations. The disease is usually limited to the mouth and face and is seen mostly in those handling cattle.

*Blastomycetes*. This is the organism of blastomycosis, a disease that is probably commoner than has been admitted and which, in all probability, is not infrequently diagnosed as syphilis or tuberculosis, drug eruptions, etc. The lesions are usually of a vegetating nature.

*Sporotrichum* (5). This fungus produces an interesting disease (sporotrichosis) that was little known until within the last two or three years. The lesions resemble syphilitic gummata, and as they yield to antisyphilitic treatment, it is not at all unlikely that many cases have been diagnosed and treated as syphilis. The disease is seen mostly in those who come in contact with cattle.

#### NONPARASITIC CAUSES OF SKIN DISEASES.

The nonparasitic causes of cutaneous inflammation, for the sake of convenience, may be divided into: First, bacteriological; second, chemical; third, traumatic; fourth, actinic; fifth, caloric; and sixth, miscellaneous.

#### BACTERIOLOGICAL.

We have many definite dermatological entities which are due to the growth of known species of bacteria in or under the skin. Strictly speaking, we should, in this paper, only mention the affections in which the bacteria gain entrance through abrasions in the skin and where these bacteria are the sole and specific cause of the disease.

*Bacillus tuberculosis*. When this organism is inoculated into the skin the result is usually a warty growth known as tuberculosis verrucosa

cutis, or anatomical tubercle. It may, however, produce lupus vulgaris or scrofuloderma, as is seen following ulcerative tuberculous adenitis. At times, also, ulcerations of the buccal mucous membrane may occur, often giving rise to considerable diagnostic difficulty.

*Spirochæta pallida*. The organism of syphilis interests us here only as the direct cause of the chancre and of syphilis.

*Bacillus acnes* (6). There is considerable controversy over the pathogenicity of this organism. It is possible that the early lesions of acne are due to the acne bacillus, while the pustules are produced by a complication with the staphylococcus.

*Staphylococcus*. The ever present staphylococcus is the cause of several cutaneous affections and is not above suspicion in others. The staphylococcus, together with a not very virulent strain of the streptococcus, are the active factors in that common disease impetigo contagiosa. The staphylococcus is usually responsible for the pustular lesions of acne, eczema, and many other affections. In fact, whenever cutaneous pus lesions exist the staphylococcus is likely to be at least a contributing element. This organism is the cause of sycosis vulgaris, a persistent pustular folliculitis of the bearded region, of furunculosis, and of carbunculosis, ecthyma, etc.

*Streptococcus*. As has already been mentioned, the streptococcus is an important factor in impetigo contagiosa, and it is possibly frequently associated with the staphylococcus in other pustular affections, such as ecthyma. A special form of this organism, the streptococcus of Fehleisen, is the probable cause of erysipelas.

*Miscellaneous organisms*. Sabouraud, Unna, and others have isolated organisms which they assert are the producers of the various types of seborrhea. The *Bacillus mallei* is the cause of glanders, the *Bacillus anthracis* is the specific factor in anthrax, and an unnamed organism has been found in the erysipeloid of Rosenbach, an affection resembling a mild erysipelas occurring on the hands of those who handle fish; while the Ducrey bacillus is the cause of chancroid, etc.

It would not be profitable here to discuss or even mention all the conditions thought to be due to microorganisms. Psoriasis, eczema, and other common diseases are considered by many to represent the reaction of the skin to bacteria. Even malignant neoplasms have been placed in this category. Many of the constitutional diseases, such as leprosy and possibly many of the exanthemata, have their starting point in a local inoculation. In many of the bacteriological skin diseases there are important factors other than the bacteria themselves, such, for instance, as idiosyncrasy, a lowered opsonic index, anaphylaxis, etc. While on the subject I would call attention to a condition known as infectious eczematoid dermatitis, described by Engman and Fordyce (7). It consists of a dermatitis of the skin of eczematoid type, following an initial ulcer, pyoderma, boil, etc. It is autoinoculable and probably due to the staphylococcus. Infantile eczema is possibly of this type, as well as the so called impetiginous eczema. Pustular and follicular eczema may possibly be placed in the same category.

#### CHEMICALS.

The skin reacts, often in a specific manner, to many chemical irritants. The term dermatitis venenata is given to an inflammation of the skin produced by the action of chemical irritants externally applied. Iodoform, chrysarobin, pyrogallol, and many other substances will produce a more or less violent inflammatory reaction in susceptible individuals. In the trades we find that varnish, dyes, paint, strong soap, certain woods, and many chemical combinations will effect an inflammatory reaction which, if allowed to continue, will develop into a catarrh of the skin with the production of what is known as occupation or trade eczema. Knowles (8) and Fordyce (9) have written exhaustive articles on trade eczema, in which are enumerated all the various irritants which may produce this condition. Many plants contain toxic principles that can give rise to a very annoying eruption and, in some instances, as in the case of poison ivy (rhus), the outbreak is quite specific in its character. The eruptions produced by chemicals may consist of destruction of tissue by a caustic, a local hyperemia or inflammation, local or extensive vesiculation, edema, and even pustulation. In many instances the trouble will spread by auto-inoculation. Certain caustics like, for instance, nitric acid, may give rise to disfiguring keloids. While speaking of caustics it might be well to mention the intensely interesting disease known under the names of dermatitis facticia, malingering, or self inflicted eruptions. In speaking of the action of chemical irritants intertrigo must be considered. This is a dermatitis of the parts of the body where two surfaces are in contact and where moisture, friction, and unhygienic conditions are likely to occur. Miliaria, or prickly heat, is another condition due, partly to the action of perspiration that has not been allowed to evaporate, and partly to the friction of clothing.

#### TRAUMATIC.

Traumatism may produce slight wounds associated with reparative inflammation, or the injury may be associated with considerable loss of tissue. Gangrene may be a complication through interference with the circulation, while chronic conditions of a trophic nature might follow the effect on the nerve. Resulting scars may be disfiguring from a cosmetic standpoint, may interfere with physical functions, and, as sequelæ, might be mentioned keloids and even malignant degeneration. Bacterial invasion is, of course, a constant menace.

#### ACTINIC.

Sunburn is the result, mainly, of the actinic action of the rays of the sun upon the unpigmented skin. Actinic light may be produced by electricity, and such rays will produce an erythema of the skin without the aid of heat. Some writers include sunburn or dermatitis actinica under the heading of dermatitis calorica or erythema caloricum, as the case might be.

#### CALORIC.

Dermatitis calorica ranges between a mild erythema to a severe and extensive necrosis. It may

be due to the sudden application of fire or other form of excessive heat, such as the actual cautery or an electric spark, or it may result from the long continued effect of mild heat. In this connection Hartzell (10) reports cases of a peculiar reticulated erythema associated with pigmentation, due to the heat from a stove, acting over a long period of time, and, also, the heat from a hotwater bag. This condition is known as erythema ab igne or erythema ab calore.

## MISCELLANEOUS.

**Cold.** In contradistinction to erythema, or dermatitis produced by heat, there is a more or less similar condition effected by lack of heat—excessive cold. A spray of ether, by robbing the skin of its heat, will produce a reactive erythema. The solid carbon dioxide, or liquid air, will produce an erythema or actual death of the tissue by freezing. Chilblain, or frost bite, occurs in all degrees of severity, and, even in mild cases, may cause more or less trouble for years. This condition is seen mostly in people of feeble circulation and is known as pernio, or dermatitis congelationis. A combination of cold, wind, and light will produce erythema, scaliness, eczematous conditions, and telangiectasia. Corlett (11) believes that cold winds are capable of bringing about an entity which he designates as dermatitis hiemalis. That these factors may be a contributing cause in the production of other disease is seen in xeroderma pigmentosum and pellagra.

**Röntgen ray.** The x ray, if the dose is slightly excessive, will produce an erythema, while, if greatly in excess, necrosis ensues, resulting in an ulcer that may fail to heal. Frequent, small doses over a long period of time will produce atrophy, keratoses, pigmentation, telangiectasia, and epitheliomata, a condition similar to xeroderma pigmentosum.

This concludes a brief résumé of the external causes of skin diseases. Although a subject of considerable magnitude, it has been impossible to do more than to touch upon the most important phases in the time allotted for its discussion. I have limited myself strictly to the external causes, leaving a description of the diseases, their consequences, treatment, and prophylaxis to other speakers.

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58 WEST FIFTY-EIGHTH STREET.

## THE THERAPEUTIC VALUE OF ORAL PROPHYLAXIS AND TREATMENT.

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The treatment of the mouth and of dental conditions as a means of therapy is out of the routine of the average physician. Yet the neglect of the oral cavity by the practitioner, both as a means of diagnosis as well as of therapy, is all too prevalent.

The dentist has for years been calling attention to our carelessness in oral matters, and it is with regret that we must admit that the truth of the matter is that the physician is entirely too negligent in regard to these conditions. The therapeutic value of the proper care of the oral cavity is not a slight one, and such advice as we can give our patients will often cure, and in many instances prevent, much harm and damage to their health.

The subject will be briefly dealt with under the following headings:

1. The infant's mouth and teeth.
2. The adult's mouth and teeth.
3. Care of the mouth in pregnancy.
4. The care of the mouth in disease processes which are systemic or generally infectious, and which are aided by the proper care of the oral cavity.
5. Anteoperative and postoperative care of the mouth.
6. Nervous diseases and their relation to oral conditions.

## THE INFANT'S MOUTH AND TEETH.

(a) *The care of the mouth and buccal mucous membrane before teething.*

Oral infections and oral disease tend to create gastroenteric diseases in children. To avoid them rigid oral antisepsis and asepsis should be practised. The bottle in which the milk is given (supposing that the milk is pure and fit for infantile consumption), should be properly cleaned—preferably in a solution of sodium bicarbonate at the boiling point. All particles of old milk should be removed. An unclean, previously used bottle should never be refilled, but a fresh clean bottle employed. The nipples should be boiled (even though boiling does tend to destroy five cent nipples rapidly) and then kept in sterile water. A fresh, clean nipple should be employed with each new bottle. The milk bottle once in the child's hand, the nurse should be taught to prevent the child from rubbing the nipple into its dirty clothes or carriage, or rolling it on the germ laden floor, which, while a roughly drawn picture, is



all too prevalent. Personally, I advise patients to have a specially constructed wire apparatus which permits of free access to the bottle by the child at feeding time, yet does not allow the child to throw the bottle about.

This applies to the care of the bottle fed child. The breast fed child is also entitled to cleanliness. The mother should be taught proper personal hygiene. The nipples should be washed regularly with boric acid solution, both to prevent fissures and infection (in the mother, which is the usually assigned reason) and to prevent the feeding to the child of infectious desquamated epidermis from the breast. The mother should wear a clean gauze or linen cover over her breasts and, before feeding, should gently cleanse the nipple. It is certain that this method will save much infantile oral infection if properly carried out. The child should not be permitted to suck its fingers or a nipple, or a so called "comforter" (for the mother who is too careless or too inhumane to look after her child properly). These tend first of all to cause abrasions of the oral mucous membranes, and, secondly, deform the mouth of the child. Constant suction and constant wear of hard rubber rings tend to deform developing alveolar ridges. If a child has regular feeding hours and its food is properly prepared, such barbarous instruments will be unnecessary. The infant's mouth should be cleansed daily with a soft piece of gauze and a mild alkaline or boric acid solution. No great friction should be employed, care however being taken that the recesses are cleaned of food particles, and that the corners of the mouth are clean.

#### (b) *Dentition and its care.*

As a rule, dentition is a process which needs no further interference than as outlined above. Generally the first deciduous teeth appear between the sixth and the ninth months, and the last in the second year of life. They may appear earlier in syphilis or later in conditions of malnutrition. It occasionally happens that a lower central incisor is present at birth. If this interferes with nursing it should be removed. It might here be pointed out that "difficult dentition," or "the child is teething," is too common an excuse for more important conditions causing symptoms in a child, and that such a diagnosis should be rejected, until all other causes are excluded or properly treated, if found. Holt declares that "probably in ninety-five per cent. of the cases in which symptoms are present they are due to some other cause than dentition."

#### (c) *Care of the deciduous teeth.*

The child should be taught to look after these teeth as carefully as of the later permanent ones. The dentist should be regularly consulted, and then chronic sore throats, enlarged cervical glands, mumps, and many other infantile diseases will have lost many of their terrors. Decayed teeth, improperly cared for mouths, and enlarged tonsils are a constant menace to the life of the infant. For children a small toothbrush of medium hardness should be employed. The dentifrice should be a liquid one preferably, and the simpler the better; my preference is for Seiler's, or boric acid, solution. It might here be well to point out the importance of the physician to the dentist in this matter. When a dental

surgeon finds Hutchinson's teeth, late eruption, or similar conditions (due to malnutrition, rickets, etc.) it is just as much his duty to the patient to advise proper medical treatment as it is for the doctor to refer dental conditions to him. This conserves the welfare of our patient, and, while seemingly a financial loss, will in the long run bring ease of mind and results which are, after all, the aims of our professions.

#### (d) *Anomalies and growths in the mouth as related to dental conditions.*

Harleip and cleft palate should be treated as early as possible, and by a capable surgeon. The most perfect results, however, are obtained if the dentist is consulted as to the proper alignment of the dental ridges, the presence of impacted teeth, and other conditions which tend to prevent a proper result. The prominent premaxillary bone so frequently present should be treated in youth by orthodontic methods, while the jaw is still plastic.

Enlarged or pathological tonsils are attributed by some to improper dental conditions. Others reverse the opinion, and attribute poor oral and dental conditions to the pathological tonsils. In any case where the tonsils interfere with respiration, or cause oral deformity or sepsis, they should be removed, and such pathological dental conditions as may be present properly treated.

#### THE ADULT'S MOUTH AND TEETH.

The teeth and the oral cavity should be kept clean with some simple liquid dentifrice. These are preferable to soaps, gritty powders, and sugar sweetened pastes. Such mechanical cleansing as is necessary had better be performed with the bristles of the tooth brush than by rubbing into the crevices between the teeth gritty particles of talc, pumice, etc., which lodge there and form niduses for bacterial growth. Nor should sugar sweetened pastes be tolerated. What more fertile ground can be left than a saccharose laden cream particle for the various sugar splitting bacteria? After each meal the teeth should be looked after, and, if the matinee girl must needs munch chocolates while her favorite hero is slaying his enemies, let her after the show slay the enemy within her mouth by the proper attention to her oral cavity. The toothbrush, too, is a much neglected but useful article. After scrubbing our floors or cleaning our pots and pans the housewife usually pays great attention to the brush employed. It is scalded out and cleaned carefully and laid away in some clean place. Yet the toothbrush generally receives no such care. The teeth cleaned, it is held under the faucet for a moment, and then placed in a holder, if the owner is at all fastidious, or, more commonly, it is placed in a cup or glass, or thrown on the shelf. Here is complete neglect. The toothbrush in the first place is not clean when removed from the mouth and washed in so cursory a manner, and, secondly, as it lies in the air, moist, bacteria of all kinds float into the interstices of the bristles and there find lodgment. The next time the patient uses the brush, instead of cleaning his teeth he rubs millions of bacteria into a fairly clean mouth and teeth, and then he wonders why pyorrhea alveolaris, local abscesses, etc., develop. In hospitals I have frequently seen the patient's toothbrush lie in a box with his soap and

washrag, prepared to clean his teeth! The tooth-brush should be of moderate stiffness and should preferably have a transparent celluloid back. The bristles should be firmly attached. Loose bristles are a constant menace. The brush should be washed thoroughly after use, and in the interval between use kept either in alcohol or in a weak dilution of formaldehyde solution (1 in 20) in a long closed container. This destroys bacteria and gives the patient a clean brush for use. I advise my patients to keep their toothbrushes in test tubes containing either of these solutions.

In brushing the teeth two things should be remembered: 1. That all the teeth are cleansed, and, 2, that the gums are not traumatized. Too many patients rub the brush to and fro on the front teeth and consider that sufficient. The method advocated is, first cleansing of the molars, the inner, outer, and biting surfaces, then the front teeth, with a gentle circular motion, taking care not to injure the gums. The back of the teeth should also be cleaned at this time. Dental floss and toothpicks are to be condemned if placed in the hands of the laity. As a general result of their use the interdental triangular portions of the gums are driven back from the teeth, and in many instances set bleeding. Properly employed, dental floss may be of some value, but so rarely is this true that as a routine its use should not be advocated. Hydrogen dioxide, too, is to be laid on the shelf. First, it is not a germicide, and, secondly, it is only a poor antiseptic, and what is more important, it is harmful to the teeth, gums, and mouth. Usually it is acid in reaction, breaking down deposits of alkaline salts, or attacking normal tissue. If there are healing areas in the mouth, it breaks down granulations. The bubbling and the frothing of the solution which makes so many users feel secure is only a mechanical cleansing, as the bubbling will occur with serum as well as with bacteria. The average patient should regularly consult his dentist, and in this way, beside saving his teeth, he protects himself from gastroenteric disturbances, nervous diseases of various types, malignant diseases, and a whole gamut of "the ills the flesh of man is heir to." E. H. Baker, in *Dental Cosmos*, mentions over one hundred diseases due to, or influenced by, dental conditions.

#### CARE OF THE MOUTH IN PREGNANCY.

An old adage is "For every child a tooth." What an insult to, and implication of, carelessness on the part of the medical profession this implies. Yet it is true that for years, and even to-day, physicians are afraid, for fear of interrupting pregnancy, to give dental anesthetics or to have the teeth of their patients treated. Doubtlessly dental extractions are to be avoided in the third, fifth, and eighth months of pregnancy because of the predilection to miscarriage or abortion in these months. Yet the teeth and mouth should certainly not be neglected. An abscessed tooth, a pyorrhea alveolaris, or chronically inflamed tonsil, means the swallowing of millions of pyogenic organisms in the food, means the absorption of pus and toxins (if not bacteria) into the blood stream from the gastroenteric tract and the gums. Add these to the existing influences of preg-

nancy, and why should there not be toxemias of pregnancy, sapremias, and septicemias? This points to only one issue. Treat the oral cavity during pregnancy and we will have less cause to blame ourselves. When we remember that a pus appendix can be removed without interrupting pregnancy, why allow a "pus tooth" to remain? Again, it has been pointed out that many oral conditions during pregnancy seem due to topic reflexes from the genitalia. If this be true, the more reason for carefully watching the oral cavity. Three conditions especially come under our domain: 1. Sensitiveness of the teeth. 2. Loosening of the teeth and hypertrophy of the gingivæ. 3. Odontalgia.

The first two will be considered together. Beside the general care of the patient, the following treatment is advised. The patient should cleanse the teeth after each meal, preferably with an astringent wash. It is my habit to advocate one of the numerous zinc chloride solutions on the market. At first the patients complain of the peculiar astringent qualities, but most of them soon overcome this dislike. Daily massage of the gums with the tips of the fingers and cold-water aids in hardening the gums, and soon the tenderness and loosening of the teeth vanishes. For odontalgia the dentist is to be consulted. This condition is often a neuroreflex, and no teeth should be extracted until the condition is treated neurologically. Here both professions overlap, and cooperative work leads to best results. Before leaving this subject it might be well to speak of the obstetric nurse. She, too, should have her oral cavity properly treated and her teeth in good condition. No nurse who is suffering from oral sepsis should be employed, lest she infect the patient or the newborn child.

#### THE CARE OF THE MOUTH IN DISEASE PROCESSES WHICH ARE SYSTEMATIC, OR GENERALLY INFECTIOUS, AND WHICH ARE AIDED BY THE PROPER CARE OF THE TEETH.

There is no field so interesting or as important as this one. Every nurse and every physician has seen cases in which the teeth are covered with sordes, in which the breath is poison to the attendant as well as the patient, and in many instances the condition has been calmly attributed to the disease present, whereas proper oral toilet would have ameliorated these complications.

(a) *Diseases of childhood.* These have all been attributed to dental and oral conditions, and it is certainly true that they have furnished the atria for infection by improper oral care. And what is also of great import is the fact that the oral secretions and discharges are highly infectious in many of them. In all these diseases the teeth should be carefully inspected and such teeth as have cavities kept filled with cotton moistened with oil of cloves. If necessary, the dentist should be called in to put in a temporary filling. The nurse should be instructed to cleanse the mouth after each meal with a mild antiseptic lotion. The mouth should be rinsed out and the throat gargled (if the child be old enough). In younger children the mouth should be wiped out with a piece of moistened gauze, sprayed, or irrigated. Gum chewing is to be advo-

cated (as pointed out by Le Grand Kett) as a valuable means of preventing sordes, and mechanically cleansing the teeth. A fresh piece of gum should be used every time. This does not, however, call for any carelessness in cleansing the teeth. It is merely a mechanical aid in the prevention of the deposition of material about the teeth.

(b) *Diseases of adults.* In typhoid fever or pneumonia no more incriminating monument to the neglect of the nurse and the physician can be pointed to than the mouth of a patient, the lips fissured and cracked, the teeth covered by sordes, and the tongue dry and bleeding, while the mouth teems with products of decomposition. As a rule this condition is included among the symptoms of typhoid or pneumonia, but it should rather be regarded as a symptom of carelessness on the part of the medical attendant or his nurse. In all febrile conditions the patient's teeth and mouth should be thoroughly cleansed at least twice daily with a toothbrush and a mouthwash. After meals the mouth and throat should be thoroughly gargled. The tongue should be cleansed with a tongue scraper or a piece of gauze. Gum may be chewed to prevent sordes. The lips should be kept moist with glycerin and lime water or with glycerin flavored with lemon. Such care will prevent many oral conditions present in these diseases, and when it is remembered that in seventy per cent. of the cases of typhoid the organism can be isolated from the teeth, that in nearly all cases of pneumonia the pneumococcus is found in the oral secretions, and that many other of the acute infections find their dangerous atrie of infection in the mouth, careful oral toilet will prevent many of the complications so often calmly attributed to the disease process present.

(c) *The use of the feeding tube.* This as a means of alimentation may be allowed, but it may be pointed out here that the end of the tube had better be covered with a piece of rubber tubing as a mouthpiece, both to add to the patient's comfort and to prevent pressure by the glass on the lips, gums, teeth, and palate of the patient. To prevent the staining of the teeth by iron preparations, or to prevent the deleterious effects of acids in mixtures, the use of the glass tube is farcical. The act of sucking through a glass tube is accomplished in something of the following manner: The tube opening is placed between the lips forward in the mouth, the back of the tongue is elevated against the palate, and the buccinator muscles contract inward; an inspiration is taken, negative pressure in the fore part of the mouth is produced, and the fluid is drawn into the mouth in and around the teeth; this is followed by the act of swallowing. Now the advice usually given to patients in regard to the use of the tube is that it is to be carried back in the mouth and suction is then to be begun. This is absolutely impossible, as any one can well demonstrate by an attempt to perform this manoeuvre. As the act of suction, then, distributes the acid and the iron well among the teeth, its purpose is lost. Far better would it be to give such drugs in pill form, if possible, or, if an acid must be given, give it much diluted and follow it with an alkaline mouthwash.

#### ANTIOPERATIVE AND POST-OPERATIVE CARE OF THE MOUTH.

This is of importance, especially when operations are to be undertaken on the gastroenteric tract. Moynihan and Cushing both try to make the diet preceding operation as sterile as possible, in order to lessen the number of pathogenic organisms in the tract at the time of operation. An essential factor to be remembered is that the oral cavity must be as nearly aseptic as possible during the use of this preliminary diet; otherwise these measures would be futile. The care of the mouth should be similar to that pointed out in the previous section on disease processes. A point, though, that we believe should be remembered is that the oral cavity should not be cleansed with any antiseptic solution immediately preceding an operation. At least three hours before the anesthetic is administered no oral antiseptic should be employed. This is for the theoretical and practical reason that normally the saliva contains an oxidizing enzyme which has both the qualities of an oxidase and a peroxidase. It is believed that because of this enzyme pneumococci and other bacteria are inhibited from acting as infective agents in health. The saliva also normally contains leucocytes with phagocytic powers. The saliva therefore acts as a preventive of pneumonia to some extent, and, if with the cold effect of the ether, we have the mouth cavity antiseptic, but not phagocytic, or enzymotic for the vicious organisms, we lay ourselves open to ether pneumonias because of the solutions with which we destroy the saliva. The post-operative care of the mouth is similar to that of the mouth in health, unless special indications point otherwise.

#### NERVOUS DISEASES AND THEIR RELATION TO ORAL CONDITIONS.

This field is a vast one, and can be touched on but lightly here. The psychiatrist, the student of mental deficiency, the educator, have called our attention to the dental anomalies, anomalies of the dental arches, and of the palate in mental deficiencies and other conditions. And they have shown the beneficial result of the care of that all important region, the mouth. Judge Lindsey has called attention to a change even in moral character in young malefactors if these physical ills be attended to. The neurologist finds cause in impacted molars, in decayed roots, in peridental inflammations, for localized neuralgias, for headaches, and for ocular symptoms. If the case is properly diagnosed by the medical attendant and properly treated by the dentist, the patient will experience relief if not cure of many symptoms of nervous disease.

#### SUMMARY

This has been a sketchy picture of a large field. It presents no new material, no startling therapeutic measures; but it is an attempt to point out the seriousness of oral conditions in their relation to so called medical diseases. It is the details of treatment which lead to a successful issue in many cases, and certainly the treatment of the oral cavity is no petty detail.

220 AUDUBON AVENUE.



## THE BOTANIC FAMILY PHYSICIAN.

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In 1832 there was published at Hamilton, Upper Canada, a little volume which had considerable vogue in its day; but it is now rarely met with, and has passed into the limbo of forgetfulness.

At that time, with a few exceptions, no one could practise medicine—"physic" it was called—or surgery in Upper Canada without a license from the Governor, after an examination before a medical board appointed for that purpose. And this was not merely a prohibition on paper. Canadians have always had an awkward way of insisting upon obedience to their statutes; and in those days they were wont to hang horse thieves and burglars, and banish, flog, and pillory ordinary thieves and those guilty of less heinous crimes. So violators of the Medical Act did not escape. I have before me the proceedings in court in April, 1831, at York (now Toronto), when, before Chief Justice Robinson and a jury, Jackson Harrington was found guilty of a misdemeanor for "practising physick without a license."

There was nothing, however, to prevent anyone practising on himself and his own family, or advising neighbors about their health, so long as he did not practise for reward. Accordingly, the little book I have mentioned made its way into many a home and was the *vade mecum* of many a man who was charitably interested in the health of the community. *The New Guide to Health or Botanic Family Physician, Containing a Complete System of Practice upon a Plan Entirely New, &c., &c.*, by Samuel Thomson. Hamilton, Printed by Smith & Hackstaff, MDCCCXXXII," is the title. My copy was once the property of the Rev. Henry Wilkin-son, a well known Methodist minister and once president of the conference.

Samuel Thomson is claimed as a son by both Massachusetts and New Hampshire. He was born in 1769, in territory now within the latter State; but at that time and till six years later the Provinces were under the same governor. The country was, as he tells us, "almost a howling wilderness," so that his "advantages for an education were very small." His mind, then, was "unshackled by the visionary theories and opinions of others," and "was entirely free to follow his inclinations by enquiring into the meaning of the great variety of objects around" him. He found man to be composed of the four elements—earth, water, air, and fire. The earth and water were the solids, the air and fire were the fluids; the two first the component parts, the last two kept him in motion; and fire producing heat, Thomson came to the conclusion that heat is life and cold, death.

The theory upon which he based his practice of medicine is that the inside of the body should have ample heat, more heat than the outside. If the inside be allowed to become cold, "canker" is formed, which is the occasion and cause of disease. He nowhere defines "canker," but from many hints throughout the volume, he seems to have regarded

it as a coating deleterious in its effects, which forms on the inside of the stomach and intestines when the inside is allowed to get colder than the outside, the "fountain lower than the stream."

"Heat is life and its extinction death, a diminution of the vital flame in every instance constitutes disease, and is an approximation to death. All, then, that medicine can do in the expulsion of disorder is to kindle up the decaying spark and restore its energy." Accordingly, if a medicine is good in any case, it must be absolutely so in all; if its administration can produce the required effect in one case, it must in all, and "it is evidently immaterial what is the name or color of the disease, whether billious, yellow, scarlet, or spotted, whether it is simple or complicated, or whether nature has one enemy or more." Extensive study and great erudition are not necessary to form the eminent physician. Knowledge of the origin of a malady and its antidote make the genuine physician; all without it is real quackery. In the "Preface written by a Friend," Thomson is made to repudiate the denomination "quack," but to accept that of "empiric," one who is governed in his practice by his own experimental knowledge. Thomson says he studied nature, made experiments for thirty years, and now can confidently recommend his system as salutary and efficacious.

He entirely disapproved of "bleeding and blistering and administering mercury, arsenic, nitre, anti-mony, opium, &c." But he also warns all against vegetable poisons which grow common in this country, garden hemlock, nightshade, apple peru, poppy, henbane, poke root, garget root, wild parsnip, indigo weed, ivy, dogwood, tobacco, and laurel.

Six, and only six, medicines he has in his system of practice—"the first three are used to remove disease, and the others as restoratives."

"No. 1. To cleanse the stomach, overpower the cold and promote a free perspiration—emetic herb," i. e. *Lobelia inflata* of Linnaeus. This taken by the mouth is to "puke the patient," and may be prepared for use in three different ways: The powdered leaves and pods, a tincture made of the green herb, and the seeds powdered. Thomson does not say very much in the book about the use of lobelia as an emetic. I have more than once heard my old preceptor, Dr. Richard Hare Clarke, of Cobourg, Ontario, one of the most successful of eclectics, describe the marvelous effects of an emetic of hot lobelia seeds; but even he gave up its use as early as the sixties. Thomson says No. 1 "not only acts as an emetic and throws off the stomach everything that nature does not require for support of the system, but extends its effects to all parts of the body. It is searching, enlivening, quickening; and has great power in removing all obstructions." But it is not a complete cure in itself, "it soon exhausts itself, and if not followed by some other medicine to hold the vital heat till nature is able to support itself by digesting the food, it will not be sufficient to remove a disease that has become seated." What he means by "seated" or "settled" he explains in another place. Premising by saying that fever is not a disease, but the effect of disease, the struggle of nature to throw

off disease, he goes on: "Support the fever and it will turn inside, the cold which is the cause of disease will be driven out, and health will be restored. In all cases called fever the cause is the same in a greater or less degree, and may be relieved by one general remedy. The cold causes canker, and before the canker is seated the strife will take place between cold and heat, and while the hot flashes and cold chills remain, it is evidence that the canker is not settled, but as the contest ceases and the heat is steady on the outside, then canker assumes the power on the inside; this is called a settled fever."

After many experiments, he discovered "the best and only medicine" so to hold the vital heat; and this he calls "No. 2. To retain the internal vital heat of the system and cause a free perspiration." This is made of cayenne. He had tried ginger, mustard, horseradish, peppermint, butternut bark, and many other hot things, but settled down finally on cayenne, powdered and administered, half to a teaspoonful in hot water. He adds "a teaspoonful of Cayenne may be taken in a tumbler of Cider and is much better than ardent spirits." (Of course, *de gustibus non est disputandum*.) If cayenne cannot be obtained, red peppers, ginger, or even black pepper, may be employed as a substitute.

The next is "No. 3. To scour the Stomach and Bowels, and remove the Canker," i. e., "for removing the thrush from the throat, stomach, and bowels caused by cold; and there will be more or less of it in all cases or diseases, for when cold gets the power over the inward heat, the stomach and bowels become coated with canker which prevents the numerous little vessels calculated to nourish the system from performing their duty." He has adopted a rule by which to determine what is good for canker "to chew some of the article, and if it causes the saliva to flow freely and leaves the mouth clean and moist, it is good; but, on the other hand, if it dries up the juices and leaves the mouth rough and dry, it is bad and should be avoided." The root of the bayberry or candleberry, the root of the white pond lily, the inner bark of the hemlock, the root of the marsh rosemary, the leaves of the "witchhazel," of the red raspberry, both root and top of the squaw weed, are all recommended, but the preference given to the first; the last, it may be mentioned, "makes a very good bitter, tinctured with hot water and spirit, and is good for dizziness and cold hands and feet." This "bitter," if the squaw weed is left out, is, it is understood, good for dizziness in another sense of the word "good." This fact Thomson does not mention.

"No. 4. Bitters to correct the Bile and restore Digestion." Thomson warns us against supposing that the bile or gall is an enemy in case of sickness. There is no such thing as too much gall. "The difficulty is caused by the stomach being cold and foul, so that the food is not properly digested, and the bile, not being appropriated to its natural use, is diffused through the pores of the skin, which becomes of a yellow color . . . the only way to effect a cure is to promote perspiration, cleanse the stomach, and restore the digestive powers; which will cause the bile to be used for the purpose nature intended." He recommends bitter herb or balmony, poplar bark (either of the white or the stinking

poplar), barberry bark, butter root or wandering milkweed, and the root of the golden seal—poplar bark rather preferred. We are told that "this is a very important part of the system of practice, for unless the food is digested it is impossible to keep up that heat upon which life depends."

Then comes "No. 5. Syrup for the Dysentery, to strengthen the Stomach and Bowels, and restore weak patients." The articles used in the preparation are, the bark of bayberry, peachmeats or meats of cherry stones, sugar, and brandy. Peachmeats are preferred, but still the meats of wild cherry-stones are almost as good—and a "tea made of the cherries pounded with the stones and steeped in hot water, sweetened with loaf sugar, to which add a little brandy, is good to restore the digestive powers and create an appetite."

The most celebrated of Thomson's preparations, and one which is not yet quite forgotten, was his "No. 6. Rheumatic Drops to remove pain, prevent mortification, and promote a natural heat." The most approved method of making this was "to take one gallon of good 4th proof brandy, or any kind of light wines, one pound of gum myrrh pounded fine, one ounce of cayenne; put them in a stone jug and boil for a few minutes in a kettle of water, leaving the jug unstopped." "For external application, spirits of turpentine is added, and sometimes gum camphor."

The stock of medicine which will be "sufficient for a family one year, and with such articles as they can easily procure themselves when wanted, will enable them to cure any disease which a family of common size may be affected with during that time," is thus tabulated:

- 1 ounce of the emetic herb (lobelia).
- 2 ounces of cayenne.
- ½ pound of bayberry root bark in powder.
- 1 pound of poplar bark.
- 1 pound of ginger.
- 1 pint of the rheumatic drops (No. 6).

Thomson strongly approved of steaming, indeed, even his "system would in many cases without it be insufficient to effect a cure." His method was to take two or three stones and put them in the fire till red hot, then put them into a pan or kettle of hot water; the patient, undressed, with a blanket around him, is placed over the steam, preferably on an "open worked chair." The stones are renewed when cool.

The medicines are not to be given indiscriminately. "A regular course of medicine" is as follows: "First give Nos. 2 and 3, or composition, adding a teaspoonful of No. 6, then steam, and when in bed repeat it; adding No. 1, which will clean the stomach . . . when this has done operating, give an injection made with the same articles . . . in violent cases where immediate relief is needed Nos. 1, 2, 3, and 6 may be given together." No. 4 and No. 5 are for special cases.

Although these six medicines are all that are needed, Thomson gives the qualities of a large number of native plants—valerian, a nerve powder, spearmint to stop vomiting, peppermint and pennyroyal to promote perspiration, summersavory for toothache, hoarhound and elecampane for coughs, mayweed for a cold, tanzey and featherfew for hysterics, chamomile for bowel complaints, bitter-

sweet, mullein, and burdock for plasters, skunk cabbage for asthma, wakerobin for colic, slippery elm bark for sore throat, ginseng for nervous affection, chivers, snakeroot, mustard, &c., &c., &c. Many of these are still popular remedies.

Not all his science is to be found in this handbook; he had a system of midwifery and surgery. But all who wished to understand these "must purchase the right" which sometimes, at least, cost "twenty silver dollars," and "all who purchase the right may receive the necessary verbal instruction to enable them to do all that is required in the practice of midwifery, as well as to be able to become their own physician and surgeon at a trifling expense." That some in Upper Canada purchased the right is certain, that some of these passed the medical board is equally certain, that the results in many cases of the Thomsonian system were as good as those of the regular profession is also certain. Nor is this to be wondered at. There is extant the report of a case in which one physician in Upper Canada sued another for libel. At the trial, in 1827, it was proved that the plaintiff had bled a young girl several times within a few days, taking five quarts of blood from her; and had physicked a young man, who had a "touch of fever," with calomel till "his mouth got raw and sore, his teeth loose, and his breath bad."

The Botanic Thomsonian School or Physiomedical School, though at first antagonistic to, gradually merged into, the Eclectic School. The opposition of these to the practice of bleeding had much to do with its comparatively early disappearance.

They were not invariably successful in their practice; indeed, Thomson himself had the misfortune to run up against the criminal law in Massachusetts. In January, 1809, he was called to attend Ezra Lovett, Jr., at Beverley, Mass. He had come to that town the preceding month; and it is said had much vaunted the virtues of his medicines, which he called by such extraordinary names as "coffee," "well-my-gristle" and "ramcats." Lovett had a cold; Thomson ordered a large fire lit in his room, wrapped the patient up and gave him a powder in water, of course, lobelia, No. 1; this "puked him." Three minutes afterward he gave him another dose, which operated two minutes later; he repeated the dose with the same effect, all three doses within half an hour, the patient meanwhile drinking copiously of the "coffee," which was proved to be an infusion of marsh rosemary mixed with bayberry bark, i. e., No. 3. The next day and next he was dosed with the same medicines, and on the following day he was sweated. The next two days the doctor did not appear, but on the following day he administered No. 1 and No. 3 again, and also the next day. The patient was now in great distress, and when the doctor asked him how far down the medicine had got, and he replied down to the breast, the doctor assured him that it would soon get down and unscrew his navel. The following day the patient became delirious and violent, but the doctor got one or two doses of lobelia down his throat, telling the patient's father that his son had got the "hyps like the devil," but that his medicines would fetch him down. The next morning the regular physicians were called in, but could

do nothing for the unfortunate who died shortly afterward. Thomson was indicted for murder, and tried on December 20 at Boston, before Chief Justice Parsons and Justices Sewall and Parker, and a jury. It was proved that the death was due to the treatment which Lovett had received, and the prosecuting counsel stated that the prisoner had administered like medicines to others who had died in his hands. The only witness, however, who appeared, swore that he had taken the emetic medicines as the prisoner's patient several times in two or three days, and was relieved permanently of his complaint, "an oppression at his stomach"; and there was no evidence that in the course of his very novel practice the prisoner had experienced any fatal accident among his patients. He was accordingly acquitted. The curious will find a fairly full account of the case in No. 6. Massachusetts Reports, p. 134. The followers of Thomson boast that he was acquitted without being called on for his defence. The fact, however, is that he owed his safety to the charge of the chief justice, that if the medicine was administered with an honest intention to cure, however ignorant the prisoner might be of medical science, he should not be found guilty.

Thomson continued to practise in Massachusetts for many years, and died in 1843. I cannot find that he ever came in person to Canada.

There is no trace in this volume of some extraordinary views attributed to him by some medical writers, e. g., that as minerals lie in the earth, minerals given as medicine must tend to bring the patients down to the earth, while as plants grow up and away from the earth, medicines from the vegetable kingdom must raise up the patient and keep him from the grave.

## TWO NEW TESTS FOR THE DETECTION OF DEFECTIVES.

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It is a well recognized fact that the greater the number of tests (and the more varied their nature) used in diagnosing a given defective, the more certain the examiner is that his deductions are cor-



FIG. 1.—Leaf Cluster of the "V. C." or Visual Comparison Test. There are five pairs of clusters, the lettered ones corresponding in the numerical order of these letters in the alphabet, to the numbered clusters. After the subject's attention is surely directed he should be able to designate or "pair" the five pairs in twenty-eight seconds. All diagrams in this paper are one tenth actual size.

rect. It is with this idea in view that these tests are given to the profession for what they may be worth in the special lines of work in which they may be used. In the detection of alien illiterate



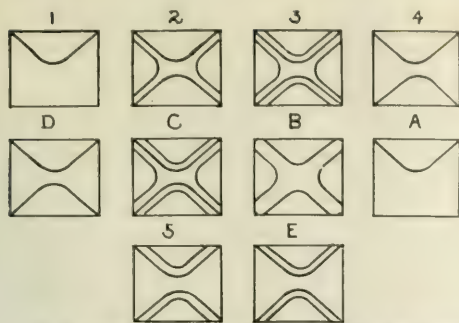


FIG. 2.—Envelope Section of the "V. C." test. As with the flowers in FIG. 1, there are here five pairs of envelopes, each pair being of different design. These envelopes should be "paired" in eighteen seconds after the attention is directed.

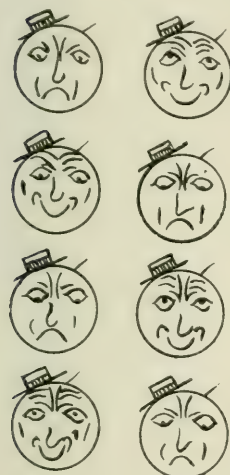


FIG. 3.—Face Line Section of the "V. C." test. To normal illiterates over twelve years of age (the entire test being standardized for illiterates over twelve years of age) four of these faces appear depressed or "sad" and four appear elated or "happy." Once the subject thoroughly understands, and his attention is directed, he should point out the "sad" ones in twenty seconds. If in any of these tests it appears that the subject does not understand what is wanted the test should be repeated twice for him, and time taken with the stop watch at each repetition. If after the three trials the subject cannot be made to understand what is wanted by the examiner or a competent interpreter, then the fact is evidence that he is defective.

morons they have been found to be of considerable value when used in conjunction with our other performance tests, and it is of interest in this connection to note that in May, 1913, one hundred and eight mentally defective were detected by the medical officers of the United States Public Health Service at Ellis Island, and that the great majority of these were of the moron or higher defective class. This number is about four times the number of mental defectives certified during the month of May, 1912, before our performance and other tests were developed and standardized for time, etc., to suit our special needs. In other words, we have broken new ground, as no one else seems to have worked with alien illiterate defectives and nowhere in the literature are these defectives described.

Figures 1, 2, 3, 4, and 5 represent the author's "visual comparison" test, and Figure 6 B his modification of the Healy frame test. The legends will be considered sufficient description at this time, but to fully understand the use of these tests one should see them in operation with the stop watch. The line they draw between normal and defective illiterates is well marked, but, as in using other tests on these individuals, the general rules as to

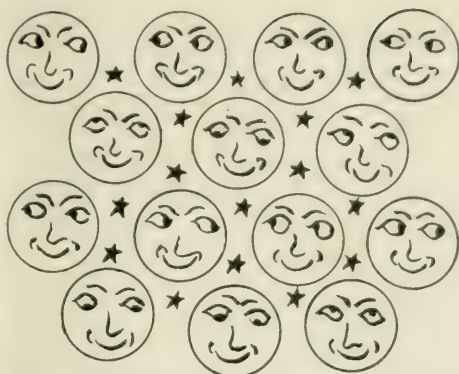


FIG. 4.—Moon Section of the "V. C." test. The subject should be able to point out the four moons that are looking to the left in fourteen seconds, if he is directed to begin at the upper right hand corner and proceed systematically along each line, left to right.

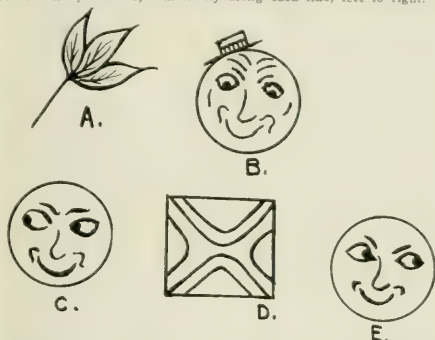


FIG. 5.—The Key Section of the "V. C." test. The time element has not been worked out for this section, but it is hardly the less valuable. "A" is shown the subject and he is asked to find the nearest like it in FIG. 1, "B" is shown and he is asked to find it in FIG. 3, "C" is shown and he is asked to find it in FIG. 4, "D" is shown and he is asked to find it in FIG. 2, and "E" is shown and he is asked to find it in FIG. 4.

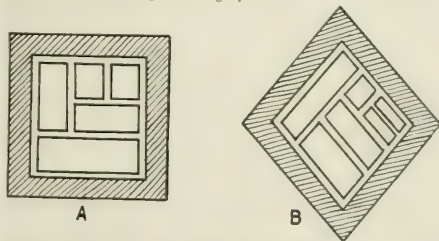


FIG. 6.—"A" shows the Healy frame test which has been a valuable test in our work, but somewhat too easy for our special needs; it having been accomplished frequently by accident. It consists of five blocks within a frame, the blocks to be put in as cases. "B" shows the author's modification of the Healy test. The frame is diamond shaped and there are six blocks instead of five, and they are cut on the "bias" in order to fit into the diamond shaped frame. The "bias" does away with the element of luck, and, while easy to accomplish, it requires constant thought and attention.

rest, nourishment, fresh air, and pleasing environment for the performance of the tests must be followed and, of course, physicians must operate these tests, else, psychosed, toxic, functional, and temporarily defective individuals will be interpreted as organic congenital feebleminnds, which,

after all, are the principal ones to be considered from an eugenic standpoint.

In Figure 6, "A" and "B" the blocks should more closely approximate their frames and each other than the diagrams would indicate.

## CEREBROSPINAL MENINGITIS.

*Its Occurrence in New York City during Half a Century; References to Some Recent Literature.*

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There has been but little cerebrospinal meningitis in New York city since 1905. During 1911 314 cases were reported, with a fatality of 74.8 per cent. and a death rate of 0.47 per 10,000. Corresponding figures for 1912 were 268 cases, case fatality 72.4 per cent., and death rate, 0.36.

Notification takes place by telephone, postal card, or the name is taken from a dead list forwarded by the Bureau of Records for each borough. If the case is reported by a private practitioner, free consultation is offered to the physician through a clinician and bacteriologist of experience from the Research Laboratory, and, if accepted, lumbar puncture is performed, and antimeningococcus serum is introduced into the subdural space. Though the mortality continues high, owing to the delays in notification, a marked diminution in fatality has taken place among those receiving serum. Further consideration of such treatment will appear below. Hospitals having ample equipment for the management of these cases are not aided, except that the serum is supplied by the Research Laboratory on request.

The most unsatisfactory feature in our experience with this disease is the high proportion of cases reported to us for the first time on the dead list. Out of 105 consecutive fatal cases in Manhattan last year, forty-eight cases had not previously been reported. Every effort is made to eliminate the cases which seem after a careful survey of the history to be due to other causes than the meningococcus, though such exclusion is difficult and not infrequently impossible, owing to meagre case records kept by the attendant. In nearly all the fatal cases except the fulminant type, pneumonia is present. When interviewed by a medical inspector, the practitioner will frequently amend his diagnosis to that of a terminal meningitis in the course of pneumonia. Conversely, of course, true cases of epidemic cerebrospinal meningitis may be reported as fatal pneumonia and escape consideration. After consultation with our inspectors some physicians have desired to change their diagnosis to tuberculous meningitis. The circumstances, when convincing, are reported to the Bureau of Records with the recommendation that the death be not charged to the epidemic form. Vital statistics of the department, it will be seen, are, despite all care, subject to error in respect to the case fatality. All cases of the epidemic or infectious type are isolated for at least two weeks, this

being the period during which the specific organism is usually found in the nose and throat. On termination of the case by recovery, removal to hospital, or death, the sick room is fumigated and bedding disinfected.

Outbreaks are not very frequent, and show a remarkable periodicity, occurring about every ten years. In 1872, 1881, 1893, and 1904-5 the death rate per 10,000 of population reached 8.7, 4.2, 7, and 5.4. In the year after each outbreak the rate was above the average, but during the remaining intervening years it was very low. Thus, from the sixties up to 1872 it was less than one half of one per 10,000 annually, though steadily advancing. From then it rose to 1.5 in intervening years, then showed a tendency to decline, until the advent of lumbar puncture and bacteriological diagnosis, when the interim average fell at once below one per 10,000, due to the exclusion of many tuberculous and other cases from statistics. The effects of the great outbreak of 1872-3 are felt to the present time. These combined years yielded a death rate of 10.5. Never since that time has the rate come down to the one fourth of one per 10,000 which had characterized several preceding years, even with the aid of more exclusive diagnosis and serum treatment. Each of the two succeeding decennial outbreaks showed a marked tendency to a decline in severity, and the interval annual rate also was slowly falling until the remarkable outbreak of 1904-5. This, the fourth epidemic in a half century, was the severest of all, showing a death rate for the two years of 10.9, which is even higher than that of 1872.

Eight years have passed since that time, and the death rate has fallen from 1.02, in 1906, to 0.36 in 1912. Thus we have the great wave of 1872 following a calm and succeeded by increased average disturbance, but quieting down, rising to sharp but successively less formidable decennial crests until all the contributing forces formed the culminating wave of 1904.

These periodical outbreaks seem due to an accumulation of susceptibles, such as we see in other diseases, in infantile paralysis, for instance, about every two years, less strikingly, however, due to the greater infectivity. Frequently in infantile paralysis several members of a family will succumb, whereas in cerebrospinal meningitis seldom more than one member is affected. This allows, then, for a greater accumulation of numbers, and when conditions favor it the outbreak takes place. Each of the notable cerebrospinal meningitis years have been characterized by hard winters with much snow.

If the past is a criterion we may expect a sharp incidence rise in the next year or two if the meteorological conditions favor it. A moderate number of susceptibles are here, moderate because the severity of the 1904 invasion cleared the field. Following the law indicated above, the outbreak will not be so severe as those of 1872 and 1904. Cases are divided by intensity and evolution (Flexner) into:

1. Severe onsets, seldom terminating in recovery spontaneously.

2. Mild onsets which remain so or develop into severe cases, slowly progressive to recovery or death.

## 3. Middle course cases.

Within these classes occur the

## a. Fulminant with early fatality.

b. Ambulant in which recovery is the rule, but which may pass into violent intensity, even becoming fulminant.

## c. Abortive, with recovery by crisis.

Ambulant and abortive cases are not to be confounded, the onset in the one being insidious, in the other, sharp.

The serum treatment with direct introduction into the subdural space has been distinctly beneficial, as shown by comparative studies within the period of bacteriological diagnosis. The years 1904-9 were characterized by epidemics in various parts of the world and subtended an average case fatality of seventy-three per cent., the lowest one considered being Milan, fifty-six per cent., the highest, in certain Ohio and California cities, ninety per cent.

It has been pointed out by Flexner that there is far less variation according to period, race, or occupation, than to virulence of meningococcus, and that there is a considerable biological variation, exudates showing a difference in number, containing sometimes a large, sometimes a small, number of cocci, the distribution of which varies in the ratio within the cell or free in the fluid. The prognosis in the latter event is more grave than in the former. In opsonic experiments, and by inference in man, "the kind of leucocytes and even sera, normal or immune, play no obvious distinguishing part." Most meningococci are readily phagocyted in the presence of serum and ultimately dissolved, some resisting more tenaciously, and it is from these strains digesting slowly that the antimeningococcus serum is preferably developed. This indicates the great care essential in selecting a product from a reliable source. There is experimentally, however, at times "a fastness to intraleucocytic enzymes, preventing englobing of the specific organism," which later may in man account for some failures in serum treatment. Some other causes of failure are:

1. Dry cords with adhesions obliterating subdural spaces, which would include the basilar occlusion cases, and due to pathological sequence or even to serum irritation.

2. Sudden and pronounced fall in blood pressure, with respiratory paralysis.

3. Excessive temperature, possibly due to hastening of liberation of endotoxines.

4. Trophic disturbance in long treatments (skin, bladder, etc.).

## 5. Late treatment.

One observer suggests tricesol poisoning, due to fissure of cord allowing communication of the subdural space with the central canal and fourth ventricle. (Kramer.) This implies a chemical action on the nuclei in the floor of the ventricle causing paralysis of respiration. Flexner nullifies this effectually by calling attention to the direct path to the fourth from the lateral ventricle, where phenolized serum has been introduced with no effect on respiration. The fatalities are clearly shown to have been due to an improper adjustment of the volumes of fluid removed and of the serum introduced, resulting in respiratory paralysis due to pressure.

Notwithstanding all difficulties, the case fatality

in serum treated cases is reduced at least one half over the old rate of seventy to seventy-five per cent. Flexner's analysis of a world wide series of 1,294 cases shows a fatality of only 30.9 per cent.

When given first to third day of disease, 18.1 per cent. died. When given fourth to seventh day of disease, 27.2 per cent. died. When given later, 36.5 per cent. died. The least satisfactory age was under one year of age: 49.6 per cent. died. The most satisfactory age was under five to ten years: 15.1 per cent. died. From this on the mortality increases to 37.5 for those over twenty years of age.

A tendency to termination by crisis was shown when the disease was treated early. Clark, at Swinburne Island, in eighty-five cases had a mortality of forty-seven per cent., including sixty-six cases with complications. Three patients had tuberculous nephritis and five secondary infections; excluding which, the mortality was 37.6 per cent. DuBois, of the Health Department Research Laboratory, treated a series of cases with a mortality of fifty per cent., though many of these were seen late in their course. The most impressive figures are those of Sophian, who had a mortality of twenty-eight per cent. in Texas hospitals.

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 Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXXVII.—How do you treat threatened abortion? (Closed August 15th.)

CXXXVIII.—How do you treat insomnia? (Answers due not later than September 15th.)

CXXXIX.—How do you treat chancreoids? (Answers due not later than October 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXXVI was awarded to Dr. Nelson Du Val Brecht, of Washington, D. C., whose article appeared on page 475.

## PRIZE QUESTION CXXXVI.

## THE TREATMENT OF CHOLERA INFANTUM.

(Continued from page 478.)

Dr. Hyman Goldstein, of New York, considers:

Cholera infantum in its entity, is a severe gastrointestinal intoxication. As to its etiology we should



consider it the result of one or more of the following factors, i.e., milk infection, germ disease, anaphylaxis of the organism produced by certain foods or fruits, impure water, chemical or biochemical irritants, weather influences, neurotic and emotional disturbances, dirty finger nails of mother, governess, or infant when being fed, dirty nipple or shield, germ carriers—as toys, flies, mosquitoes, winds, dust, sand, and insects. Basing the treatment on these facts leads me to divide it into two main divisions: Prophylaxis, and the treatment of the disease.

1. Prophylaxis.—(a) Hygienic precautions for the mother and governess, for the child, and for the home. The mother or governess should always have clean finger nails, clean habits, and a pleasing disposition, and be very patient but not emotional. The child's body, finger nails, buccal cavities, gums and tongue should likewise be kept clean, the clothing should be clean, loose, plain, and without folds. The used nipple or shield should be washed and kept antiseptically clean. Breast feeding must be encouraged for young infants during the second as well as the first summer, even if it will require a wet nurse (who is healthy and young and has all the necessary requirements). To let the child play or roam about in the sand and dirt while the guardian is bathing should be prohibited.

Sweeping the floors or dusting about without watering is dangerous, because the flying dust contains germs which may spread infection. The table scraps and house refuse matter should be immediately gotten rid of, or placed in airtight covered receptacles; otherwise putrefaction will ensue, worms will gather, and germs will thrive and spread disease.

(b) Dietary precautions.—Foods and fruits that irritate the alimentary tract should be prohibited, because there exists a susceptibility in the organism, and anaphylaxis sets in with marked toxicemic disturbances. In young infants, encourage breast feeding only, but in older children allow only easily digestible food, small in quantity and at frequent intervals, and watch closely for any mild gastrointestinal disturbances, which may necessitate a change.

(c) Climate.—Those who can afford it should take their children to the country for the summer months. The poorer class would benefit their children by taking them to the sea shore twice weekly, and during every hot evening. The very poor should take their children to the parks, river banks, piers, roofgardens, roofs, and in the shade to give them plenty of fresh air. All of these precautions when heeded by the mother, and a close watch on any change along the alimentary tract, I believe, in many instances would prevent the onset of cholera infantum.

It is also to be remembered that cholera infantum, like typhoid or other infections should be quarantined. The excreta should be received in special receptacles containing disinfecting solutions, likewise all soiled bedding and other things handled should be disinfected. Other children should not be permitted in the same room. It is advisable also that only one person should attend to the patient throughout the entire illness.

2. Treatment of the disease.—Besides quarantining the patient and disinfecting the excreta we must abate the marked prostration and fever, control the diarrhea and vomiting, modify the sepsis, stimulate the vital centres, and protect the outlets of life.

Food should be withheld for twenty-four to thirty-six hours. I allow a little buttermilk, which seems to lessen the infection, as it checks the diarrhea, and also sour grape wine (no sugar), which sustains the vital powers, and diminishes the prostration and vomiting. Small pieces of chopped ice should be swallowed, preferably, with a little orange juice.

At the outset administer fractional doses of calomel in combination with powdered ipecac, salol, and santalin, often repeated till one half grain is taken, and in children over six years, till two grains are taken. The ipecac in small doses soothes the mucous membrane, and the salol and santalin are antiseptic. This preparation gives excellent results. Three hours after the last powder, a moderate dose of castor oil is administered; if it nauseates I advise a high soap suds enema in its stead.

Two hours later, after the good results follow the catharsis, begin with the astringents. Large doses of bismuth seem best. When the diarrhea is uncontrollable and depleting, paregoric, in minim doses, well diluted, may be added, watching its effects very carefully; in very young infants the paregoric is not to be used.

For the fever, hydrotherapy is the best, such as cold water sponging, every two hours; place the child in a bathtub of warm water, in a sitting posture, and add water until it reaches the child's umbilicus; spray cold water over the rest of the body. Cold sheets or a cold water coil is better where the temperature is very high and persistent. Another good remedy is to give a low enema of one glassful of cold water or administer it through a rectal tube, repeating when indicated by recurring hyperpyrexia.

To combat the sepsis administer salol,  $\frac{1}{2}$  to ij grains, with thymol,  $\frac{1}{30}$  to  $\frac{1}{10}$  grain, every four hours, and continue it throughout the convalescence. Thymol has almost a specific action in these cases. The soft grape wine or warm whiskey, ten minims to a teaspoonful of warm water, every three hours, should be continued, and warm bottles to the sides and feet should be applied to keep the body warm. After a few days when the diarrhea diminishes and the intense symptoms subside or lessen in severity, give albumen water, boiled milk and water, or a tablespoonful of milk in a thin gruel every hour. Then gradually increase the diet from fluid to soft in accordance with the improvement of the gastrointestinal condition, but solid food—white or red meats or scraped beef—are not allowed until about the latter part of the third or fourth week, and then only with drop doses of dilute hydrochloric acid, well diluted to facilitate digestion. As to the drugs, the salol and thymol should be continued for six weeks, and then give ten drops of the syrup of the iodide of iron every three hours as a tonic; or give the solution of iron, strychnine, and quinine, in ten drop doses, every three hours, when anorexia is present, with marked weakness. The sour wine should be continued, giving a teaspoonful every three hours, to stimulate and support the vital cen-

tres. The child should remain in bed for at least three or four weeks and then be allowed to sit up; after five weeks place the child on the porch, roof, or yard, to sit for a few hours, and then walk a little about. Electricity and massage also help to strengthen the body after such a protracted illness.

*Dr. Frank W. Spicer, of Duluth, Minn., holds that:*

The management and treatment of cholera infantum depends somewhat upon the severity of the symptoms. While primarily we are dealing with a severe form of gastrointestinal infection, it is essential to remember that it is the toxemia that causes the alarming symptoms; the toxemia being due to the absorption of toxic materials, the result of putrefactive changes in the stomach and intestines, caused usually by impure milk. The pathological changes in the stomach and intestines are slight compared to the severity of the symptoms. "The trouble is in the contents and not the structure." The toxemia causes great depression of the heart and the general system, by acting on the nerve centres, and the symptoms develop so rapidly (the course to a fatal termination is often only a few hours), that each case must be considered an emergency case that demands prompt and careful treatment and nursing.

The temperature should be taken frequently in the rectum, as the axillary temperature may be normal when a hyperpyrexia exists.

1. The first indication is to empty the stomach and intestines; cathartics cannot be depended upon, even if they are retained by the stomach, on account of the time necessary for them to act. Probably one washing of the stomach at the outset will suffice. The bowel should be irrigated with a normal salt solution—a pint for a child six months to a quart for a child of two years. This may be done several times the first day, then once daily. A flexible catheter should be introduced six to eight inches up, and a cold solution used if the temperature is high. The small intestine is not reached in this way, and as soon as the acute vomiting ceases, small doses of calomel and podophyllin should be given, followed by castor oil.

2. A cautious and judicious use of morphine in many cases has no substitute. It is valuable as a narcotic and hypnotic. Its effect upon the heart and nerve centres, upon the secretions, and in checking the continued loss of fluids, its effect on peristalsis in checking the forceful movement, and also in allaying the acute vomiting are all desirable. It should be given after the gastrointestinal tract has been emptied, and given hypodermatically in doses of 1/100 grain, with atropine, 1/600 grain, to a child of six months, which may be repeated. Starch water and laudanum, given by rectal injection, may be substituted in some cases. It is contraindicated when the little patient is drowsy or unconscious, and when the "hydrancephaloid" state, as it has been called, exists.

3. The next indication is to reduce the temperature. This is done by baths at 80° F., reduced to 70° F., by using sheets wrung out of cold water; an ice cap to the head; and by frequent rectal injections of cold water.

4. The next indication is to supply the shrinking

body with fluid. Hypodermoclysis is the best method. Although the vitality is low, it is surprising how much fluid the tissues will take up. One pint to one quart may be given in twenty-four hours. This will aid in quenching the thirst, assist the action of the kidneys, and neutralize the poison.

5. Food and drugs. No food is given at all during the acute stage, as it is useless to try it. For the vomiting, a teaspoonful of equal parts of lime water and cinnamon water may be valuable. Stimulation may be necessary. Brandy and other stimulants may be given by mouth if retained, if not, camphor is reliable and can be given hypodermically; also other heart stimulants. If a diarrhea persists a good prescription is

R Bismuthi subnitrat, ..... ʒiij;  
Bismuthi salicylat, ..... gr. xxxvj;  
Elixir pepsini composit, ..... ʒvi;  
Misture crete, q. s. ad. .... ʒiii  
M. Sig.: A teaspoonful every two or three hours.

Special symptoms must be treated as they arise. A mustard plaster on the abdomen for pains, pieces of ice for thirst, etc.

6. Collapse may supervene at any moment. The hot bath or warm mustard bath must be substituted for the cold, the limbs well rubbed, hot drinks given, heat applied externally, stimulants as strychnine and brandy given, and hypodermoclysis.

7. Convalescence. When the patient has reached the convalescing stage, or after the acute stage is passed, there must be a very cautious increase of food to prevent a recurrence of trouble. Peptonized milk, albumen water, and barley water should be given in teaspoonful doses every few minutes, and a gradual return made to proper feeding, and treating carefully the various conditions as they may arise.

(To be concluded.)

### **Therapeutic Notes.**

**Management of Third Stage of Labor.**—David Berry Hart, in his recently issued *Guide to Midwifery*, asserts that no stage of labor is more mismanaged in practice than the third. He dissents from the view that separation of the placenta takes place through a diminution in area of its site owing to the retraction of the uterus, and holds that the separation occurs after the pains, because the now nonvascular placenta does not expand with the uterine wall as it did during the first and second stages of labor. Such a mode of separation is actually appreciable in placenta prævia, where, when the placental site in the lower uterine segment expands, separation at once takes place.

The assertion holds good, according to this, that the obstetrician who squeezes the uterus to separate the placenta is making a mistake. The uterus should be grasped, but pressure should not be exerted unless there is some necessity for it. When a good pain comes on, it need not be reinforced, though if the pains are weak, it is right to strengthen them and excite a stronger contraction with the hand. Nothing is worse, according to Hart, than squeezing the uterus unduly during a pain, or hurrying up the next contraction by manipulation between the pains. The only result

is premature inertia and the risk of expulsion of the placenta and membranes *minus* a part of them.

An important time in the third stage is when the uterus lessens in bulk, indicating that the placenta has become separated and expelled into either the lower segment or the vagina. In the former case it shows as a projection above the pubes. It is then that downward pressure of the hand in the axis of the brim will express, if necessary, the placenta and membranes. If the separation is complete, very little pressure is required to do this. When the placenta is coming out of the vulva it should be received in the attendant's hand, and the possibility of the membranes being adherent to a slight or marked degree considered. The attendant should see that the uterus is firm and have the nurse take his place in grasping it while he examines the placenta and membranes to ascertain if they are intact.

**Uses of Tincture of Iodine in Ophthalmological Work.**—Jacqueau, in *Lyon médical* for April 27, 1913, points out that tincture of iodine, appropriately employed, is by no means as irritating to the eye as one might suppose, but constitutes a most excellent antiseptic agent in eye work. He found that an aqueous iodine solution presents no advantage over the tincture, but on the contrary seems to possess less penetrating power.

In long standing glandulociliary blepharitis, with crusts and ulcerations, the effects of a few careful applications of the tincture at the roots of the lashes are superior to those obtained with yellow ointment. Whenever iodine is used on or near the eye, however, it is necessary first to instill one or two drops of a three to five per cent. solution of cocaine into the conjunctival sac. This will effectually prevent local irritation and lachrymation.

In traumatic corneal ulcers with incipient infective manifestations tincture of iodine is deserving of widespread use, as it often arrests the morbid process and in the other instances, will so delay its progress as to permit of ultimately saving the eye. After cocaineization, and with the lids held apart with the fingers, the tincture should be applied to the affected area by means of a narrow wisp of cotton twisted on the pared end of a matchstick. The patient should be required to fix his gaze on a distant point during the procedure and the lids should be held apart a few seconds after the application, to allow the tincture to dry on without becoming mixed with the lacrymal fluid. Under these conditions, no pain results, there is practically no diffusion of the drug into the healthy tissues. In severe cases the procedure may be repeated without hesitation, daily or even twice a day.

Jacqueau also advises the use of iodine in operative work on the globe and cornea, especially in the cataract operation. On the day before, and where there is particular fear of complications, several days before the operation, the tincture should be carefully painted on the lid margins. This is to be repeated immediately after the operation, and in addition, a little of the tincture should be applied over the line of the corneal incision. While the fact that this procedure was followed by the author in thirty-seven cases of cataract operation without a

single case of infection proves nothing, the results seemed superior in this series of patients to those generally obtained, in that the eyes were regularly found quiescent and free of all irritative redness at the first dressing, and healing appeared to take place more rapidly than usual in the majority of cases.

**Use of Emetine in the Treatment of Intestinal Hemorrhage.**—Valassopoulou, in *Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, May 22, 1913, reports the case of a woman twenty-eight years old, suffering from alternate constipation and diarrhea, abdominal pain and bloodstained fecal discharges, but without tenesmus, in which, after the ordinary treatment for dysentery had failed to yield much benefit, a subcutaneous injection of one third grain (0.02 gramme) of emetine was given as a matter of experiment, though no amebæ could be found in the stools. Within a few hours after the injection the bloodstained evacuations, previously constantly occurring to the number of eight or ten daily for two months, were completely and apparently permanently arrested. Two or three more injections of emetine were given on the succeeding days. At this time, rectal palpation revealed the presence of a firm tumor in the rectal wall, and later another—the primary—tumor, higher up, in Douglas's cul-de-sac. The case was thus one of rectal carcinoma in which emetine arrested the intestinal hemorrhages.

**Treatment of Migraine.**—Andrist, in the *St. Paul Medical Journal* for March, 1913, states that he has found of some benefit in migraine the treatment advocated by Lorand, consisting in the inhalation of an irritating snuff, which by exciting a profuse flow of nasal secretion, draws blood away from the vessels of the dura and pia. One of the snuffs recommended by Lorand is formulated as follows:

R Mentholi, ..... gr. viiss (0.5 gramme);  
Acidi borici, ..... gr. xv (1 gramme);  
Radici iridis, ..... aa 5ss (2 grammes).  
Sacchari lactis, )

M.

Other measures to relieve pain are practically worthless—unless one resorts to morphine or its derivatives. In very nervous and irritable patients the bromides may have their place and are largely used, as are the coal tar products. Often, however, these patients cannot well stand the coal tar drugs. Disorders of the nose or accessory sinuses, errors of refraction, or muscular strain, should be corrected, when present.

Lohman found that an attack could be cut short by massage of the nape of the neck, precisely at the insertion of the muscles into the occiput, while Andrews recommends dietetic restrictions.

**Treatment of Asthma.**—Comby, in *Monde médical* for July 15, 1913, is credited with the following formula for the administration of arsenic to asthmatic children:

R Sodii arsenatis, ..... gr. ⅓ (0.02 gramme);  
Potassii bromidi, ..... gr. viiss (0.5 gramme);  
Syrupi aurantii florum, ..... ʒi (30 grammes);  
Aque destillatæ, ..... ʒii (60 grammes).  
M. Sig.: Three teaspoonfuls a day.



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THE DANGERS OF PITUITARY EXTRACT  
IN OBSTETRICS.

Pituitary extract has recently found considerable favor among obstetricians, its oxytocic properties having proved in general so marked as to rival and in some instances exceed those of ergot. The precise field of its application, however, and its relative value in comparison with the last named drug, constitute a problem which is still *sub judice*. Not to be overlooked in this connection are the elements of danger which the use of pituitary extract undoubtedly entail.

The fetal heart sounds were observed by Nagy (*Zentralblatt für Gynäkologie*, March 9, 1912) to become markedly decreased; Spaeth (*Ibidem*, February 1, 1913) recorded a death from this cause, the newborn living but one half hour after birth. In the mother, tetanoid contractions were observed by Mahnovsky (*Roussky Vrach*, October 20, 1912) while Hauch and Meyer (*Hospitalstidende*, April 2, 1912) refers to two deaths which seemingly were due to the induced abnormally high blood pressure. Of special interest in this connection were the observations of Edgar at the last meeting of the American Gynecological Society (see our issue of July 19, 1913). While the drug has usually been found to produce powerful *intermittent* uterine contractions, Edgar called attention to the fact that these theoretically intermittent contractions ap-

proached practically, in the face of resistance, a continuous character, and must therefore be reckoned with as capable of introducing danger in the use of the drug. In the first stage of labor, full and even small doses of pituitary extract were observed by him to produce compression of the fetus sufficiently prolonged to cause its death, premature placental separation, and rupture of the deeper portion of the cervix. Among thirty-nine cases of inertia in the first and second stages of labor under Edgar's observation, two, and probably four, stillbirths resulted from the administration of pituitary extract before complete dilatation of the os. The significance of these facts is given further emphasis when it is realized that the degree of action of the extract is very uncertain, a quantity as small as one half the dose commonly employed having at times caused uterine contractions of such power and duration as to render rupture of the organ imminent and imposing recourse to anesthesia in order to relax it. Under these conditions one cannot but agree with Doctor Edgar's conclusion that pituitary extract should never be administered to overcome inertia in any stage of labor, unless anesthesia can be immediately instituted and preparations have been made for immediate operative delivery, if this should be required.

Comparing the extract with ergot, one finds even in great activity of the former drug an element of advantage, for in cases where ergot fails to contract the uterus satisfactorily the addition of the extract introduces a possibility of turning the tide in a favorable direction. On the other hand, among eighteen cases in which pituitary extract was given just after the termination of the third stage, to control post partum hemorrhage, the result of insufficient uterine contraction, Edgar found the drug unreliable and not so positive in its action as ergot, only six of the cases showing, after its administration, contractions sufficiently marked to preclude the necessity of adding other adjuvant measures to arrest hemorrhage or of actually packing the uterus.

On the whole, the advice of Rieck (*Münchener medizinische Wochenschrift*, April 9, 1912) that the serious complications which may occur in the use of pituitary extracts during labor are such as to limit its use to hospitals, where prompt medical service is available, seems to merit serious consideration.

A BUREAU OF DEPORTATION FOR  
ILLINOIS.

We note with a good deal of interest the recent passage of a law by the Legislature of Illinois authorizing the establishment in that State of a bureau for the deportation and expatriation of its

alien insane, similar to the one in existence in the State of New York.

This again brings to the fore the vital problem of the increase of insanity and mental defectiveness in this county through immigration, and it is a healthy sign of the times when the various States are taking cognizance of this. No one who is at all acquainted with the excellent work of the United States Public Health Service can fail to appreciate the tremendous value to the nation of the work of its officers in the medical inspection of arriving aliens. At the same time those who are familiar with the subject of psychiatry will readily appreciate the absolute impossibility of detecting all the insane aliens, or anything approaching this, at the time of their arrival in this country. Such an ideal state of affairs would be out of the question even under the most favorable conditions and with the most excellent working facilities, let alone under conditions such as exist for instance at Ellis Island. Some of these difficulties have been pointed out in a recent issue of *The Survey* by Surgeon E. K. Sprague, of the Public Health Service. When we remember that according to this author the ridiculous sum of eight and a fraction cents a head was expended by the federal government during the fiscal year of 1912 for the medical examination of each alien arriving at the port of New York, it is small wonder that the provisions of the immigration laws cannot be properly carried out. And just so long as proper facilities for the enforcement of the law will not be furnished by the federal government the country will continue to be flooded with undesirable aliens.

States like New York and Illinois, which are burdened most by the influx of alien insane and defectives, have tired of calling on the federal government for relief, and have decided to take matters into their own hands by the establishment of bureaus such as outlined above.

The State of New York was the pioneer in this respect, and that the results have justified the experiment is amply illustrated by the report of its Bureau of Deportation for 1912. According to this report a total of 1,771 insane persons were deported from the State of New York during 1912; what this means to the State in dollars and cents can readily be computed when we keep in mind that, conservatively estimated, the cost of each one of these insane to the State is about \$275 per annum, and the average life is estimated at ten years.

When we consider, however, the effect upon the mental health of the nation which an unrestricted influx of alien insane must eventually have, the financial phase of this problem really fades into insignificance.

The work contemplated by the Bureau of Deportation is of the nature of field work, and in connection with the immigration inspection work of the officials of the United States Public Health Service, it is hoped, will eventually solve the highly important problem of the alien insane.

### OLD WARSHIPS AS SANATORIA.

A resolution, offered by Dr. S. Adolphus Knopf, of New York, and adopted unanimously at the Fourth International Congress on School Hygiene, held in Buffalo, N. Y., in August (see page 501 of this issue) endorses the proposal to use old, discarded battleships as sanatoria or preventoria, and expresses the hope that our government will follow the example set by the Italian secretary of marine, who authorized three old warships of that nation to be converted into floating sanatoria for the treatment of children suffering from tuberculosis. The plan should be peculiarly satisfactory, because by such means most of those tuberculous children would be cured. In children the disease does not manifest itself so much in the lungs, but much more often in the bones, joints, and glands. For such cases the sea air is most beneficial; besides, as only the sputum of consumptives carries the contagium, and as such children expectorate very little, or not at all, there would be practically no danger of their spreading the disease. The French government evidently appreciated the importance of these points several decades ago, when, for the care of the tuberculous, scrofulous, or rachitic children of its poor, it established large and excellently equipped hospitals on its seacoast, where these puny sufferers are assured of the benefits of the sea air, ozone, and of the healing iodine and other halogen salts liberated from the breaking waves. In addition, appropriate diet in generous amounts, careful nursing, and adequate medical care of their "white swellings" and other ailments are furnished. Hence, instead of early death, or what is worse, the prospect of growing up weaklings, cripples, or hunchbacks, most of these children acquire stronger constitutions and have a happy and useful future assured them. The government in this way reclaims many future worthy and virile citizens, who would otherwise be lost to it. Our Sea Breeze, on Coney Island, New York, was modelled after one of those French *hôpitaux maritimes* for tuberculous children. Of the same nature is also the work of St. John's Guild, which summer after summer, for many years past, has been working its life saving wonders for the metropolis.

The importance of all these facts becomes apparent when we realize that, as stated in the preamble concerning the use of discarded battleships, nearly one million tuberculous children are attending school in the United States, while there is hardly accommodation for 1,500 to receive instruction in the open air.

#### NEUROSES OF DUCTLESS GLANDS.

At the fourteenth annual meeting of the American Therapeutic Society John C. Hemmeter, of the University of Maryland, presented an address on the Hypertonicity and Hypotonicity of the Vagus and Sympathetic Nervous System, and the Neurochemical Synergism of the Normal Body and Its Suggestions for Physiological Therapeutics, in which he introduces what he regards as a new doctrine of pharmacodynamic action, and the first description of internal secretory gland neuroses.

It is not possible at this time to take up the former of these, but we will endeavor to give, briefly, some idea of the latter. The elective affinity of chemical substances such as atropine and pilocarpine for certain parts of the vegetative nervous system has been designated by the term tropism, but Doctor Hemmeter prefers the more precise one, pharmacotropism. Two fundamental concepts must be borne in mind in interpreting the complex pharmacotropisms: First, that there is a diffuse dissociation of the individual effects of the neurotropic substances; second, that when the tonic innervation, the increased excitability of the vegetative nervous system, has been found to exist, it need not come to expression in all the organs of response. In other words, these various organs in single individuals react in a different manner to the same stimulus.

In referring more particularly to the thyroid, Doctor Hemmeter states that it has been shown by Asher, Flack, and other investigators that this gland can be influenced by fibres in the superior laryngeal nerves. Moreover, these special fibres are of sympathetic origin. We are now learning with growing certainty, he says, that we can have secondary secretory neuroses of the thyroid simulating Basedow's disease, but due to a primary disease of these secondary secretory fibres. The thyroid is just as much dependent upon and controlled by the neural system as are the salivary glands, and therefore we have a right to believe that there are thyroid neuroses, just as there are gastric neuroses. This is rendered all the more probable by the fact that clinical cases with all the phenomena of Graves's disease are met with, which have not been relieved by thyroidectomy, and in which parts

of the removed thyroid were found normal: there being no hyperplasia of secreting vesicles, no liquefaction of colloid material, and no small round cell infiltration.

As is well known, the nervous theory of Graves's disease, in which, as stated by Putnam, of Harvard, "irritation of the sympathetic system is considered the exciting factor" is not a new one, a fact which applies also to the "fright complex" theory of Mackenzie. Laignel-Lavastine, Frankl-Hochwart, and others have also associated neuroses with the ductless glands. However, Doctor Hemmeter's views will do much to attract attention to a neglected though promising field, and doubtless contribute to our knowledge.

#### CHAULMUGRA OIL IN LEPROSY.

Dr. Victor G. Heiser, chief quarantine officer and director of health for the Philippine Islands, publishes a very interesting note regarding the apparent cure of two lepers in Manila in the *Public Health Reports* for September 5, 1913. The two patients who had been confined to the San Lazaro Leper Hospital on account of leprosy have been pronounced apparently cured and discharged from that institution on probation. The first case was that of a male Filipino, aged twenty-seven years, who had been at the hospital for four years. On admission the patient clinically showed thickened reddish spots on the nose, and thickening and discoloration of the lobe of the right ear, while scrapings made from the lesions showed lepra bacilli. Vaccine treatment, given at intervals for one year, produced no change. As chaulmugra oil by mouth was followed with nausea, although improvement was evident, chaulmugra oil combined with oil of camphor and resorcin was given hypodermatically for about six months, when the lesions had disappeared and leprosy bacilli were not found microscopically. But the hypodermatic use of chaulmugra oil was continued for two more years, during which time examination was always negative. The patient was then discharged on probation. The second case, a Filipino woman of twenty-two years of age, is very similar. Doctor Heiser, in conclusion, states that it is not known whether the vaccine treatment had any influence in the cures. There are at the present time a number of other patients at the San Lazaro Leper Hospital in whom examinations have been negative for a period of twenty-two months, and who, upon admission, presented more marked evidences of leprosy than the cases mentioned above, yet they received only chaulmugra oil either by mouth or hypodermatically, or in both ways.



## DIAGNOSIS AND TREATMENT OF FRACTURES INVOLVING THE KNEE JOINT.

J. P. Blake says in the *Annals of Surgery* for July, 1913, that the five principal traumatic bone lesions involving directly, or indirectly, the knee are influenced less than might be expected by the fact that they invade the largest joint in the body. Trauma affecting the knee joint, if sufficient to produce fracture, causes fracture of the patella most frequently, of the femur next in order, and of the tibia least often; in patients under twenty years such trauma usually causes separation of the lower femoral epiphysis. With the exception of sepsis, the other complications added to fractures in this region are: (a) Greater difficulty in maintaining position of the fragments; (b) greater limitation of motion after union has taken place; (c) in certain operative cases, an added danger, that of invading a joint with a solid body. The indications for treatment are similar to those applicable to other fractures except that nonabsorbable materials should not be used within the limits of the knee joint unless it is absolutely unavoidable, nor the immobilization continued for a period longer than is advisable in fractures not involving joint cavities.

## News Items.

### Association of Military Surgeons of the United States.

—The annual meeting of this association will be held in Denver, Colo., September 16th to 19th. Surgeon W. C. Braisted, United States Navy, is president, and Colonel Samuel C. Stanton, of Chicago, is secretary.

**Medical Society of the State of Pennsylvania.**—This society will meet in annual session in Philadelphia on September 22d, 23d, 24th, and 25th, under the presidency of Dr. Lewis H. Taylor, of Wilkes-Barre, Pa. An excellent programme has been prepared, and indications point to one of the most successful meetings ever held by the association.

**Curtin Alumni Scholarship.**—The Philadelphia Alumni Society of the Medical Department of the University of Pennsylvania, has issued an appeal for funds to endow a scholarship which it is planned to establish in memory of the late Dr. Roland G. Curtin. Those who would like to show honor to the memory of Doctor Curtin by contributing to the fund may remit to the treasurer, Dr. Lewis H. Adler, Jr., 1610 Arch Street, Philadelphia.

**Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.**—Monday, September 15th, Philadelphia Clinical Association and the Episcopal Hospital Clinical Society; Tuesday, September 16th, West Branch of the County Society, North Branch of the County Society, and the Philadelphia Laryngological Society; Thursday, September 18th, Northeast Branch of the County Society; Friday, September 19th, Southeast Branch of the County Society.

**The Lane Medical Lectures.**—The fourteenth course of Lane medical lectures was delivered in Lane Hall, Medical Department of Leland Stanford, Jr., University, on the evenings of September 3d, 4th, 5th, 8th, and 9th, by Sir Edward A. Schäfer, professor of physiology in the University of Edinburgh. The topics of his lectures were as follows: September 3d, On Internal Secretion in General; September 4th, On the Thyro-parathyroid Glands; September 5th, On the Adrenal Glandular Apparatus; September 8th, On the Pituitary Body; September 9th, The Influence of Internal on Other Secretions. These lectures were founded in 1896 by the late Dr. Levi Cooper Lane, and consist of a "free course of lectures on medical subjects by men distinguished at home or abroad for their work in either medicine or surgery, and are intended for medical students and the medical profession at large."

**The Cumberland Valley Medical Society.**—At the annual meeting of this society, held in Hagerstown, Md., on September 4th, the following officers were elected: President, Dr. E. Roberts Plank, of Carlisle; vice-president, Dr. E. Tracy Bishop, of Smithburg; Dr. E. S. Berry, of Shippensburg; Dr. John G. Gordon, of Chambersburg; secretary, Dr. John J. Coffman, of Scotland; assistant secretary, Dr. J. Royser Laughlin, of Hagerstown; Dr. R. M. Shipley, of Carlisle; Dr. E. D. Palmer, of Green Castle; treasurer, Dr. H. C. De Vilbiss, of Chambersburg. It was decided to hold the next annual meeting in Cumberland County, Pa.

**American Electrotherapeutic Association.**—At the twenty-third annual meeting of this association, held in New York on September 2d, 3d, and 4th, the following officers were elected to serve for the ensuing year: President, Dr. George E. Pfahler, of Philadelphia; vice-presidents, Dr. Albert C. Geyser, of New York, Dr. Frank B. Granger, of Boston, Dr. John D. Torbett, of Marlin, Texas, Dr. William L. Clark, of Philadelphia, and Dr. Frederick P. Tice, of Roanoke, Va.; treasurer, Dr. Emil Heuel, of New York (re-elected); secretary, Dr. J. Willard Travell, of New York (re-elected); registrar, Dr. Frederick M. Law, of New York (re-elected).

**The Harvey Society Lectures.**—Among the lecturers of the Harvey Society for the coming winter are the following: Professor A. D. Waller, director of the Physiological Laboratory of the University of London; Dr. Adolf Schmidt, professor of medicine, University of Halle; Dr. Charles V. Chapin, of Providence, R. I.; Dr. Rufus I. Cole, of the Rockefeller Institute for Medical Research; Dr. George Howard Parker, professor of zoology, Harvard University; Dr. Victor C. Vaughan, professor of hygiene and physiological chemistry, director of the hygienic laboratory and dean of the medical faculty of the University of Michigan; Dr. Sven G. Hedin, professor of physiological chemistry, University of Upsala; and Dr. J. J. R. MacLeod, professor of physiology, Western Reserve University. The course will be inaugurated on October 4th by a demonstrative lecture by Doctor Waller on the Origin and Scope of Electrocardiography.

**Ohio State Medical Association.**—The sixty-eighth annual meeting of this association was held at Cedar Point, on September 2d, 3d, and 4th, under the presidency of Dr. J. C. M. Floyd, of Steubenville. An interesting feature of the proceedings was the adoption of a new constitution, the most important changes being the combination of the offices of secretary and treasurer, the creation of the office of managing editor, and the extension of the powers of the council. A committee was appointed by the surgical section to investigate the question of industrial injuries. Dr. Charles F. Hoover, of Cleveland, delivered the address in medicine, and Dr. John F. Erdmann, of New York, the address in surgery, his subject being Acute Pancreatitis. Dr. George Fackler, of Cincinnati, was elected president; Dr. J. H. J. Upham, of Columbus, president-elect; Dr. C. D. Selby, of Toledo, secretary-treasurer, and Doctor Upham, managing editor of the State Journal. Dr. B. R. McClellan, of Xenia, Dr. John A. Thompson, of Cincinnati, and Dr. R. H. Bishop, Jr., of Cleveland, were elected members of the Committee on Public Policy and Legislation.

### Additions to the Faculty of the University of Illinois.

—The following appointments to the faculty of the University of Illinois, Chicago, have been announced: Dr. Albert Chauncey Eyleshymer, dean of the St. Louis University Medical School, to be professor of anatomy and head of the department of anatomy of the medical school; Dr. Richard Rupert, of Chicago, instructor in anatomy; Dr. George P. Dreyer, of Chicago, professor of physiology and head of the department of physiology in the school of medicine; Dr. Bernard Fantus, of Chicago, professor of pharmacology; Dr. Edgar Grim Miller, of Columbia, Pa., Dr. J. Craig Small, of Chambersburg, Pa., and Dr. H. N. Walker, of Harrisburg, Pa., assistant professors of physiological chemistry; Dr. Fred B. Noyes, of Chicago, professor of orthodontic and dental histology; Dr. Edgar D. Coolidge, of Chicago, professor of materia medica and therapeutics; Dr. Louis Schultz, of Chicago, assistant professor of oral surgery and pathology; Dr. Louis E. Bake, of Chicago, assistant professor of prosthetic technics and porcelain arts; Dr. S. P. Starr, of Chicago, assistant professor of prosthetic technics; Dr. Henry C. Lee, of Chicago, instructor in dentistry; Dr. F. S. Bernard, of Chicago, instructor in prosthetic dentistry.

**Detroit College of Medicine and Surgery.**—Announcement has been made of appointments to the faculty of the newly organized Detroit College of Medicine and Surgery, which has obtained clinical affiliation with practically every hospital in the city. The new school has taken over the property and good will and adopted the alumni of the old Detroit College of Medicine, the charter of which is soon to expire. The alumni will own the school instead of the title being vested in a private corporation of a few individuals. Extensive plans are being made for additions to the equipment and an enlargement of the scope of the work with the object of getting the school placed in class A. The board of trustees consists of Sidney T. Miller, president; Dr. Burt R. Shurly, vice-president; Dr. Frank B. Walker, secretary; Emory W. Clark, treasurer; Dr. James B. Book, Henry M. Campbell, Dr. J. Henry Carstens, James E. Danaher, Jeremiah Dwyer, Edwin S. George, David Gray, Dr. Charles G. Jennings, Henry B. Joy, Alexander I. Lewis, Dr. Angus McLean, Philip H. McMillan, Charles Moore, J. Harrington Walker, and William C. Williams. Dr. J. Henry Carstens has been chosen president of the faculty, Dr. Burt R. Shurly is the dean, and Dr. Frank B. Walker is secretary. The teaching staff has been divided into ten departments and subdepartments, the heads of which constitute the faculty.

**Personal.**—Dr. Leon T. Ashcraft, of Philadelphia, was elected president of the Pennsylvania State Homeopathic Medical Society, at the fifteenth annual meeting held last week in Bedford Springs. Dr. H. M. Gay, of Philadelphia, was elected vice-president.

Dr. C. L. Andrews, of Johns Hopkins University, has been appointed professor of anatomy in the Medical Department of the University of Mississippi.

Dr. Seale Harris, of Mobile, Ala., has resigned as professor of medicine in the medical department of the University of Alabama, after seven years' service in that capacity. Doctor Harris's resignation is due to pressure of professional duties. His successor has not yet been appointed.

Dr. H. S. Woodbury and Dr. C. R. Davis are in charge of the new Manufacturers' Mutual Hospital formally opened in Detroit, Mich., on Tuesday, September 2d.

Dr. Bransford Lewis, of St. Louis, Mo., was elected an honorary member of the Kentucky State Medical Association at the annual meeting of that organization held recently in Bowling Green.

Dr. Robert Curtis Brown has been elected chief of staff of the Milwaukee Society for the Care of the Sick.

Dr. Frank Smithies, for two years connected with the Mayo Clinic in Rochester, Minn., has resigned from that institution and will become associated with Dr. A. J. Ochsen in Chicago. Doctor Smithies declined the offer of a position on the faculty of the University of Minnesota to take the position with Doctor Ochsen.

**Chief Bacteriologist (Male).**—The United States Civil Service Commission announces an open competitive examination for chief bacteriologist, for men only. From the register of eligible persons resulting from this examination, certification will be made to fill a vacancy in this position in the Bacteriological Laboratory of the Bureau of Chemistry, Department of Agriculture, Washington, D. C., at a salary of \$3,500 a year, and vacancies as they may occur in positions requiring similar qualifications. The duties of this position will be to direct all bacteriological and a portion of the fermentation work of the Bureau of Chemistry; to direct the work necessary in controlling the bacteriological purity of interstate shipments and importations of foods; to carry on all investigations of a bacteriological nature connected with the enforcement of the Food and Drugs Act, and to carry on other investigations connected with the agricultural chemical work carried on by the Bureau of Chemistry. An educational training equivalent to that required for an M. D. or Ph. D. degree from a college or university of recognized standing, and at least seven years' practical experience in bacteriological and pathological work involving original investigations, since receiving such degree, are prerequisites for consideration for this position. Applicants must have reached their thirtieth but not their fiftieth birthday on the date of the examination. Persons who meet the requirements and desire to take this examination should at once apply for Form 304 and special form to the United States Civil Service Commission, Washington, D. C., where further information regarding the scope of the examination can also be obtained.

## Pith of Progressive Literature.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

July 5, 1913.

**The Use of Cathartics and Anesthetics for Children.**—W. Birk explains the cause of general intestinal disturbances in infants as originating in overfeeding. All nurslings bear overfeeding for a while; after a little they grow restless and vomit; the bodily weight becomes stationary; tympanitis, flatulence, more frequent green stools appear. The feces are of a mixed color, slimy, containing white specks of undigested food throughout. In these cases the author discontinues all food and gives only tea sweetened with saccharin. No cathartics nor anesthetics are used. Within twenty-four hours the intestinal tract is empty and fermentation is at an end. There is now added to the tea a light sustaining diet, usually strained gruel, for the next two days and thereafter milk is added in slowly increasing quantities. Light disturbances are easily cured by this method; in the more severe forms, however, this treatment will not suffice. Finkelstein's milk of albumin is best prepared by the chemist, but may be made at home as follows: One litre of milk, adding rennet; the resulting whey is not used, but replaced by a half litre of water; this mixture is rubbed through a fine mesh sieve until thoroughly disintegrated; a half litre of buttermilk is added. We have now one litre of milk containing the milk sugar of a half litre of milk, the fat of one litre and the albumin of one and one half litres of milk. This preparation is used for the more severe forms of gastrointestinal disturbances arising from overfeeding. It is considered the best anastaltic remedy in acute intestinal disturbances from this cause. Its use, in very gradually increasing quantities, is continued for one month, when the child resumes its usual diet.

**Therapeutic Action of a New Codeine Derivative, Paracodeine.**—W. Dahl says that paracodeine fills a gap between the codeine and morphine groups. As a result of experience the author asserts that when paracodeine is given, like codeine, in small doses, it often acts with more intensity than codeine. Compared with codeine the new remedy has a greater sedative power. For certain uses this remedy will advantageously replace even morphine. No unpleasant aftereffects, any more than with the codeine preparations, have been observed. The new preparation is a hydrated codeine, soluble in warm water. The dose generally used was from 0.025 to 0.03 gramme.

July 5, 1913.

**Salvarsan Treatment of Progressive Paralysis.**—Raecke asserts that paralytics suffer no ill effects from salvarsan when the remedy is carefully used. It seems, on the contrary, to increase the length of the remissions and to prolong life. Whether the noted improvements are due, solely, to salvarsan, and whether the cure is a permanent one, can only be decided by years of observation. At all events we are to-day justified in recommending a trial of the salvarsan cure during the acute stage of suffering and for cases having an otherwise bad prognosis.

**Obstetric Significance of Underdevelopment.**—E. Vogt believes: 1. That hypoplastic individuals need close attention during the lying-in period, especially after the birth of the child. 2. Even very moderate loss of blood should receive close investigation, because with true oligemia a relatively small loss of blood endangers life. 3. Operative procedures are only to be resorted to under urgent indications because hypoplastic individuals do not bear an anesthetic well, and they are subject to a continuous parenchymatous loss of blood.

July 17, 1913.

**Studies on Aleucocytic Animals: The Presence of Lymphocytes in the Serous Cavities.**—Lippmann and Plesch present the results of their experiments as follows: The animals were first rendered aleucocytic by injections of thorium x, given intracardially. Thus in aleucocytic animals there results: 1. A purely monocytic pleural exudate in which are found all endothelial cells changing over to such as resemble small lymphocytes. 2. No protective cells are drawn toward an inflammatory muscle centre. Only muscle necrosis is seen. 3. Therefore the small lymph cells are neither homogenous nor of the adventitious cell variety. They are derivatives of the serous endothelia. 4. The small lymphocytes found in the fluid of the cerebrospinal system and in the pleural exudate are also remnants of serous endothelia. The presence of lymphocytes in serous exudates is only an indication of a chronic inflammation of the serous membrane: there are no specific antigens. 5. The pleura and peritoneum are biologically different because in the peritoneum of aleucocytic animals polynuclear cells are found, while in the pleura only monocytes are produced during an inflammatory process.

**Clinical Examination of the Condition of the Blood after Total and Partial Removal of the Thyroid Gland.**—P. Reckzeh, as a result of experiments on dogs, sums up as follows: In dogs removal of the thyroid resulted in secondary anemia in about a week. The condition of the white blood corpuscles pointed to an impairment of bone marrow function, the same as in anemias from blood poisoning. The conditions existing in patients suffering with Basedow's disease and myxedema agree with these experimental results. The presence of relative lymphocytosis was especially frequent.

July 24, 1913.

**Thymus Gland.**—K. Basch concludes from his experimental examination of the biology of the thymus that it has an influence on the growth and development of bones and on the excitation of the nervous system, as well as on the control of the pupillary apparatus of the eye; and that it is in close relation with internal glandular secretion, especially with the thyroid and the glands of the reproductive apparatus. Many anatomical and clinical phenomena point to a connection with the lymphatic system.

**Treatment of Articular Rheumatism with Electrargol.**—Schönfeld states that the compounds resulting from the chemical union of colloids with certain metals made good remedies in the treatment of infectious diseases. Electrargol

is such a remedy, used in many forms of rheumatic affections of a bacterial and septic character. The blood and tissues are freed from bacteria and their toxins. Not all patients with articular rheumatism may be treated with electrargol; but only those who are very ill and have not responded to the usual treatment with salicylates. The author reports ten patients of this type who were suffering from an acute attack. They were first treated with salicylates and baths without success. Treated with electrargol, five c. c. were given on the first day, and ten c. c. on the second day, by hypodermic injections made in the gluteus medius muscle. The injections gave rise to no pain. The rheumatic pain was markedly relieved by the following day and the course of the disease greatly shortened. The ten patients were under treatment from June, 1912, to January, 1913.

July 31, 1913.

**Ulsanin.**—R. Mandl says that the use of hydroiodoborate (ulsanin) shortens the time of healing in lupus and scrofulous granulating skin affections. The loss of tissue is less and the scars are not as apparent. It is an admirable remedy for disinfecting freshly infected wounds, in that nascent iodine and oxygen are given off without poisonous results. Its effects are rapid and thorough. After the removal of necrosed tissue, the pus quickly diminishes. On account of the rapid and clean healing there is a great saving in dressings. Being nonpoisonous it may be used for wounds of the scalp and abdomen.

#### ZENTRALBLATT FÜR GYNAKOLOGIE.

July, 1913.

**Kraurosis and Squamous Epithelioma.**—Teuffel reports a case in which these two conditions occurred independently. The kraurosis involved primarily the clitoris and to some extent the labia majora. Cancer formation was also present in the deeper layers of the adjacent epithelium, the surface cells of which were intact.

**True Prophylaxis of Cancer of the Uterus.**—Bossi believes that the development of cancer of the cervix can be greatly inhibited if, by means of slight operations, the original chronic ulcer be removed. He feels certain that in most cases the cause of cancer of the uterus is to be found in chronic inflammation; that this condition is not bacterial in origin, but arises as a result of histological disturbances.

**Pregnancy Following Acromegaly.**—Kalladay publishes a case of a woman, twenty-two years of age, in whom symptoms of acromegaly began to develop. On account of the neutralizing effect of ovarian secretion upon that of the pituitary body, the author administered ovarian extract. Under this treatment she improved very much. In the course of some three months she became pregnant. The treatment was then discontinued on the basis that the ovaries were taking on their normal function, and, consequently no more extract should be administered lest it would interfere with the action of the pituitary body.

**A Case of Ovarian Abscess Following Labor.**—In a case reported by Ohmann, chills and fever developed in the patient, one week after the delivery of a dead baby. At the operation there was found



an ovarian abscess about the size of a goose egg. Bacteriological examination showed the presence of streptococci in pure culture, although no bacteria could be demonstrated in smears. On account of the general belief that such lesions are really abscesses of the corpus luteum, careful search for lutein cells was made. None were found, but their absence could well be explained as being the result of degenerative processes following the infection.

**Unusual Fertility of Women.**—Neugebauer briefly reviews some of the instances of unusual fertility and reports a case in his own practice—a woman who had nine living babies, thirteen abortions and one extrauterine pregnancy.

CENTRALBLATT FÜR ALLGEMEINE PATHOLOGIE UND  
PATHOLOGISCHE ANATOMIE.

July, 1912.

**The Relationship between Eclampsia and Tetany during Pregnancy as a Result of Experimental Parathyroid Insufficiency.**—Massaglia removed two of the parathyroid glands from young dogs without the development of any symptoms of parathyroid insufficiency. Later when the animals became pregnant, and while nursing their young, attacks of tetany appeared. According to the author these outbreaks occurred at a period identical to that when eclampsia appears in women.

LYON MÉDICAL.

August 10, 1912.

**Syphilitic Aortitis with Insufficiency of the Left Ventricle.**—L. Gallavardin asserts that in those cases of syphilitic aortitis in which the diagnosis of the condition is difficult owing to the absence of symptoms specially referable to the aorta, high vascular tension with latent or evident nephritis, and on the other hand, cardiac weakness with symptoms of circulatory inefficiency, are significant accompanying conditions. In the second of these forms, illustrated in two cases reported by the author, syphilitic myocarditis alone is not sufficient to explain the marked ventricular hypertrophy observed. In obscure cases of circulatory affection the possibility of a syphilitic aortitis should be remembered.

PARIS MÉDICAL.

August 2, 1913.

**Acute Cerebrospinal Meningitis with Cerebellar Manifestations.**—A. Ceyon and E. Joltrain report the case of a man, seventy-five years of age, who was admitted to a hospital presenting evidences of meningeal disturbance which lumbar puncture showed to be due to acute meningococcal cerebrospinal meningitis. There was a history of traumatism to the occiput, followed by headache and vertigo, and on the eighth day by a chill, fever, contractures, vomiting, and constipation. Incoordination of cerebellar origin gradually developed, together with slight horizontal nystagmus. Delirium, slight bradycardia, coma, and death followed. The autopsy showed purulent inflammation involving especially the pons, medulla, and cerebellum, and extending deeply into the latter.

**Treatment of Complications of Gonorrheal Infection.**—L. Cruveilhier reports cases of acute

gonococcal metritis and salpingitis, gonorrheal rheumatism of the arthralgic, acute arthritic and chronic forms, and acute gonococcal orchitis, in which prompt relief of pain, inflammatory swelling, and other manifestations was obtained by the giving of repeated injections of Besredka's sensitized antigonococcal virus vaccine.

PRESSE MÉDICALE.

August 9, 1913.

**Case of Erythremia with Unusual Manifestations.**—A. Chauffard and J. Troisier report a case of Vaquez's disease (chronic cyanosis with splenomegaly) in which, five months before death, there appeared signs of portal obstruction, with marked ascites, prominent collateral circulation, and hemorrhoids. The erythremia was for a time completely removed by the administration of sodium citrate. At autopsy there were discovered splenic phlebitis, gastroepiploic thrombosis and a certain amount of sclerosis of the liver. The thrombosis was probably due in part to infection, aggregations of polymorphonuclear leucocytes being found.

**Spontaneous Autoplasty through Gradual Extension of Tissues.**—H. Morestin refers to the fact that when the integument is destroyed on the flexor aspects of joints, considerable difficulty is often experienced in covering it with skin from other localities to obviate subsequent retraction and loss of functions. In the treatment of these cases he has utilized a new principle, viz., that healthy skin can be stretched almost indefinitely when subjected to repeated or gradual traction. The aim is to avoid cicatricial tissue as much as possible, such tissue being responsible for the deformity not uncommonly met with. The technic consists merely in placing the limb in such a position that the healthy skin borders can be sutured together without strain, taking every step necessary to secure primary union, without regard to the faulty posture and then, after healing is complete, utilizing every means to stretch out the integument and restore motion at the joint, especially through exercises carried out by the patient himself. The author presents histories and photographic reproductions of six cases in which large open surfaces left after operations for, respectively, verrucose tuberculosis of the anterior aspect of the forearm, secondary cancer of the inguinal region, cancer of the forearm over the site of a former burn, large scar of the shoulder and scapular region following cold abscess, inguinal sarcoma, and annular scar of the wrist after a burn, were successfully covered, with unusually rapid and complete return of function, by the method described.

LANCET.

August 22, 1913.

**The Use of Radium in Malignant Disease.**—Robert Abbe of New York draws his conclusions from observations made upon 750 individual cases. Many forms of tumors which are not malignant respond to the use of radium in a most satisfactory and prompt manner. Epithelioma of the skin can be cured permanently with radium, and perhaps better than by any other known agent, and with the least scar. The worst types of cancer—of the breast

or uterus in women, and of the stomach, esophagus, tongue, and rectum—usually show prompt and marked amelioration under large doses of radium, but ultimately the disease gains headway, and the temporary gains are lost. Giant cell bone sarcoma can be controlled promptly and certainly by radium. In no case of pure myeloid sarcoma has radium failed to cause retrogression and arrest of the condition. It may be concluded: 1. That there is an undoubted retrograde degeneration of malignant cells under the correct dose of the gamma rays from radium. 2. That the effective use of the drug lies in the application of a large enough amount to avoid the stimulant action of small doses at close range. 3. The alpha and short beta rays may be removed by filtration through lead. 4. Under such filtration a much longer time is required for the gamma rays to act than when the other rays are eliminated by what may be termed "distance filtration." In practice one and one half inches seems to exclude most of these, permitting free and instant play of the gamma rays without the delay of passage through lead. 5. Cross firing is necessary for the best results.

**The Preventive and Curative Treatment of Industrial Lead Poisoning.**—Thomas Oliver has been able to show on animals that the elimination of lead through the skin can be accomplished by immersing the posterior extremities in one bath, and the anterior in another while the baths are connected with the positive and negative poles of an electric circuit. By this means he has been able to restore paralyzed animals to a state of almost perfect health. It is a method of deionization. He has employed a modification of this method in the treatment of men in lead industries with the most phenomenal success. Often the lead line will vanish in two or three treatments, and complete recoveries are proportionately rapidly brought about. For men a series of arm and leg baths are arranged so that more than one patient may be treated at the same time. The positive pole is placed in the foot bath and the negative in that for the arms. Between these two poles, which are of pure aluminum, a current of sixteen volts with from twenty to forty milliamperes is passed through the patient's body. There is no unpleasant sensation if the current is introduced gradually by means of a rheostat. The resistance of the bath water is reduced by the addition of common salt. The bath lasts for half an hour and is given daily or every other day.

**The Presence of Acetone Bodies in the Urine and Their Clinical Significance.**—J. E. Piper reviews some of the older methods of detecting acetone and diacetic acid and calls attention to their lack of delicacy and to their inaccuracy. Then, after describing more suitable methods, he relates the finding of diaceturia in ninety-eight per cent. of all postoperative cases in which open ether was used. His patients were very carefully observed with regard to fasting and all other extraneous factors which might enter to influence the formation and excretion of these bodies. Upon these points he finds that the presence of albumin does not affect the presence of these bodies, nor does the duration of the operation have any influence upon their abundance. Chloroform is less likely to lead to their

abundant production than is ether. There is no relation between their amount and the total quantity of urine passed in twenty-four hours. Septic cases produce smaller amounts than nonseptic ones. The longer the abstinence from food the greater the abundance of the bodies, other things being equal. The greatest single influence leading to an abundance of acetone bodies seems to be the neurotic disposition and mental anxiety before the operation. An interesting point in Piper's work is the observation that the administration of sodium bicarbonate, as so commonly recommended, has little or no effect; the use of glucose is of some value, but the administration of twenty-five grains of pancreatin as soon as possible after the operation practically removes all trace of acetone or diacetic acid, and in cases with pre-anesthetic acetonuria its use greatly diminishes the amount present. The reason for this action of pancreatin is not understood.

#### JOURNAL OF TROPICAL MEDICINE AND HYGIENE.

July 1, 1913.

**Observations on Ankylostoma Infection.**—E. J. Wyler, after discussing the conditions existing in regard to ankylostomiasis in a certain district of Southern Nigeria, states that without doubt thymol is the most efficient anthelmintic for this disease. While some writers advocate a light or fluid diet on the day preceding thymol treatment, it seems to the author of greatest importance that no food should be given on that day or on the day of administration itself, until at least six hours after the last dose of thymol. He thinks neglect of this precaution has sometimes enabled sufficient fat or oil to gain admission to the intestinal tract to cause the absorption of a toxic dose. When administering thymol in ninety grain doses, it is the author's practice to give six drachms of magnesium sulphate on the afternoon of the day preceding the treatment. On the following morning, the thymol is given in three doses, each of thirty grains, at hourly intervals. In the afternoon magnesium sulphate is again given. The patients are kept recumbent the whole of the morning on which the thymol is administered. Of fifty-seven individuals who received the ninety grain treatment, six, or 10.5 per cent., showed ova in the dejecta one week later. It would therefore seem desirable in routine practice to administer at least two ninety grain treatments.

July 15, 1913.

**Malarial Anemia.**—J. P. Bates ascertained, through clinical observations in Panama, that after acute initial attacks of malarial fever there occurs a rapid loss of hemoglobin and red blood cells. The hemoglobin loss, in two or three months of irregular fever, may take place to an amount of from forty to fifty per cent. of the normal, and the reds diminish to the extent of from two to two and one half millions to the c. mm. After the attack is cut short by treatment the recovery in these blood elements is likewise rapid. In uncomplicated malaria occurring in repeated attacks over a period of from three to six years, the loss of hemoglobin and red cells not only ceases, but tends to increase almost or quite to normal, in spite of repeated recurrences

of fever. In the grave secondary anemias, there are other causative factors besides malaria, viz., first, uncinarial infection, and second, a state of semistarvation, not always from a deficient quantity of food, but on account of its poor nutritive value. With these two factors made to bear their share in the causation of grave secondary anemias in malarial subjects in tropical and other malarious countries, and with kala azar excluded, there is no such thing as a grave malarial anemia persisting over a long period of time, finally to terminate in a distinct entity, "malarial cachexia." The last named term is misleading, serving only to misdirect efforts toward alleviation, and should be abandoned in medical nomenclature.

#### BOSTON MEDICAL AND SURGICAL JOURNAL

August 28, 1913.

**Cooked Green Vegetables in the Treatment of Acute and Chronic Diarrheas.**—Cunningham Wilson says that since 1904 he has been treating all chronic diarrheas and dysenteries that resisted the ordinary treatment with opium and bowel irrigation, with a diet of spinach, turnip greens, and mustard tops with the most gratifying results. He begins by giving a tablespoonful or more of one of these four times a day for a week or two, giving no other food, unless the patient is very hungry, when a little toast or corn bread may be eaten. The first few stools after beginning this diet will show the undigested food, but immediately afterward the movements become normal in consistency, and usually after the second day enemas are needed. Flatulence and tenesmus disappear. Spinach is cooked in the usual way, but a little more thoroughly. Turnip greens and mustard give the best results, but when these cannot be had spinach answers well and is better borne by delicate stomachs. After returning to regular diet the use of these greens for lunch and dinner is insisted on for some weeks. Amebic dysentery is improved, but not permanently, in this way.

**The Removal of Adenoids and Tonsils in Children.**—A. Coolidge and F. E. Garland say that tonsils should not be removed for trivial symptoms. Tonsillectomy is not justifiable simply because the tonsils protrude in front of the pillars, nor because they look ragged, nor for occasional sore throat, nor because they contain plugs, nor because the patient is under ether for adenoids, nor for any remote symptoms not of a serious nature, nor to protect the child from indefinite infection, nor for an occasional attack of simple acute tonsillitis. Tonsillectomy should be looked upon as a serious operation, and therefore not to be entered into unadvisedly or lightly, but reverently, discreetly, soberly, and advisedly. Although the function of the tonsillar ring is not known, it is commonly supposed to aid the child in some way against different infections which threaten him through the open portals of the nose and mouth. It may aid in elaborating acquired immunities to the organisms which it receives into its crypts. Although this view is an argument for conservatism, it is not an argument against removing parts of the ring which are in the way or diseased.

**Congenital Hypertrophic Stenosis of the Pylorus, with X Ray Plates.**—Charles G. Mixter reports four cases and in conclusion emphasizes these points: 1. An early diagnosis is the most essential factor in lowering the mortality from this disease. 2. The bismuth x ray will conclusively demonstrate the presence of pyloric obstruction. 3. In any case in which careful medical treatment has been unable to check the vomiting and progressive loss of weight, and where a pyloric obstruction can be demonstrated by the x ray, even if the differential diagnosis cannot be definitely made between hypertrophic stenosis and pylorospasm, exploration should be advised. 4. X rays, taken at varying intervals after operation, show the pyloric obstruction to be a permanent condition. 5. In the cases studied spasm was of no importance as a factor in the obstruction. 6. In true stenosis surgery offers the only hope of cure. 7. The infant develops normally after posterior gastroenterostomy.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

August 30, 1913.

**Fetal Peritoneal Folds and Their Relation to Postnatal Chronic and Acute Occlusions of the Large and Small Intestine,** by J. R. Eastman.—See this JOURNAL for July 5th, p. 39.

**Surgical Aspects of Intestinal Stasis from an Anatomical Point of View,** by J. E. Summers.—See this JOURNAL for July 5th, p. 39.

**Preneuraethenic and Preinsane Conditions,** by Ross More. See this JOURNAL for July 5th, p. 47.

**Epilepsy and Paresis in Railway Engineers and Firemen,** by C. D. Camp.—See this JOURNAL for July 5th, p. 47.

**Federal Control over the Manufacture of Serums and Vaccines,** by J. F. Anderson.—See this JOURNAL for June 28th, p. 1363.

**Antistreptococcus Serum,** by G. N. Weaver.—See this JOURNAL for June 28th, p. 1363.

**Treatment of Pneumonia by Means of Specific Serums,** by Rufus Cole.—See this JOURNAL for June 28th, p. 1363.

**Progress in Antityphoid Vaccination during 1912,** by F. F. Russell.—See this JOURNAL for June 28th, p. 1363.

**Chronic Arthritis,** by L. W. Ely.—See this JOURNAL for June 28th, p. 1359.

**Hemorrhage from the Nonpregnant Uterus,** by J. B. Deaver.—See this JOURNAL for June 28th, p. 1368.

**Clinical Notes on Patients from the Middle Northwest Infected with Entamebas,** by H. Z. Giffin.—See this JOURNAL for June 28th, p. 1360.

**The Clinical and Pathological Relationships of Hyperplastic and Nonhyperplastic Goitre.**—As the result of the studies on this subject which have been made in the surgical clinics, H. S. Plummer finds the following points especially worthy of note: The clinical classification of the cases of goitre, into simple or exophthalmic, or equivalent terms, and the pathological classification of the thyroids removed into those with, and those without, sufficient hyperplastic or hypertrophic changes to characterize the gland; the recognition of toxic goitre heart in a certain proportion of cases which are



not diagnosed exophthalmic goitre, and a less generally well defined idea that the cardiac damage is only one of the manifestations of a general toxicosis; the finding of hyperplastic changes in from seventy to ninety per cent. of the thyroids removed for exophthalmic goitre, and the occasional presence of hyperplasia in glands removed from patients not having a history of notable toxic symptoms.

**Reciprocal Relations of the Clinic and the Laboratory in Medicine.**—Starting with the statement that the clinic has been under obligations to the laboratory since the time of the first post mortem descriptions of normal organs, and of pathological changes in organs and tissues, T. W. Hastings treats of the indebtedness of the modern medical clinic to the medical sciences, and the practical development of the clinical laboratory. In conclusion he says that if one recalls the progress of clinical medicine during the past thirty years, one will appreciate that the most renowned and advanced clinics are those which have attached to themselves competent laboratory assistants and have been in close touch with the laboratories of the medical sciences, or institutes of science allied to these, and whose directors are men well trained in laboratories. Professors in medical sciences should be men who know considerably more of the subject they teach than the clinically trained men in medical schools ever hope to know, on account of the little time the active clinical man can give to keeping pace with any medical science.

**Special Eleventh Annual Summary of Fourth of July Injuries.**—In a special article it is stated that the *Journal* made this year extra effort to secure complete and accurate data, and reports the smallest number of deaths from lockjaw and other causes since it began the collection of statistics. There has also been an astonishing reduction in the number of injuries. There are, however, still too many of these, and it feels that it is necessary that the campaign should be continued until the nation's disgrace shall be entirely removed.

#### MEDICAL RECORD.

August 30, 1913.

**Further Experiences with Duodenal Ulcer.**—Max Einhorn, having referred to a paper of his, published in 1909, in which he described six cases of this affection in which the thread test was the mainstay for diagnosis and cited the literature up to that time, states that it appeared of interest to him to broach the subject anew on the basis of his recent experiences. Most of his cases have been treated medically, and but a comparatively small number have been operated in. In order to show the value of diagnostic signs the material operated on (seventeen patients, whose histories are reported in the paper) is used as a guide. The seventeen cases are divided into six groups, as follows: 1. Duodenal ulcer with positive thread test confirmed as such by operation—seven cases. 2. Duodenal ulcer with positive thread test not confirmed by operation—two cases. 3. Duodenal ulcer found at operation with a negative thread test—one case. 4. Probable duodenal ulcer in which operation failed to find the seat of trouble—one case. 5. Gastric ulcer with

positive thread test confirmed by operation giving clinically the symptom complex of duodenal ulcer—three cases. 6. Periodic recurrent pains in the upper abdomen with negative thread test confirmed by operation as to the absence of duodenal ulcer—three cases. The indications for surgical interference in duodenal ulcer are given as follows: 1. Perforation requires immediate operation. 2. Recurrent profuse hemorrhages endangering the life of the patient require a prophylactic interval operation. 3. Frequent small hemorrhages, not influenced by rational treatment and leading to an appreciable degree of constant anemia, demand operative intervention. 4. Cases with constant continuous supersecretion, accompanied by intermittent isochymia, not yielding to treatment, should likewise be operated in. 5. Severe pains, not influenced to a considerable extent by a repeated course of rational medical treatment, constitute a strong indication for operative measures.

**The Pathology of Simple and Exophthalmic Goitre.**—Louis B. Wilson, after an examination of the thyroid glands removed from 1,208 patients in the Mayo clinic presenting symptoms which would ordinarily be diagnosed as exophthalmic goitre and, for purposes of control, 585 thyroids removed during 1912 from patients whose condition would ordinarily be diagnosed as simple goitre, arrives at the following conclusions: 1. A detailed pathological study of fixed tissue preparations of the thyroids removed from adults, and the finding thereby of marked primary parenchymatous hypertrophy and hyperplasia, permit the pathologist to diagnose exophthalmic goitre with about ninety-five per cent. of accuracy. At the same time, a consideration of the data observed during the examinations will permit him to estimate the stage of the disease in about eighty per cent. of the cases and the severity of the disease in about seventy-five per cent. of the cases. 2. A similar study of thyroids from adult patients, and the finding thereby of no marked hypertrophy, hyperplasia, or regeneration of parenchyma, will permit the pathologist to diagnose nontoxic goitre with about seventy-five per cent. of accuracy. 3. The most difficult cases to diagnose pathologically are those of the clinical toxic nonexophthalmic type. Our knowledge of these cases is still too incomplete to permit of conclusions concerning the details of their pathology. 4. On the whole, it would appear that the pathologist has quite as much data for the estimation of the clinical symptoms of exophthalmic goitre from the pathological data to be obtained from a study of the thyroid, as he has to estimate the clinical symptoms of Bright's disease from the pathological data to be obtained from the study of the kidney.

**Results of Intravenous Injections of Extracts of Goitre on Blood Pressure in the Dog.**—J. M. Blackford and A. H. Sanford find: 1. A powerful depressor substance exists in exophthalmic goitres. 2. A primary injection establishes tolerance to the action of further injection. 3. Atropine does not inhibit its action. 4. The substance does not behave physiologically like cholin. 5. The action is chiefly through peripheral dilatation aided by some diminution in cardiac output. 6. Irritability of the va-

gus is not increased. 7. The existence of a crossed tolerance between the depressor action of extracts of exophthalmic goitres, and of serum from patients with exophthalmic goitre, suggests that the two substances are the same.

**Clinical Interpretation of Chronic Abdominal Enlargement in Children, with Special Reference to a New Differential Sign between Rachitis and Tuberculous Peritonitis.**—Herman B. Sheffield, while stating that a positive tuberculin reaction is, of course, corroborative of the diagnosis of the latter, emphasizes the point that a negative result by no means proves the absence of tuberculosis. The physical sign to which he calls attention is the following: Whereas in rachitis the greatest prominence of the abdomen is manifested at the epigastrium, in tuberculosis the abdominal circumference is largest at or below the umbilicus. This sign can be explained by the fact that in tuberculous peritonitis the inflammatory exudate accumulates at the bottom of the abdominal cavity. To make correct use of the sign it is necessary to exclude large dermoid cysts of the ovary and an overdistended bladder. Another possible source of error is congenital or acquired hypertrophy and dilatation of the colon (the so called Hirschsprung's disease), but with the help of the x ray the diagnosis can be readily made.

**Congenital Stenosis of the Pylorus.**—August Strauch gives a detailed report of a case of this condition, and states that, during his observation, at least, the case never seemed to him to present an indication for surgical interference, though several physicians urged an immediate operation as the only means of saving the patient's life. The child recovered completely under expectant treatment, though, on account of the mother's disregard of medical advice, this was conducted under very unfavorable conditions. The author quotes various authorities on the subject, and appears to agree with Heubner, who concludes that the great majority of cases offer, in spite of the hopeless aspect, a good prognosis, especially in private practice. As to operation, Heubner considers the moment for this to have arrived when the first symptoms of tetany make their appearance.

#### ANNALS OF OPHTHALMOLOGY.

July, 1913.

**Color Adaptation.**—F. W. Edridge-Green summarizes his paper thus: 1. In color adaptation the retinocerebral apparatus appears to become less and less sensitive to the color corresponding to the dominant wave length, and to set up a new system of differentiation. 2. When light of a composition differing from that of daylight is employed to illuminate objects, an immediate and unconscious estimation of the colors of these objects is made in relation to this light, the light employed being considered as white light. 3. No color is seen of which the physical basis is not present in the light employed. 4. When spectral regions are examined with a color adapted eye, that of the dominant wave length appears colorless, while those immediately on either side of it appear to be shifted higher and lower in the scale respectively. 5. There is immediate color adaptation after a longer stimulation with the adapt-

ing light. 6. Colors which correspond to the dominant wave length of an artificial light are with difficulty discriminated from white by this light. 7. Color adaptation may bring two colors below the threshold of discrimination, so that the two appear exactly alike, although by another kind of light a difference is plainly visible. 8. Color adaptation increases the perception of relative difference for colors other than the dominant. 9. The conscious judgment has very little effect in color adaptation. 10. Color adaptation greatly helps in the correct discrimination of colors and masks the effects of the very great physical differences which are found in different kinds of illumination. 11. Spectral yellow, after color adaptation to green, still appears yellow and not red. 12. Color adaptation appears to produce its effects by subtraction of the dominant color sensation, and not be directly increasing the complementary. Spectral blue does not appear brighter after color adaptation to yellow.

#### ANNALS OF SURGERY.

July, 1913.

**An Analysis and Study of 724 Major Amputations.**—W. L. Estes asserts that mediotarsal and tarsal amputations are preferred whenever practicable when amputation of the foot is required. It is especially necessary to obtain good, adequate flaps and cut the anterior tendons long enough to be secured by sutures to the posterior flap when forming the stump. Low down in the leg anteroposterior flaps are preferred, but not the Teale method or any extraordinarily long anterior flap method. In other parts of the leg lateral flaps seem best. At the knee joint a long anterior and a short posterior flap method is preferred. The patella may be removed or not, according to the conditions of the case. From the lower third of the thigh to the hip joint, anteroposterior flaps, with the anterior one longer, are usually employed. The writer always shapes the flaps from without inward, never by transfixion. The average time in the hospital of amputation cases ought to be about twenty-two days. The important factors in lowering the mortality of amputations for injuries are: 1. Saving of blood; 2. careful asepsis or antiseptics; 3, discriminating when to operate. The first two will no doubt appeal to every surgeon. The last one may be resolved practically into the determination of the blood pressure. Operate as soon as the blood pressure will permit. A systolic pressure below 80 should contraindicate operation.

**Snapping Hip.**—J. F. Binnie presents two cases of snapping hip. The first patient complained of: 1. A marked rubbing pain at the crest of right ilium when he carried a heavy weight. This had no relation to the occurrence of his second complaint. 2. When he jumped or carried a heavy weight there was an audible and palpable snapping at the right hip, which he attributed to the head of the femur becoming dislocated, and which he could produce voluntarily. At the operation it was found that there was a sausage shaped thickening of the fascia posterior to the wound and to the great trochanter (the fasciogluteal tract of Heully). A flap of the periosteum was raised, by a longitudinal incision,

from the femur at the lower part of the trochanter major and the posterior lip of the incised fascia lata was sutured to this and to the vastus externus muscle near its origin. The anterior lip of fascia was sutured to the posterior in such a manner as slightly to overlap the original line of suture. The skin wound was closed and the limb fixed in splints. The patient was seen a month after operation, when he was able to work. There was no recurrence of the snapping.

**Hygroma Cysticum Colli.**—Charles N. Dowd says that cystic hygromata of the neck have been described for many years and their existence is undoubted. The terms should be restricted to cysts lined with endothelium and having a marked power of growth. Such cystic growths are uncommon. A careful search of the literature has so far revealed records of only ninety-one cases located distinctly in the neck, and thirty-five cases located principally in the axilla, but in part at least extending there from the neck. The writer records three cases of undoubted hygroma and a fourth case which is believed to have been a hygroma but in which inflammation had destroyed the finer structure of the cyst walls. The most satisfactory explanation of the existence of these hygromata is that embryonic sequestrations of lymphatic tissue existed, and that they had the power of persistent irregular growth. Excision is the best treatment. If this is impracticable partial excision is the next best.

#### INTERSTATE MEDICAL JOURNAL.

August, 1913.

**Ulcerative Colitis.**—From his studies A. Basler concludes that there is a chronic form of dysentery due to the *Bacillus coli communis*, which is not uncommon in temperate climates; that the organisms exist in large numbers in the lower intestinal tract, mostly in the mucus; that they are capable of destruction of tissue locally, with the production of ulcers, and then living within the tissue of the gut wall in the bases of these; and that there is reason to believe that in this disease we are dealing with an organism of the colon group specialized in nature. The disease varies greatly in severity, but most patients go steadily downward from the first, lose much weight, seem unable to digest anything, and in a few weeks become wasted skeletons. The temperature is often raised two or three degrees, and its irregularity is suggestive of septic poisoning. The desire to go to stool is sudden and urgent, but defecation is not usually attended with tenesmus unless there is ulceration of the rectum. Not infrequently there are considerable abdominal pain and tenderness. Relapses are common in cases which do not prove fatal. When death occurs it is usually due to exhaustion, less frequently to perforation and general peritonitis, and occasionally to hemorrhage. The diagnosis should not be difficult, as the pelvic colon is always involved, and this can be directly examined with the sphymoidoscope, which should, however, be used with much care. The paper deals also with amebic and bacillary dysentery and their treatment. In the treatment of the colon bacillus infections of a chronic nature rest is not so important as in these, although advisable. The diet should at first be of

liquid character, and, when the diarrhea has subsided, semisolid, with scraped meat. The usual methods for the control of diarrhea are in order, and irrigation by enemata with the various solutions are called for. In four cases the author has employed autogenous coli vaccines, and in each instance a cure resulted in about three months. He gives in detail the report of one severe case in which appendicostomy was performed, followed by daily irrigations with saline solution. At present the appendix fistula is gradually closing, and the patient is entirely well.

**Duodenal Ulcer, with Illustrative Cases.**—L. H. Hempelmann, as the result of his observations, arrives at the following conclusions: 1. The "stomach trouble" lasting for years with hunger pains relieved by the ingestion of food or soda, with severe exacerbations followed by periods of almost complete freedom from discomfort, almost always indicates duodenal ulcer. 2. Duodenal ulcer is relatively not an infrequent disease, and in many cases its symptomatology is quite clear and its diagnosis easy. 3. Moynihan's dictum, that severe recurrent hyperchlorhydria is duodenal ulcer, is probably nearly true. 4. The danger of hemorrhage and of perforation, and the frequently resulting cicatricial stenosis after the ulcer has healed, make duodenal ulcer a serious disease, which should be treated vigorously—in recent cases by medical means and diet, and in chronic cases by surgical means.

**The Iodine Treatment of Gonorrhea in the Female.**—O. Hofmann, following the suggestion of Bovée, has in the past few months used the iodine treatment with excellent results, and thus describes the technic: Place the patient in the dorsal position, and, separating the labia with the thumb and index finger of the left hand, swab the parts thus exposed, and also the labia minora and inner surfaces of the labia majora, with a solution of 3.5 per cent. iodine crystals in ninety-five per cent. alcohol. Next search for the orifices of Skene's glands, and force into them a few drops of the solution by means of a hypodermic syringe to which is attached a long blunt needle; then search for and inject the external openings of the vulvovaginal glands. The author has not found it necessary to treat the urethra directly only exceptionally. The patient is now placed in Sims's position and, a Sims's speculum having been introduced, the vagina is swabbed dry with cotton and the presenting cervix (not the canal) painted thoroughly with the iodine solution by means of a cotton swab firmly fastened in a dressing forceps. After the anterior wall and both sides have been thoroughly painted, press the swab firmly up into the posterior cul-de-sac, partly withdraw the speculum, rotate it so that it will press against the anterior wall, and then reintroduce as far as possible, swab the posterior wall and remove the swab. Next introduce a very narrow strip of gauze as high up against the posterior wall as possible, remove the speculum, and allow the gauze to protrude beyond the introitus. The applications are repeated every third day in both acute and chronic cases, and two days after the third application smears are taken from all the structures involved. If the gonococci are still present the treatments are continued, and, in addition, vaccine treatment is begun.



## JOURNAL OF INFECTIOUS DISEASES.

July, 1913.

**The Quincy (Illinois) Typhoid Epidemic.**—

Jordan and Irons give a brief report of an epidemic of typhoid occurring in January, 1913. The investigation of the outbreak showed, as usual, that the infection had taken place as a result of the contamination of the drinking supply by sewage. It was found that the rapid filter system as employed by the city was entirely inadequate to free the raw water from dangerous bacteria. To assist in the destruction of organisms calcium hypochlorite had been employed, and it apparently had been efficacious in some degree in preventing typhoid. The year 1912, during which the hypochlorite treatment was used for about nine months, had the lowest typhoid death rate recorded in Quincy. The amount of hypochlorite used in December, 1912, and the first few days of January, 1913, was much below the average for the preceding eight months. It was found that this period, during which an insufficient amount of hypochlorite was used, corresponds with the date when the maximum typhoid fever infection occurred and also with the date of an extensive outbreak of gastroenteritis. The resumption early in January of adequate hypochlorite treatment was followed by the immediate subsiding of the epidemic.

**The Identity of *Entamoeba histolytica* and *Entamoeba tetragena*.**—According to Craig a great deal of study during the past three years has been devoted to the parasitic ameba of man, especially to the species that have been described as causing dysentery, and considerable advance has been made in our knowledge of these organisms. Among the subjects investigated the possible identity of *Entamoeba histolytica* and *Entamoeba tetragena*, the species most often described as being associated with amebic dysentery, has attracted much attention, and the impression has been steadily gaining ground that these organisms, generally considered as being distinct species, are in reality identical. Craig comes to the conclusion that the typical *histolytica* nucleus occurs in the most acute cases of dysentery, while the *tetragena* type of nucleus is found in milder cases.

**The Role of *Staphylococcus* in Gonorrhea.**—Warden, in consequence of his investigations, tentatively concludes that many, if not all, of the Gram negative intracellular, biscuit or coffee bean shaped cocci, observed in the purulent discharge in acute gonorrhea, which are regarded as gonococci and which serve as criteria of diagnosis, are not gonococci, but belong to the staphylococcus group. He holds that true gonococci are demonstrable with difficulty or not at all, in smears of gonorrheal exudates or in preparations of tissues. The diagnosis of gonorrhea is to be made only by cultural methods.

**Further Studies on the Effects of Desiccation on the Virus of Rabies, and the Use of this Material in Immunization.**—Harris points out the great advantages of using desiccated virus in the immunization of those bitten by rabid dogs. It is safer than the ordinary method, in that the greater portion of the material injected is capable of im-

munizing without being infectious. It is economical both to the patient and to the laboratory, because it requires a much shorter time to administer a full treatment than most of the older methods. It is more convenient to prepare, as at one time enough material may be frozen, dried *in vacuo*, and sealed in glass tubes to last for from six to twelve months.

**The Effect of Quinine on Dogs.**—Moon conducted three experiments on dogs in order to determine whether the administration of quinine in rabid dogs would prove effective. The use of this drug was based on the possibility of rabies being due to a protozoan parasite. In each experiment the quinine was not given until symptoms of the disease became manifest. The untreated animals died, while the other three recovered. The author does not offer this method as a substitute for the Pasteur treatment; no other than the preventive method is to be considered during the incubation stage of the disease. But when active symptoms have developed, the Pasteur treatment is hopeless, while the treatment described may offer some hope if instituted without delay.

## JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS.

July, 1913.

**Pharmacological Action of Helenin.**—P. D.

Lamson presents a study of helenin, the active principle of *Helenium autumnale*, a well known American plant growing to a height of two or three feet, with large yellow flowers, and popularly known as the sneezeweed, swamp sunflower, yellow star, ox-eye, etc. Helenin is a neutral, crystalline substance, reducing alkaline copper mannite solution on slight warming. It is not a glucoside, containing no carbohydrate group. It is a very active irritant to mucous membranes, causing sneezing and lachrymation when brought in contact with the nasal mucosa and conjunctivæ, vomiting and diarrhea when ingested, and edema when subcutaneously injected. It is a direct paralyzant to the heart muscle, and acts severely on the respiration, the rate and force of which are increased, while the volume of expired air is diminished. The pure helenin, given to animals, produces the same symptoms as those formerly described in poisoning of cattle after ingestion of the entire plant. The giving of melted lard to poisoned cattle would appear rational from the results of the author's experiment in which helenin was given internally to a dog. This plant is probably a cause of fall hay fever. As to the many medicinal uses of helenin mentioned in the literature, as a tonic, snuff, febrifuge, anthelmintic, diaphoretic, and as an antidote for "colds" and venereal diseases, its pharmacological properties certainly justify its use as an emetic. It could be employed as a stomachic in small doses. Its intense gastric irritant action would exclude its use as a vermifuge except in very dilute solutions. Its properties do not justify its use as an antipyretic, nor for any of the other purposes already mentioned.

**Action of Diuretics in Uranium Nephritis.**—W. De B. MacNider finds that in dogs in which acute nephritis has resulted from the subcutaneous administration of uranium nitrate, the changes in

the kidneys, as well as the glycosuria and polyuria, are more marked in adult than in young animals. When such nephritic animals are anesthetized by chloroform and alcohol, or morphine and ether, the severity of the nephritis is increased. Some animals after the anesthesia become anuric, and these fail to respond to diuretics, probably owing to a destruction of the renal epithelium. Others remain able to secrete urine and respond to diuretics; in these the renal epithelium is much less severely involved.

**Influence of Atophan on Uric Acid Elimination.**—Otto Folin and Henry Lyman found that phenyl quinoline carbonic acid (atophan) not only brings about an increased elimination of uric acid through the urine in gout, and a diminution of the uric acid in the blood, but also seems to diminish the nonprotein nitrogen and urea whenever these are present in the blood in unusual amounts. The drug acts, however, on the kidneys, and does not "mobilize" deposited urates.

#### OPHTHALMOLOGY.

July, 1913.

**Further Experiences with My Sclerotomy Cruciata Multiplex (Grillike Sclerotomy).**—M. Wicherkiewicz devised a few years ago a new operation for certain forms of glaucoma, particularly glaucoma simplex and those in which other operations had produced no lasting effects. The operation is based on the theory that simple glaucoma depends on a rigidity of the sclera, which may also be thickened, that interferes with the intraocular change of fluid. He calls attention to the fact that intraocular tension and rigidity of the sclera do not always coincide, but may frequently show an opposite behavior. The rigidity of the sclera may appear intense, and the tonometer placed on the cornea may register no increase of tension; he has also seen the tonometer record a high pressure when the sclera was atrophic and soft. The technic of the operation is as follows: After instillation of cocaine a subconjunctival injection of a one per cent. solution of cocaine with epinephrin is made into the upper temporal region of the eyeball. While an assistant rotates the eyeball far downward with a sharp hook inserted above the cornea, a long meridional incision is made through the conjunctiva. The subconjunctival tissue is lifted up with two forceps, and incised, to lay bare a considerable area of the sclera, the bleeding being controlled by instillations of epinephrin. After the sclera is largely exposed, from four to six meridional incisions, ten to twelve millimetres long, are made in it with a Graefe knife, and then as many cross sections, as far back as possible. If the sclera is very thick some of the incisions are deepened, but only for from two to three millimetres, as far as to the choroid. After irrigation with saline, or boric acid, solution the wounds in the conjunctiva and Tenon's capsule are closed with sutures and a bandage applied for a day or two. Generally the intraocular tension is considerably diminished immediately after the operation, particularly if the eye is massaged, which always should be done before the dressing is applied. Later measurements of tension sometimes show that the

tension rises at first, but it sinks after about two minutes of massage, and remains normal, with few exceptions, when the massage has been discontinued. In conclusion he says that he does not consider the operation to be a panacea for any form of glaucoma. All that he claims for it is that it is perhaps the only rational method against glaucoma simplex.

#### SURGERY, GYNECOLOGY, AND OBSTETRICS.

July, 1913.

**Ruptured Uterus.**—C. H. Davis states that rupture of the uterus is probably a more frequent complication of pregnancy than is indicated by the statistics of the earlier writers. The difference between complete and incomplete rupture is one of degree. It is probable that most ruptures are at first incomplete. As complete rupture increases the shock and danger from all hemorrhage and sepsis, it is the more dangerous complication. The rupture involves the lower uterine segment, and the cervix in at least 53.8 per cent. of cases, the rent being more often on the left side and frequently involving the uterine artery. Certain ruptures may be prevented by close observation of the case during pregnancy, and by "good obstetrics." A considerable number of ruptures follow Cæsarean section. A woman who has had a Cæsarean section should be confined in a hospital in subsequent pregnancies, preferably by a section shortly before term, as we cannot know the condition of the scar area. The tamponade and binder are good temporary measures and may give good results in the incomplete cases where there is little hemorrhage, but in all classes of cases operative treatment gives better results than conservative methods, and should be employed whenever possible.

**Retrograde Incarcerated Hernia: Hernia "En W."**—L. Friedman says that the following symptoms and signs have been observed as being present in the few cases reported: 1. Large sized tumors in the scrotal region, sometimes asymmetrical, due to the distended separate loops; 2, colicky pain in the lower abdomen, on the side of the hernia; pain on pressure on the side of hernia, right above Poupart's ligament; 3, rigidity above Poupart's ligament on the side of the hernia; 4, local tympany, due to the distended incarcerated loop; 5, presence of a sausalike mass in the lower abdomen, on the side of the hernia; 6, perceptible asymmetry of the lower abdomen, the hernial side being higher; 7, dullness on percussion of the flanks, due to fluid, and a perceptible fluid wave; 8, Blumberg's sign of peritoneal irritation may be present; 9, greater abdominal than scrotal tenderness. After opening the hernia sac: 1. The presence of two or three separate loops of gut; 2, the escape of fluid, clear or bloody, from the abdominal cavity, after cutting the constricting ring. The time elapsed since incarceration has taken place will naturally vary the degree of the symptoms present. Because of the extreme rapidity of gangrene in the incarcerated loop, early operation is of great importance.

**Three Finger Fluctuation.**—W. Sampson Handley recommends that the tips of the two forefingers and of the middle finger of the left hand

are firmly planted upon the swelling, marking out an equilateral triangle of an area rather smaller than the limits of the swelling. The right forefinger is next sharply pressed into the swelling at right angles to its surface. Fluctuation is present only, if the two fingers of the left hand move away from each other horizontally in the plane of the skin, at the moment when this is done. Any movement of the fingers in a vertical direction is to be ignored. This three finger or expansile method of testing for fluctuation effectually distinguishes real fluctuation from the pseudofluctuation of substances such as muscle and fat.

**Method of Ventrofixation.**—D. Stetton performs a median laparotomy and ligates the round ligaments, about two inches from the uterus. They are divided proximal to the ligatures and freed from the broad ligaments up to the uterine cornua by a few snips of the scissors. The peritoneal edges of the incisions in the broad ligaments are united by a running catgut suture. Ligatures are now passed through the broad ligament between the tubes and ovaries, and the tubes are freed to their uterine attachment. The freed round ligaments and tubes are now brought through a stab wound in the fascia, muscle, and peritoneum on either side, three quarters of an inch away from the edge of the abdominal incision. They are drawn taut, and fixed to the fascia with a catgut suture. The peritoneum is closed with continuous catgut, one stitch passing through the fundus of the uterus, the surface of which has been scarified. The muscle and fascial layers are closed in the usual manner with interrupted chromic gut sutures. The excess of tube and round ligament is removed and the tubes are ligated, the stumps being seared with a Paquelin cautery. Enough of the tubes and ligaments should be left so that they overlap in the median line. They are stitched to the fascia, and to the structures of the opposite side, with a few sutures of catgut. The skin wound is closed completely.

### Proceedings of Societies.

#### THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

*Stated Meeting, Held May 19, 1913.*

The President, Dr. REYNOLD WEBB WILCOX, in the Chair.

**The Work of United States Army Surgeons in the Last Few Years.**—The general topic of the evening was Tropical Diseases, and in a few introductory remarks the president, Dr. WILCOX, referred to the brilliant scientific achievements of our army surgeons in sanitation and the conquest of disease, saying that, not only had they made great scientific discoveries, but, by the practical application of their knowledge, they had accomplished results in Cuba and Porto Rico, the Philippines and Panama so remarkable as to win the admiration of the world.

#### The Sanitary Problems of the Philippines

**on American Occupancy.**—Colonel L. MERVIN MAUS, Medical Corps, U. S. Army, read this paper, in which he showed the great progress made in the Philippines through the brains and work of American hygienists.

**Observations on Beriberi in Japan and the Philippines.**—Major LEWIS G. NESS, Medical Corps, U. S. Army, in this paper, brought out the following points: 1. Recent investigation into the etiology of beriberi and observation of the disease among the native troops, and the natives of the Philippine Islands, and the numerous cases occurring in the Japanese army during the Russo-Japanese war, would indicate that beriberi was due more to the lack of nitrogenous food, and a diet largely composed of carbohydrates, than to a specific organism. At least, diet was an important predisposing factor in its causation. 2. While beriberi was apt to occur endemically and epidemically, it was extremely doubtful whether it was contagious, or could be transmitted from man to man. Hence, it should not be classed in the category of infectious or contagious diseases. If beriberi were caused by a specific organism, this certainly could not have any pathogenic action upon healthy and well nourished individuals. It was possible that individuals who subsisted mostly on a diet largely nitrogenous had a natural immunity against the specific organism of beriberi, and that this organism could act only on individuals who had a lowered resistance from the use of food consisting largely of carbohydrates, and in the presence of certain meteorological and other conditions. 3. The results and findings of the United States army board of medical officers for the study of tropical diseases as they existed in the Philippine Islands, in regard to the influence of rice diet and inanition in the production of multiple neuritis in fowls, and the bearing thereof on the etiology of beriberi, was a further proof that the lack of nitrogenous food and the excess of carbohydrates constituted an important factor in its etiology, if not the specific cause, of beriberi. As the result of a series of experiments on chickens, they were able to produce in the birds a multiple neuritis similar to that occurring in human beings suffering from beriberi by feeding them on polished rice; and, on the other hand, were able to cure them by feeding them on the polishings of rice, or the pericarp of the rice. Moreover, fowls fed on undermilled rice (that with some of the pericarp left on, did not become affected with a neuritis. While chickens and other fowls were very prone to be attacked with a general neuritis under certain conditions, it was believed that these experiments pointed strongly toward rice as constituting an important factor in the causation of beriberi. By way of confirmation of these experiments, the rice in the ration of the native scouts in the Philippine Islands (of which it largely consisted) was changed to the native rice, which was undermilled; and the result was the complete disappearance of beriberi among them. 4. Beriberi had always been classed as an unpreventable disease, and was so considered by the Japanese, who reported over 97,000 cases during the Russo-Japanese war. It should now be classed as a preventable disease, and there was no excuse for its occurrence among



troops, any more than there was for that of small-pox, typhoid fever, dysentery, cholera, and similar diseases which in the past had at times almost rendered armies ineffective and had often been a potent factor in deciding results between contending forces. As a matter of fact, Major Ness said, there was reason to believe that the wide prevalence of beriberi in the Japanese army had had a very considerable influence in bringing about the termination of the late war. In regard to the very considerable immunity from typhoid fever among the Japanese troops, about which so much had been said, this was practically due to the simple facts that the Japanese were extremely fond of tea (the water used thus being boiled) and of cooked foods; and the same thing was true of the Russians. On the other hand, our soldiers in the Spanish-American War did not like tea and drank much water, while they preferred raw to cooked foods. There was, however, some typhoid fever among the Japanese in the war with Russia; the number of cases, according to their own reports, amounting to more than 9,000, while there were over 4,000 deaths, a mortality of nearly fifty per cent. Among the Russians there were a little over 10,000 cases, but there were only about 1,000 deaths, a mortality of one fourth that among the Japanese.

**Dysentery in the Tropics.**—This paper by Major EUGENE R. WHITMORE, Medical Corps, U. S. Army, was published in our JOURNAL for August 9, 1913, p. 257.

Dr. NATHAN S. JARVIS referred to the views on the tolerance of the white man in the tropics expressed by the noted sociologist Benjamin Kidd in his book entitled, *The Control of the Tropics*, which was published no longer ago than 1898. It was then the practice in the British army to allow officers who had served one year on the west coast of Africa a year's leave, and this was also the rule in regard to those serving in India. This was on account of the conditions, so unfavorable to the white race, prevailing in those tropical regions. Now, however, it was possible for the white man to live indefinitely and comfortably in the tropics. This was very largely owing to the splendid work accomplished by the medical officers of our army, and the praise which was their due should be unstinted. At the same time, it should not be forgotten that in recent years the army surgeons had had the warm cooperation of the line officers, and such results could not have been attained without this. Formerly the case was different, and he could well remember that twenty years ago, when he himself was in the army medical corps, it was almost impossible to get the line officer to take any interest whatever in sanitary matters. Panama might be cited as an instance of the marvelous change which had been effected. In regard to the freedom from disease of the Japanese in the late war with Russia, this had undoubtedly been exaggerated, but he would say, in justice to some of those who had extolled the sanitary triumphs of the Japanese, that they had been deceived by the latter; for the reports which were furnished to them were both very incomplete and very erroneous. We should not lose sight of the fact, however, that the

discipline in the Japanese army was really wonderful. In the case of volunteers, such as our army was largely composed of in the Spanish-American War, it took a year or two before the men could be depended upon to obey orders in a reasonably satisfactory manner. The results accomplished by the Japanese had, as he had said, been exaggerated; but they did get results, and this was due to their efficient discipline.

*Special Meeting, Held in the Borough of Richmond, June 2, 1913.*

DR. WILLIAM BRYAN in the Chair.

**An Unusual Case—An Entire Tendon of the Flexor Profundus Digitorum Torn from Its Sheath.**—Dr. F. T. DONOVAN presented the specimen from this case. The patient was a boy who worked in a paint factory, and the distal phalanx and head of the next phalanx of one of his fingers were taken off by a wooden paddle in a paint mixing apparatus. With these came away the whole flexor tendon of the phalanges, which was severed from its attachment in the upper forearm, and this was shown by Doctor Donovan. The patient suffered at first from shock, and it was feared that infection might occur later, but, fortunately, a good recovery was made without any drawbacks.

**Report on the Recent International Congress of Physical Education in Paris.**—Dr. M. S. GABRIEL said that the International Congress of Physical Education and Sport, which lasted four days, was inaugurated on March 17, 1913, in the presence of the President of the French Republic and delegates from twenty-six nations. The work of the congress was divided into two parts, reading of papers and demonstrations. There was also a large exhibition of drawings, paintings, statuary and apparatus to illustrate gymnastics, aeronautics, mountain climbing, touring, yachting, and rowing. The demonstrations were followed with the keenest interest. Several countries had sent representatives to render the demonstrations of various gymnastic methods complete. France had twelve groups, civil, military, and marine. There were four groups from Belgium, one masculine and one feminine group from Denmark; one group from Italy, one from Sweden, and one feminine group from Germany. The English method was demonstrated by a group of thirty young women. The last gathering of the congress was devoted to a banquet, followed by a musical entertainment, and as Dr. Gabriel was the only American member present, the pleasant duty of making a farewell speech on behalf of America devolved upon him.

**The Treatment of Arteriosclerosis.**—Dr. LOUIS F. BISHOP, in this paper, said that the reason so little advance had been made in the knowledge of the treatment of this disease was that it labored under a misnomer, and attention had been directed to the structural change in one set of organs, the blood-vessels; while, as a matter of fact, the tissues of the whole body were equally the seat of the disease. The clinical condition known as arteriosclerosis no

more consisted essentially of sclerosis of the arteries than typhoid fever consisted of ulceration of the intestine. Arteriosclerosis was a disorder affecting the cells of the whole body, including the bloodvessels, in such a manner that after a time circulatory difficulties arose, and the heart, bloodvessels, and kidneys became conspicuously involved. This might be due to other causes, but it seemed to him that in the vast majority of instances it could be traced to the effect of substances which were ordinarily derived from proteins taken into the body as food. It was not the effect of proteins on the individual, but the reaction of the individual to the proteins. The vegetable proteins apparently caused the least harm. Arteriosclerosis was liable to begin when, through some accident of food poisoning, severe illness, nervous shock, or some unknown incident, the cells of the body became sensitive to particular proteins found in customary food; and later there was a continuous subsymptomatic anaphylaxis, leading to irritation and finally to changes in the tissues—perhaps to replacement of some of the cells by connective tissue. This took place in all parts of the body. The impairment of the organs led to failure of internal secretions and of general metabolism, and the individual who started with a sensitiveness to a single protein would, after perhaps twenty-five years, be found presenting the picture of the terminal stages of so called Bright's disease. If this was a true statement of the conditions found the treatment of arteriosclerosis must consist in the discovery and removal from the dietary of such protein, or proteins, as were inimical to the individual person, and, as the absorption of protein was profoundly affected by the condition of the intestinal canal, much attention was justifiable to intestinal putrefaction and autointoxication. These considerations had led him to the development of a system of diet which he had termed the "few protein diet." The treatment of arteriosclerosis consisted in a modification of such a plan as one would use in acute food poisoning. In the presence of well developed arteriosclerosis, with subsymptomatic continuous anaphylaxis, an ounce of castor oil was ordered every forty-eight hours for three doses. Then, after a week, another dose was given, and after that, a dose at least once a month as long as the patient was under observation. Out of the diet were taken all eggs, fish, meat, and poultry, and all soups except vegetable soups made without stock. Cheese was allowed, as furnishing protein in a safe form, and, later, chicken, if experimentally it was found that as a result the blood pressure was not increased. Iodine, he believed, did as much good in small doses as in larger ones. As to the reduction of blood pressure by drugs in this disease, nitroglycerin was the great symptomatic remedy for all emergencies arising in its course, whether these were attacks of dyspnea, pain, vertigo, or even edema of the lungs. Out of door exercise was essential to the welfare of the sufferer from this condition. For the cure of arteriosclerosis the underlying secondary causes had to be removed. Among these mental stress was the most important, and the development of a sound philosophy of life was necessary to go with the castor oil, the low protein diet, and the out of door life.

Dr. I. L. NASCHER said that in dealing with arteriosclerosis, not the complication of pathological conditions, but the disease of the vessels alone, we failed to consider that there were many varieties of arteriosclerosis. It was only in the later stages that they assumed a common type, an arteriofibrosis and, later, calcification. The ordinary pathological form of arteriosclerosis began as an endarteritis, due to some irritating ingredient or constituent of the blood. This form of arteriosclerosis was amenable to treatment. There was a physiological arteriosclerosis which began with a loss of tonicity in the muscular fibres of the media, and this was the basis of Thoma's theory of senescence. No drug treatment was of benefit in this form of arteriosclerosis, but it was possible that the tonicity of the muscular fibres could be partially and temporarily restored by the high frequency current. There were probably two or more varieties of arteriosclerosis which began in insufficient nutrition. The usual treatment of arteriosclerosis with potassium iodide was of service only in a few of the pathological varieties. The potassium base diminished the viscosity of the blood, and permitted a freer circulation; but after the stage of fibrosis was reached it was useless, except that the potassium base diminished the viscosity of the blood. The low protein diet struck at the etiological factor of arteriosclerosis caused by excessive proteid intake; but where an arteriosclerosis occurred in the course of syphilis, nephritis, gout, or diabetes, the success of the treatment depended upon the results obtained in the primary disease.

Dr. J. MILTON MABBOTT asked Doctor Bishop if he considered the glycerophosphates of value in arteriosclerosis.

Doctor BISHOP said that glycerophosphates were useful as a general tonic, but had no effect on the condition present. In our chronic cases of cardiovascular disease we all gave iodine, under the impression that it had a systemic effect, and there was a strong tendency to the opinion that the good it produced was due to its activating the ductless glands, and more particularly the thyroid. In reply to a question by Dr. Edward Wallace Lee as to the action of nitroglycerin, Doctor Bishop said that, as he had remarked in the paper, in cardiovascular cases with high blood pressure it was extremely useful, but purely as a symptomatic remedy. In this class of cases most of the distressing, and some of the dangerous, symptoms were due to local spasm in some part of the vascular system—there was a condition of overtone in some particular spot. In all such instances nitroglycerin, by its vasodilating action, relieved the spasm, and thus the distressing symptoms. He was therefore accustomed to direct his patients of this kind always to carry nitroglycerin tablets with them, so that they would be prepared for any sudden emergency that might arise.

**Longevity and Rejuvenescence.**—Doctor NASCHER read a paper on this subject, which was published in this JOURNAL for July 12, 1913, p. 61.

Doctor BISHOP said that one of the most interesting things to be noted about our modern life was the disappearance of old ladies and old gentlemen from society. The fact was that most old people of the present day had already adopted Doctor Nascher's

theory. Thus, his own grandmother, who was now eighty-four years old, considered herself as active as those about her, and insisted on going with the family to all sorts of entertainments—even to dancing parties, although she herself did not dance. In our time married couples did not grow old together in the way that was formerly the case. The cosmetic part of the treatment, at all events, he thought was pretty well covered.

Doctor MABBOTT said that recently he had had occasion to give advice to a gentleman of great culture and refinement, a widower over fifty, who was attached to and desired to marry a young woman of twenty-five. He had expressed his hearty approval of such a marriage, and the gentleman felt very grateful to him. Yet when afterward Dr. Mabbott had mentioned to various friends, both lay and professional, the advice he had given, they all disagreed with him. If a young woman marrying an elderly man did not expect too much sensual gratification, she could be a very great help to such a husband, and add no little to his comfort in his declining years.

Doctor LEE said that, other things being equal, the matter of environment had a most important influence on whether individuals kept young, or the reverse. Thus, the inmates of old peoples' homes, where they were isolated with those of their own time of life and had little to vary the monotony of their existence, were apt to deteriorate rapidly. The companionship of young people had a marked rejuvenating effect, and there was nothing that would tend so much to keep an old woman young as the care of a young grandchild. With grandchildren, and perhaps great grandchildren, about her, an old lady would almost invariably feel young and act young; and the whole tendency of such environment would be to keep her in good physical condition. The speaker then said that he heartily approved of the stand that Doctor Mabbott had taken in regard to a young marriage, and that, in general, society criticized such marriages too severely.

Doctor GABRIEL said that as to marrying a very young wife, it was recorded in the Bible that when King David was well stricken in years his servants procured the most attractive young woman that could be found "to lie in his bosom." Association of old people with the young was without doubt beneficial to the former, but might prove detrimental to the latter. Thus, he had once had under his care an anemic girl, eight years old, who did not improve, although various kinds of treatment were employed. Eventually he found that the child slept regularly in bed with her grandmother. This was of great benefit to the old lady, but it was at the expense of her granddaughter's vitality; and as soon as this practice was discontinued the girl began to improve rapidly. The occasional intercourse of an old husband and a young wife was no doubt of benefit to the man, but unrestricted intercourse would inevitably prove fatal to him. In this matter of longevity it was necessary to consider all the various elements affecting it. These differed with different individuals, and in each individual instance the special circumstances of the case had to be studied.

The chairman, Doctor BRYAN, said it seemed evident to him that what we had to do to live long was

to keep the system clear of "clinkers." The mischief working proteins should all be burned up, and for this, sufficient exercise, of whatever kind seemed most suitable, was essential. It was necessary that plenty of oxygen should be continuously taken into the body, and to this end all the improvements in our modern mode of life tended—the sleeping with open windows or in the open air, the outdoor life, with its varied exercise, etc. By whatever means, oxygen must be gotten into the system.

## Letters to the Editor.

### THE PROPER INDICATIONS FOR THE USE OF PHOSPHORUS.

MEDICAL BUILDING, PORTLAND, ORE., August 28, 1913.

#### To the Editor:

The article "The Use of Phosphorus in Diseases of the Lungs" contains so much truth, as corroborated by the experience of thousands of physicians, and yet is lacking in so much detail as to proper indications for the use of phosphorus by reason of the narrow scope of reference literature accessible to Doctor Lemon, he being "unable to find reference in the past thirty years," that it calls for comment from one of wider reading.

Both in tuberculosis and pneumonia the results attested by the doctor are stupendously out of the ordinary, practically every case recovering, and, to be sure when there were 167 pneumonia deaths in New York city in one week in February, 1913, and according to *Johns Hopkins Hospital Bulletin* for the year ending January 31, 1913, the pneumonia death rate was twenty-five per cent., any method of treatment furnishing but one death out of several hundred pneumonias must be seriously considered.

This revolutionizing therapeutic feature, if you please, as spirit of phosphorus, the powers that be considered official in 1800, but since have dropped from the *Pharmacopœia* as not worthy of space.

Phosphorus saturates alcohol in about the strength of one in 667 and as this tincture is really very unstable those who know usually keep a small excess of the element phosphorus in the bottle.

For use two parts of this tincture to one part alcohol making a one in 1,000 solution is quite popular, although this with nine parts alcohol making one in 10,000 is as much favored.

A number of physicians who have cared to delve into homeopathic literature as far back as 1810 have been cognizant of Doctor Lemon's therapeutic nugget (?) and have profited by the more definite indications furnished by the proving of phosphorus on human beings, and cases of chronic and acute phosphorus poisoning.

Doctor Lemon's fine clinical testimony thoroughly bears out the indications laid down by the homeopathic books. Picking out a book at random, going back just about thirty years, Burt's *Physiological Materia Medica*, quoting mostly from Richard Hughes, of Brighton, England, says: "On the respiratory organs, phosphorus acts as a pure irritant. I would not lay too much stress on the bronchitis, emphysema, pneumonia, and pulmonary phthisis observed in workmen and rabbits exposed to its fumes, as these may be but local effects. They are accompanied, however, with the weakness, emaciation, and hectic, which characterize the gastrointestinal effects of the drug. But Magendie and others have found hepatization of the lungs in animals poisoned by it, and the provers experienced decided symptoms of laryngotracheal and bronchial irritation, and of pulmonary congestion.

"Phosphorus occupies a high place in the homeopathic therapeutics of respiratory affections; and pneumonia is the disease in which it has won its spurs. First introduced by Doctor Fleischmann, of Vienna, his great success with it has led to its general use throughout the homeopathic body. Dr. Cl. Muller and Doctor Baehr have given indications for the preference of phosphorus to tartar emetic in this disease. They concur in recommending it especially



when pneumonia threatens to deviate from its normal course, and when 'nervous' (i. e., typhoid) symptoms appear. Doctor Baehr thinks it also the prime remedy in edema of the lungs. I am myself disposed to prefer it to any other medicine in all the stages of simple pneumonia, and in the pneumonia of typhus. Bryonia is probably superior in pleuropneumonia; and in bronchopneumonia, tartar emetic contends with it for precedence; though, in this malady occurring in children, phosphorus has always given me the utmost satisfaction. In fact, in these subjects, bronchitis is so apt to run on to pneumonia, that I always employ phosphorus, after aconite, in its treatment, in preference to any other bronchial medicine."

Then Farrington, 1890, says that, "In provings it was found that certain persons showed a more marked susceptibility to phosphorus than usual, some even an idiosyncrasy—tall, slender persons, rather inclined to stoop and be hollow chested, if you please, of the tuberculous habit. Both young men and women who have grown too rapidly, who have a delicate skin, and long, silky lashes; the mental development is excellent, yet they have not the physique to support this keenness of mind. Particularly is it indicated if they have an hereditary tendency to consumption, or have had bone disease in early childhood."

On the other hand, Potter or Wood, for instance, found nothing of interest in the phosphorus respiratory sphere.

It is interesting, however, to note that Hare's *Materia Medica*, fourteenth edition, says: "Phosphorus attacks the periosteum, and pyogenic organisms then attack the bone. Sometimes the tubercle bacillus causes the necrosis."

After the deductions furnished by the phosphorus provings, we would expect a tuberculous necrosis of the jaw in a phosphorus typed youth, employed in a match factory and living in a tenement cellar.

And here is something most striking: That these provings and observations on the action of phosphorus pointed the way to its use as a curative measure in cases of the very same nature as Doctor Lemon's, long, long before any such clinical tests as his, but furnishes another evidence of the accuracy of indications for drugs obtained by provings.

While the doctor conjectures as to the precise action of phosphorus, the solution of his puzzle almost slaps his face in the same paragraph, when he opines: "That the whole bodily condition shows renewed vigor under phosphorus in lung conditions, and that probably the patient lacked phosphorus."

It never occurred to Doctor Lemon that phosphorus might serve as an antigen to some chest patients.

Other physicians, however, have long known that drugs have a synergistic action with vaccines and bacterins, and that phosphorus may just as well stimulate antibody formation when the picture calls for phosphorus as a vaccine could help win the fight for the opsonin starving individual whose resistance that entity was overwhelming.

Drugs are more delicate and precise weapons than Doctor Lemon is accustomed to handle when administered in his dose to his patients; and when one deals in drugs as antigens, even though he but stumble blindly upon the indication, he must have a power of observation equal to the recognition of the aggravation or negative phase, similar to that of a Wright or Douglass, and scientifically reduce or regulate his dose; else, with such deep acting drugs as phosphorus he will duplicate the early experiences with tuberculin, and hasten many cases to a finish by aggravation.

Surely, Doctor Lemon's paper is worthy of more thought than anything I have seen written on drugs in most journals, for it will cause many to think who before have never known phosphorus in this light.

Now, a problem and an answer!

Acute and chronic bronchitis, pneumonia, tuberculosis indicate the use of phosphorus, according to Doctor Lemon.

How long before phosphorus will be forgotten on these indications? Already there are more drugs, prescriptions, and combinations, than you dare print, for these conditions, on just about the same refined indications, and if we knew no more about when to give phosphorus than Doctor Lemon tells us, therapeutic oblivion awaits phosphorus.

A typhoid culture, a drop of blood, and the microscope will tell you when to give 500 million dead typhoid bacilli, but it is more of a job to know when to give phosphorus.

General and routine prescribing is always poor; giving

this for that, because so and so said so, is ground sufficient for old wives and fisherwomen, but not for scientists.

There never was any short cut to therapeutic mastery. Individualization is the keynote, and when the phosphorus picture fits the pneumonia frame the opsonins do the rest.

Very truly yours,

JOHN H. BESSON, M. D.

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*Ophthalmoscopic Diagnosis. Based on Typical Pictures of the Fundus of the Eye with Special Reference to the Needs of General Practitioners and Students.* By Dr. C. ADAM, Assistant at kgl. Univ.-Augenklinik, Berlin. Translated by MATTHIAS LANCKTON FOSTER, M.D., Ophthalmic Surgeon to the New Rochelle Hospital, Member of the American Ophthalmological Society, etc. With Eighty-six Colored Pictures on Forty-eight Plates and Eighteen Illustrations in the Text. New York: The Medical Art Agency, 1913. (Rebman Company, Sole Agents.) Pp. xx-229.

The large number of beautiful colored plates portraying eighty-six conditions of the fundus, give this book the appearance of an atlas, but, after an examination, the reader appreciates why the author avoided this word in its title, and chose the words "ophthalmoscopic diagnosis" to indicate its real purpose, which is to be a systematic guide to diagnosis of lesions in the fundus of the eye, with illustrations to serve simply as aids in the carrying out of this purpose. It would seem as though this was a book destined to be of unusual value to practitioners who are not thoroughly conversant with ophthalmology; the text is clear, the illustrations life like, just the help needed in the absence of an expert. The ophthalmologist also can find much of value to him in the excellent grouping of symptoms. He is an unusually fine diagnostician who can find it useless unto him. As the author says, the technic of using an ophthalmoscope cannot be taught by a book, but the few suggestions that he thinks may be of aid to the inexperienced amount to a very clear and definite description of how to use the instrument, and how to overcome the difficulties that form stumbling blocks in the way of a beginner. It is plain that he has had much experience in teaching this subject. Then comes a description of the normal papilla and fundus, illustrated with schematic drawings to make the text clear, followed by large plates showing three different types of the normal fundus. The differential diagnosis of the white rings and crescents to be seen about the papilla is then given and illustrated by several more colored plates; then that of the various forms of atrophy of the optic nerve, optic neuritis, choked disk, and retrolbulbar neuritis. Then the vessels of the retina are studied, then the retina itself, with the hemorrhages, white spots, and diffuse opacities to be seen therein, and finally the diseases of the chorioid. Each of these subjects is first dealt with in clear, concise language, and then illustrated by plates, to each of which is attached a brief, but sufficient description. The book is well bound and forms not only a useful, but an ornamental addition to the library.

*Himself. Talks With Men Concerning Themselves.* By E. B. LOWRY, M.D., and RICHARD J. LAMBERT, M.D. Chicago: Forbes & Co., 1913. Pp. 216. (Price, \$1.)

A glance at the table of contents indicates the wide field into which the authors attempt to delve. They start with the epics of life and flit from the anatomy and physiology of the male generative organs to venereal diseases; to hernia; to self abuse; to constipation; to happy marriages; to the development of life; to how to defer old age; and finally, appropriately end in a chapter on the secret of success. (We have here and there omitted the names of some of the chapters.) The book might appropriately be termed "Heal Thyself," as it covers all sorts of treatment and even goes so far as to suggest different operative methods for various afflictions. They tell the patient (page 45) how to use the three glass test in examining for gonorrhea. The authors are not always accurate in their

statements; in discussing cystitis they say (page 38) "a majority of cases are due to gonorrhea." Much of the advice on sex questions is good.

*Geschichte der Ohrenheilkunde.* Von Dr. ADAM POLITZER, em. o. ö. Professor der Ohrenheilkunde an der Wiener Universität. Zwei Bände, von 1850-1911. Unter Mitwirkung bewährter Fachkräfte. Mit 29 Bildnissen auf 29 Tafeln. Stuttgart: Ferdinand Enke, 1913. Pp.xvii+484.

Volume II of Politzer's *History of Otolology* gives a complete account of the advances in knowledge made during the period covered by this volume (1850-1911). Individual chapters are written by men of such standing as Alexander, Bárány, etc., mainly of the Vienna faculty, and the entire field of otology is covered. Following each chapter is an exhaustive bibliography of the subject just treated. The book is in two parts, the first being the historical aspect (pp. 1-215), while the second gives short accounts of the advances made in the countries of the scientific world, with mention of clinics and societies, and short biographies of the otologists in the different cities of the several countries. This aspect has been cared for by Dr. J. M. Hunt (for England), Dr. C. Chauveau (for France), Dr. L. Stern (for Germany), and by Dr. Clarence J. Blake (for the United States), to mention only a few of the collaborators. The book measures up to the standard that one would expect from a volume bearing Politzer's name.

### Meetings of Local Medical Societies.

MONDAY, September 15th.—Hartford, Conn., Medical Society; Elmira, N. Y., Clinical Society.

TUESDAY, September 16th.—Buffalo Academy of Medicine (Section in Obstetrics and Gynecology); Tri-Professional Medical Society of New York (annual); Medical Society of the County of Kings; Binghamton Academy of Medicine (annual); Syracuse Academy of Medicine; Ogdensburg Medical Association; Oswego Academy of Medicine; Medical Society of the County of Westchester.

WEDNESDAY, September 17th.—Medicolegal Society; New Jersey Academy of Medicine (Jersey City); Buffalo Medical Club; New Haven, Conn., Medical Association.

THURSDAY, September 18th.—German Medical Society, Brooklyn; Æsculapian Club of Buffalo; Newark, N. J., Medical and Surgical Society.

FRIDAY, September 19th.—Clinical Society of the New York Post-Graduate Medical School and Hospital; Brooklyn Medical Society.

### Official News.

#### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending September 6, 1913:*

Anderson, J. B., First Lieutenant, Medical Reserve Corps. Arrived at Fort Caswell on August 29th for temporary duty. Dutcher, B. H., Major, Medical Corps. Arrived at San Juan, P. R., on August 28th for duty. Eastman, W. R., Major, Medical Corps. Arrived at Columbus, N. M., on August 23d for duty. Grissinger, Jay W., Captain, Medical Corps. Left Soldiers' Home on September 3d on leave of absence for twenty days. Harris, H. P., First Lieutenant, Medical Corps. Arrived at Sam Fordyce, Texas, on August 27th for temporary duty. Heath, George D., Jr., Captain. Granted six months' leave of absence, on surgeon's certificate of disability. McKnight, J. R., First Lieutenant, Medical Corps. Arrived at Plattsburg Barracks, N. Y., on August 31st, for temporary duty. Mason, C. F., Lieutenant Colonel, Medical Corps. Reports on sixty days' leave of absence in the United States from August 9th. Pariseau, G. E., First Lieutenant, Medical Corps. Granted three months' leave of absence upon the arrival of another medical officer at Camp E. S. Otis. Quade, O. H., First Lieutenant, Medical Corps. Will proceed to Texas City, Texas, for temporary duty. Wadhams,

S. H., Major, Medical Corps. Left Fort Porter on September 1st to attend the electrotherapeutic congress in New York. Waring, J. B. H., Captain, Medical Corps. Arrived at Fort Leavenworth, on September 1st, for temporary duty.

#### United States Navy Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending September 6, 1913:*

Bishop, L. W., Surgeon. Ordered to the Receiving Ship at New York, N. Y. Bloedorn, W., Assistant Surgeon. Detached from the Yokohama Hospital and ordered home to await orders. Davis, R. G., Assistant Surgeon. Detached from Olongapo Hospital and ordered to the Canacao Hospital. Dessez, P. T., Passed Assistant Surgeon. Detached from the Castine and ordered to the Vestal. Eytinge, E. O. J., Passed Assistant Surgeon. Detached from the Supply and ordered home. Field, J. G., Medical Inspector. Detached from Newport Hospital and ordered to the Annapolis Hospital. Hibbett, C. T., Medical Director. Detached from the Norfolk Hospital and ordered home to await orders. Higgins, M. E., Passed Assistant Surgeon. Detached from the Illinois and ordered to the Kansas. Nielson, J. L., Surgeon. Detached from the Illinois and ordered to Guam Station. Phillips, E. W., Passed Assistant Surgeon. Detached from the Kansas and ordered home to await orders. Pickrell, G., Medical Inspector. Detached from Annapolis Hospital and ordered to Norfolk Hospital. Thomas, G. E., Passed Assistant Surgeon. Ordered to the Navy Yard, Portsmouth, N. H. Woods, E. L., Passed Assistant Surgeon. Detached from the Rainbow and ordered home to await orders.

### Births, Marriages, and Deaths.

#### Married.

Blackshaw—McDonald.—In San Francisco, Cal., on Wednesday, August 27th, Dr. Joseph Benjamin Blackshaw, of Sebastopol, and Miss Elinore McDonald. Cooke—Barrett.—In Philadelphia, on Monday, September 1st, Dr. Edwin S. Cooke and Miss Anna Elmira Barrett. Hanford—Smith.—In New York, on Thursday, September 4th, Dr. John Munn Hanford and Miss Gwendolen Smith.

#### Died.

Bondy.—In Trenton, N. J., on Thursday, August 28th, Dr. Sigmund Edward Bondy. Boyd.—In Florence, Ala., on Saturday, August 30th, Dr. P. S. Boyd. Bradley.—In Norwich, N. Y., on Tuesday, August 26th, Dr. Allen E. Bradley, aged fifty-two years. Callahan.—In Muskogee, Okla., on Friday, August 29th, Dr. J. O. Callahan, aged fifty-two years. Clark.—In Buffalo, N. Y., on Thursday, August 28th, Dr. Charles P. Clark, aged fifty years. Davidson.—In Nashville, Tenn., on Friday, August 29th, Dr. S. T. Davidson, aged eighty-one years. Day.—In St. Louis, Mo., on Friday, August 29th, Dr. Everett L. Day, aged thirty-five years. Faulconer.—In Montgomery City, Mo., on Monday, September 1st, Dr. Camillus Faulconer, aged seventy-eight years. Friese.—In Chicago, on Thursday, August 28th, Dr. Carl P. Friese. Gordon.—In Cairo, Ill., on Monday, September 1st, Dr. Everett E. Gordon, aged forty years. Green.—In Troy, N. Y., on Monday, September 1st, Dr. Arba R. Green, aged fifty-nine years. Larkin.—In Norwood, N. Y., on Thursday, August 21, Dr. Aaron Mason Larkin, aged seventy years. Lathem.—In Birmingham, Ala., on Saturday, August 30th, Dr. Sinkler Lathem, aged forty-one years. Leitch.—In Andover, Mass., on Tuesday, August 26th, Dr. John A. Leitch, aged forty-eight years. Lochner.—In Jersey City, N. J., on Wednesday, September 3d, Dr. John Lochner, aged seventy-three years. Micou.—In Charlottesville, Va., on Thursday, September 4th, Dr. Morgan T. Micou, aged thirty-three years. Pardue.—In St. Louis, Mo., on Friday, August 29th, Dr. John P. Pardue, aged sixty-one years. Van Cleave.—In Terre Haute, Ind., on Sunday, September 7th, Dr. R. M. Van Cleave, of Muncie, Ind. Worcester.—In Boston, on Wednesday, September 3d, Dr. Edward Worcester, aged eighty-three years.

# New York Medical Journal

INCORPORATING THE

## Philadelphia Medical Journal and The Medical News

*A Weekly Review of Medicine, Established 1843.*

VOL. XCVIII, No. 12.

NEW YORK, SEPTEMBER 20, 1913.

WHOLE No. 1816.

### Original Communications.

#### PREOPERATIVE CAUTION TO AVOID POSTOPERATIVE CALAMITIES.\*

By H. AUGUSTUS WILSON, M. D.,  
Philadelphia,

Professor of Orthopedic Surgery, Jefferson Medical College.

The orthopedic surgeon is frequently the court of last resort for patients who have been subjected to various exploratory and other operations, and whose conditions have not been materially benefited thereby; especially when recurrence has taken place or entirely new features have ensued.

It seems desirable that every medical society should discuss the various phases and the many problems that arise in connection with the surgical treatment of diseases and abnormalities. Hence, it is fitting that the annual address before this learned medical society should deal with the necessity for preoperative care in diagnosis and caution with a view to avoiding postoperative calamities.

The past thirty years have seen wonderful progress, particularly in the line of new operative procedures, improved technic, and operating room facilities, the perfection of the relation of laboratories, and the special training of operators. These great improvements have resulted in increased demands upon the operators in the special lines of their work; but the brilliant results that have been achieved by many skillful operating surgeons appear to be leading them to perform exploratory incisions much more frequently than seems warranted, in order to avoid the laborious requirements of preoperative diagnosis. For instance, in a number of cases that I have known, had as much diagnostic care been exercised early in the course of the treatment as was finally displayed, the patients would not have been subjected to three or four unnecessary exploratory incisions before the true nature of their maladies was disclosed.

As an illustration of the dangers of presenting inaccurate preliminary reports and of making the results appear favorable, I refer to the report of a hospital that made the very truthful statement that during the preceding year not a single death had occurred in the hospital, a most enviable mortality record that could not be surpassed. The practice prevailed at this institution of removing all very seriously ill patients from the hospital to tents in the adjoining grounds. It is therefore easily under-

stood that when death occurred it always took place outside of the hospital.

Accuracy and truthfulness are essential parts of statistical and individual reports of operations, but often too little time has elapsed, at the time of the report, to determine the end results. It is the experience of everyone who endeavors to hunt up a series of patients after several years, that from the changes of address and other reasons, subsequent details become impossible. These patients often become the subjects of reports by others than the surgeons who first operated upon them, and therefore a different aspect is presented.

A general surgeon of extensive experience recently told me that statistics gathered by him from a very large number of surgeons proved that twenty per cent. of all the cases operated in for appendicitis were no better after the procedure, and that thirty per cent. were distinctly worse; these figures being largely due, in his opinion, to errors in diagnosis. This statement, coming from such an authority, demonstrates that there is entirely too much heedless surgery.

Dr. Joseph M. Spellissy, in his annual address before the Philadelphia Academy of Surgery, reported one hundred and ninety-four cases of lesions diagnosticated as appendicitis, covering twenty varieties of structure and embracing sixty-eight species of lesion, not one of which proved to be of appendicular origin. His conclusion follows: "A diagnosis in cases with symptoms pointing to the right iliac fossa should not be made without a routine, conscientious examination for, and exclusion of, the various troubles that may exhibit misleading symptoms and signs."

A very large number of persons carrying scars of appendectomy and other abdominal procedures are sent to the orthopedic surgeon for the relief of what proves to be tuberculosis of the spine. As an illustration I may mention a case in which the patient was operated upon three times within a period of two years, without benefit. The first operation was an appendectomy which revealed a normal appendix; the second, a draining of the gallbladder, nothing abnormal being found; and the third, an operation for enteroptosis. It was during the last procedure that a hitherto unsuspected psoas abscess was discovered. Had sufficient care in preoperative diagnosis been exercised the existence of this condition would doubtless have become known much sooner; and the patient would have been spared a long and tedious illness due to the tuberculous condition of the spine, ultimately resulting in death.

When such lesions are diagnosticated early

\*Read by title before the Lehigh Valley Medical Association, July 17, 1913.



enough, the proper treatment is frequently conservative, rather than operative. The almost invariably unsatisfactory result of operations on tuberculous joints has led most surgeons to avoid surgical interference, except when the recuperative powers of the patient appear to be equal to meeting the strain, and when improved function is sought. In my own experience, when I have postponed operating until I could build up the general health of the patient, I have often found that, with the improvement in the patient's physical condition, the necessity for radical measures has disappeared.

In considering postoperative calamities, I do not purpose dwelling upon the recurrences and fatalities in such conditions as cancer, due to delay in operating, or upon the necessarily fatal termination of many cases of injuries. I shall merely consider a few postoperative conditions, such as thrombophlebitis, nonunion after fracture, enteroptosis, and persistent postoperative backache, in order to give emphasis to the statement that there are many factors that make the final outcome of a surgical operation uncertain.

Many writers have ascribed thrombophlebitis to infection, but its occurrence takes place where there is no evidence of sepsis. It often strikes like a summer storm out of a clear sky. It comes, when least expected, during convalescence from typhoid fever, after low forms of fat necrosis, after severe infection in septic operations, and in septic cases prior to operation. It occurs even in simple exploratory cases that heal healthfully; and it attacks the patients of the most skillful, as well as those of the inexperienced operators. When once it has occurred, its further progress cannot be arrested, and its results cannot be overcome. If the patient survives, she must carry through life a swollen leg, and must suffer almost unendurable pain, the only relief being obtained from elastic compressure or disuse.

The routine method of operating upon simple fractures has been criticized by a number of authors. Dr. John H. Gibbon says that our aim should be to overcome the indications for open treatment by a perfection of our mechanical measures, and he further states: "One of the most valuable lessons which experience teaches is the estimation of risks and the value of precaution. It is the tyro whose boldness causes him to operate where an experienced surgeon recognizes danger, and it is the tyro who considers the refinements of an aseptic technic unnecessary or even looks upon them as fads. It is this type of surgeon who will operate on a fracture without having exhausted the less dangerous nonoperative means of reduction, and one reason why he does so is because he sees many worse cases operated in successfully by others. It may be said that this applies to the whole field of surgery, and so it does, but I hold that it applies particularly to the open treatment of fractures, where success depends so largely on the operator's mechanical skill and his practice of an aseptic technic."

Dr. John B. Roberts, in his paper on Operative Fixation as a Cause of Delay in Union of Fractures, cautions against the enthusiastic adoption of plates to maintain coaptation of fragments after

difficult reductions. He considers the operative treatment particularly dangerous when adopted by novices in aseptic surgery, or where complete aseptic surroundings cannot be secured. Turk states that cases of primarily clean, closed fractures, often become converted into infected compound fractures by elective operation. He seems to think that the brilliant results obtained by some capable surgeons, through the use of clamps, Lane plates, medullary plugs, bone grafts, nails, wiring, staples, etc., have induced many less competent operators to undertake such measures, with unfortunate results.

Enteroptosis presents another fertile field for postoperative calamities. Dr. Joel E. Goldthwait thinks that visceroptosis is invariably associated with disturbance of poise, which must result in weakness of the muscles and strain of the joints; and that many of the chronic joint diseases are probably due to the disturbed physiology resulting from the malposition of the viscera, as well as probably to the absorption of poisons from the gastrointestinal tract.

Lund's instructive analysis, *The Surgeon and the Ptois Problem (Medical and Surgical Reports of the Boston City Hospital, 1913)*, concludes: "In interpreting our end results, however, we must be particularly careful; cures will be rare. Even relief is a good deal. It is not an uncommon belief among surgeons that a careful review of the large number of cases reported by those who have operated freely in this field would show a large proportion of real failures from a therapeutic point of view. For this reason, conservatism and candor in reporting results are to be desired as well as optimism and courage in proceeding with this work."

The vast number of cases of persistent backache following operative procedure demands careful study and analysis, with a view to discovering its cause, as well as applying therapeutic measures for its relief. It has been demonstrated that the strained position on the operating table plays an important part in the production of this distressing postoperative condition.

From the facts herein stated, we may conclude that it is time to realize the dangers and uncertainties of the immediate and remote results of operations. Evidence is accumulating that operations are not always approached with careful preliminary study. The reason for this is that many surgeons belong to one of the two classes mentioned by Lund: "Those who, for the sake of increasing their income, are trying to learn surgery by practising on their private patient; and recent graduates of hospitals who assume that a superficial knowledge of technic renders them capable of coping with the problem of major surgery."

Whenever a surgeon describes a new operation that he has devised and successfully employed, he should lay emphasis on the fact that in order to avoid postoperative calamities no one should attempt to follow in his footsteps without the careful preparation that he has himself undergone.

That the necessity for elevating the standard of the requirements for practising surgery is becoming generally recognized, is shown by the fact that

there was organized on May 5, 1913, a society called the American College of Surgeons, whose object is to grant fellowships to those worthy of membership in the organization, and to formulate a plan of indicating to the public and the profession that the surgeon possessing such a fellowship is especially qualified to practise surgery as a specialty. While the formation of such a society gives promise of better conditions in the future, it must be remembered that even a beginner—not yet eligible to bear the awe inspiring title, F. C. S.—may be a surgeon who gives to each case the elaborate preparation and careful analysis that will tend to ward off postoperative calamities.

As a matter of fact, the whole responsibility for careful preoperative diagnosis should not be thrown upon the surgeon. The internist should assume his proper place before and after operation. He should take part in the preparation of the patient, and in determining his ability to withstand the shock of the operative procedure; he should occupy a prominent position in judging of the diagnostic significance of the various laboratory reports; and he should be in close association with the surgeon after the operation. The prevailing custom in the better hospitals of having numerous consultations of surgeons with internists and specialists, together with elaborate laboratory studies, must inevitably result in safeguarding the best interests of the patients. Dr. George W. Guthrie is my authority for the statement that seventy-five per cent. of the patients that formerly went to the Mayo brothers, expecting to be operated upon, were sent away without operation. This is because these eminent surgeons often find, by means of an elaborate system of preliminary study, at the hands of numerous skilled investigators, that there are often better ways of curing the patient than by operation. The physician should not be too hasty in subjecting a patient to the surgical procedure and yet should discriminate in the avoidance of fatal postponement. When an operation is finally decided upon he should take pains to assure himself of the ability of the surgeon whom he recommends; because, when he suggests and co-operates with a surgeon he thereby tacitly assumes proportionate responsibility for the results.

1611 SPRUCE STREET.

## THE POSITION OF THE STOMACH IN CHILDREN IN RELATION TO POSTURE.\*

### *An Analytical Study.*

By JAMES WARREN SEVER, M. D.,

Boston,

Junior Assistant Surgeon to the Children's Hospital, Boston; Surgeon to the House of the Good Samaritan, etc.

From the Orthopedic Department of the Children's Hospital, Boston.

This paper is the result of an effort on my part to determine the location of the stomach in relation to posture. Various other factors were also studied, of which I will speak. The work done has covered a period of over a year, and the conclu-

sions are drawn from a careful study, by means of the x ray and physical examination, of over eighty children. A criticism which may be made is that the data have been gathered from the so called hospital class, which is supposed to be represented by individuals rather below par than above it, and also that these children would not have come to the hospital were it not supposed that they had something rather definite the matter with them. This criticism, however, is not well founded, for it can be stated that many of the children examined during this investigation did not represent abnormal or unusual types of the so called normal child. The children examined came to the clinic in the majority of the cases because they were supposed to have round shoulders or prominent scapulae.

The subject is one which cannot be presented adequately here by mere statistics, so that I shall offer a general statement of the conclusions arrived at through a study of these data. In a study of the literature of the subject we find much that will have to be discounted if not altogether discarded in the future as we become more cognizant of the subject, and I believe that so far we have been led to lay undue stress on the condition of so called visceral ptosis, congenital or otherwise, in children. Now what is the normal position of a child's stomach? I cannot find that this question has ever been accurately determined.

Holt (1) states that if the lower border of the stomach comes nearly to the umbilicus the stomach is dilated, and if it is below the umbilicus it is much dilated. Practically all textbooks and monographs on the subject speak of the normal position of the stomach as being well above the umbilicus, the lower border being in the region of the second lumbar vertebra. Butler (2) found in an examination of 155 children that forty per cent. had the lower border of the stomach when distended by gas within a half an inch of the umbilicus. In several older children who had bismuth examinations of their stomachs, the picture showed the lower border of the organ below the umbilicus, but these cases showed also the typical enteroptotic habit and dislocated kidneys. He believes that the enteroptotic habit is more pronounced in late childhood than in early life, and that displaced stomachs are exceptional in early childhood, that is, up to twelve or fourteen years of age. Richard R. Smith (3) found by dilating the stomachs of fifty-seven children that the lower pole was well up in the abdomen, and in fact he found there was no lowering of the lower border of the stomach which could be called a prolapse. He believes with Holznecht and Hulst that the lower border of the stomach should be in the region of the level of the pylorus, that is, about the second lumbar vertebra. He states that the prolapse of kidneys, stomach, colon, and intestines, which accompanies the enteroptotic habit of adult life, is not found in childhood except in rather rare instances. Goldthwait and Brown (4) state that normally the lower border of the stomach is about on a level with the second lumbar vertebra, but that the position of the abdominal viscera may be greatly modified by the posture which may be assumed by the individual. They also state that if the body is not held erect,

\*Read by title before the meeting of the American Orthopedic Association, held at Washington, D. C., May, 1913.

the diaphragm must be depressed and the abdominal wall relaxed, allowing the stomach to sag. They describe the type of child with visceral ptosis,

thwait (5) also states that in cases with a round hollow back and forward shoulders, the increase in the normal lumbar lordosis deepens the depression in which the posterior viscera rest, and that therefore there is less liability to the organ becoming displaced downward. Ransohoff (6) states that it is to be regretted that in ptosis of the abdominal viscera the clinical manifestations bear no fixed relation to the form or the degree of dragging. Chase (7) states that it used to be generally agreed that in the absence of dilatation gastropnoia was present whenever the lower border of the stomach was found at or below the umbilicus. Yet, in a study of thirty-nine normal adult males, he found in sixteen cases the lower border at or below the umbilicus. In three it was at the umbilicus, and in thirteen was from  $\frac{3}{4}$  to  $1\frac{3}{4}$  inches below. He quotes Hertz and Morton, who found that in seventeen healthy young men in the upright position

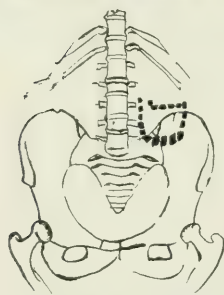
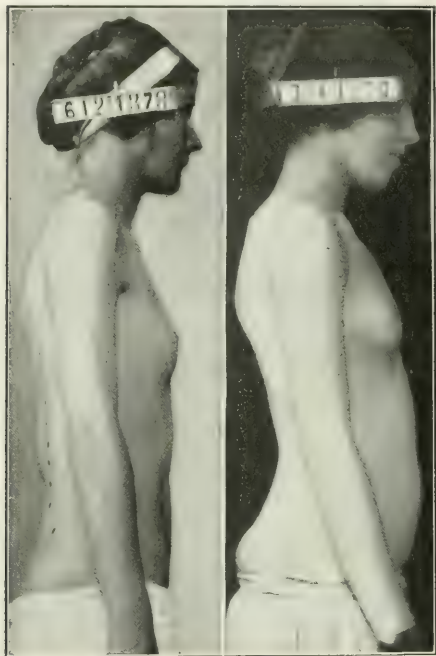


FIG. 1.—Class 1. Example of class one. Patient standing; posture, good; age, 12; height, 64 inches; weight, 111 pounds; thorax, well developed; costal angle, broad; chest capacity,  $2\frac{1}{2}$  inches; index, 85.

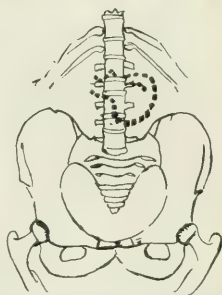


FIG. 2.—Class 1. Age, 13; height, 61 inches; weight, 102 pounds; thorax, normal; costal angle, broad; chest capacity,  $1\frac{1}{2}$  inches; index, 80; posture, good.

and give the description of a poorly nourished child, with a flat chest, drooping shoulders, and prominent scapulae, the spine being rounded in the dorsal region and flat in the lumbar, with a protuberant abdomen—in other words, a child with a round back, forward shoulders, prominent lower abdomen and flat lumbar spine. It is also stated, in discussing the treatment, that “the posture commonly assumed by the individual is a definite factor in the relative positions of their viscera.” Gold-

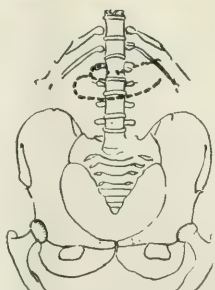
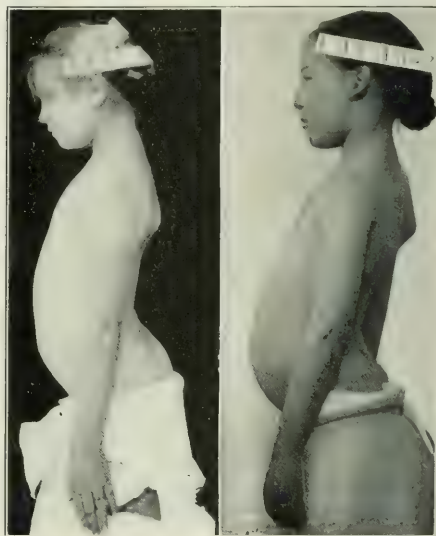


FIG. 3.—Class 2. Forward shoulders; round hollow back; protuberant abdomen. Age, 10; height,  $49\frac{1}{2}$  inches; weight, 64 pounds; thorax, normal; costal angle, wide; chest capacity,  $1\frac{1}{4}$  inches; index, 75.

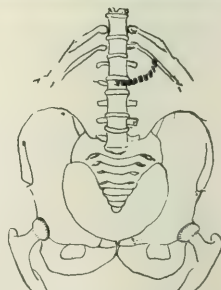


FIG. 4.—Class 2. Lower border of stomach high; marked hollow back; protuberant abdomen. Age, 10; height,  $45\frac{1}{2}$  inches; weight, 48 pounds; thorax, normal; costal angle, normal; chest capacity,  $1\frac{1}{2}$  inches; index, 74.



the greater curvature was invariably below the umbilicus. Groedel, in thirty-six men and fifty-four women having no gastric disturbance, found

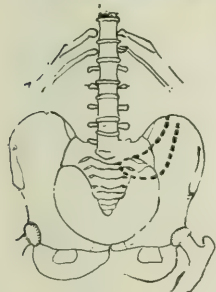


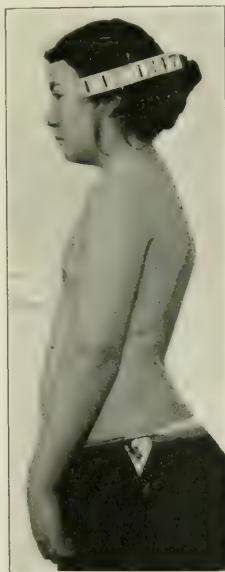
FIG. 5.—Class 2. Patient is well developed; sags generally; stomach very low. Age, 13; height, 61½ inches; weight, 107¼ pounds; thorax, lower part contracted; costal angle, normal; chest capacity, 1½ inches; index, 72.

others that it should be at the umbilicus, and others that it may be below it. There is apparently no uniformity of opinion in regard to this point.

I am not going to discuss in this paper the already well known embryological and anatomical theories of the causation of ptosis, but will add that it is a commonly stated fact that about one person in five is born with a congenitally defective support of the colon and stomach (4, 6, 8), which may obviously lead to a greater or lesser degree of ptosis. I am, however, going to try to show you that posture in children has apparently very little, if any, influence on the position of the stomach, or even the degree of ptosis in children, regardless of what influence it may have in adults, as

will be brought out by the facts I am going to produce, and also that we must revise our ideas as to the normal position of the stomach in children in the erect position, regardless of their good, indifferent, or bad standing attitude.

In the examination of these eighty-three children a definite routine was followed, and the following points were observed and noted: Age, sex, development, height, weight, nutrition, development, shape and capacity of thorax, width of costal angle, index of Bescher and Lenhoff, classification of posture, condition of abdomen (protuberant, nonprotuberant, or flat), dislocation of kidneys, x rays of stomach following a bismuth meal with child in erect position. The posture varied in these children from a good one, that is, a position where the shoulders were in normal relation to the thorax, the abdomen was not protuberant and the physiological curves were normal,



to those cases where all of these conditions were exaggerated in one case, or where some one or two characteristics varied from the normal.

#### METHODS OF EXAMINATION.

Before taking up the study of these cases in detail it might be well to state that there were eighty-three children examined according to the previously mentioned routine, of whom sixty were girls and twenty-three were boys. These children varied in age from four to eighteen years, the average age being about ten or eleven. The height was noted and taken in the usual way by means of a vertical rod. The weight, state of nutri-

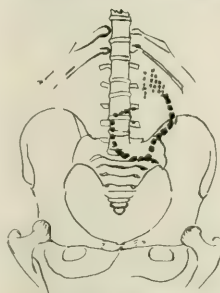


FIG. 6.—Class 2. Patient standing. Age, 13; height, 55¼ inches; weight, 96½ pounds; thorax, normal; costal angle, normal; chest capacity, 1½ inches.

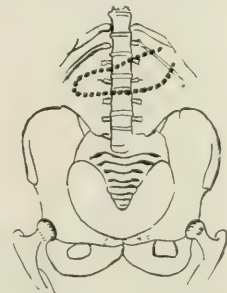


FIG. 7.—Class 2. Same patient as shown in Fig. 6, but patient is lying down. Note change in shape and position of stomach.

tion, and general body development were also observed, besides the attitude and the size, shape and capacity of the thorax, and the shape of the costal angle.

In every case I tried to palpate the kidneys, but was unable to do so in any case, regardless of the relaxation of the abdominal wall or the degree of ptosis of the stomach. No attempt was made to outline the stomach by palpation or by inflation with gas, for it was felt that this was a rather unsatisfactory and unreliable method.

The position of the stomach was determined as accurately as possible by means of the x rays in the following manner: The child was given to drink about  $2\frac{1}{2}$  or three ounces of bismuth subcarbonate, stirred up in a glass of water. Immediately following this he was put in front of the x ray tube and about eighteen inches away from it, standing in his usual erect attitude, with the back to the tube, which was on a line with the umbilicus so as to prevent if possible any distortion. The plate usually pressed lightly against the abdomen. Very short exposures were made. Following this in some cases a picture was made of the child lying on its face with the plate underneath, so as to get a picture of the stomach in that position. No attempt

was made to put a coin on the umbilicus or to mark it in any way, for it seemed a rather indefinite landmark, and that a more reliable and constant relation could be obtained by using the crests of the ilia for purposes of comparison. On account of the difficulty of getting these children to report again within twenty-four hours no attempt was made to get a record of the colon. Besides showing the position of the stomach in these cases, the height, weight, development, and nutrition were also observed, for these points are said to be of importance in connection with ptosis. A number of the children were frail, with poor musculature, little body fat, and were under size and weight for their age, while others were well above the average. The averages

for the different groups by age, height, and weight show children well up to and in some instances above Holt's averages for children of similar ages. They cannot then be called as a class either under developed or nourished in relation to their ages, so that they must then, so far as these conditions hold, be called average normal children. Of the girls, forty-seven were well developed and nourished and thirteen were poorly developed and nourished. Of the boys, twenty-one were well developed and nourished, and two were poorly developed and nourished. This condition of good development and nourishment is of importance in view of the theory

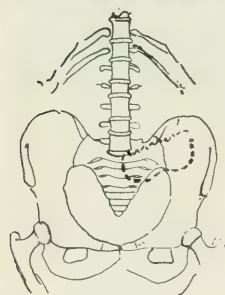


FIG. 8.—Class 2. Tendency to carrying posture. Age, 15; height, 64 inches; weight, 97 pounds; thorax, flat and long; costal angle, narrow; chest capacity,  $1\frac{1}{2}$  inches; index, 80.

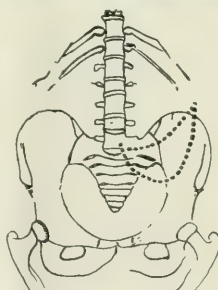


FIG. 9.—Class 2. Note forward shoulders; otherwise position good; stomach in pelvis. Age, 11; height, 63 inches; weight, 63½ pounds; thorax, slightly flattened; costal angle, normal; chest capacity,  $1\frac{1}{4}$  inches; index, 76.

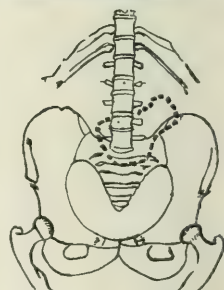


FIG. 10.—Class 2. Note large stomach; shoulders forward. Age, 9; height, 51 inches; weight, 58½ pounds; thorax, normal; costal angle, normal; chest capacity, 2 inches; index, 80.

that ptosis may be partially due to the lack of proper physical development and a proper and adequate amount of body fat. As far as I was able

For 60 girls.....1.64 inches  
For 21 boys.....1.86 inches  
For 81 cases.....1.7 inches

This shows a relatively good average chest capacity. In some of the cases there was noted a long, flat, narrow thorax, but there was quite as apt to be a stomach relatively high in these cases as in others with a normal thorax. A number of these cases with a contracted thorax showed a normal or relatively great chest capacity as compared with those of the normal type, and no relation could be established in regard to the shape or capacity of the thorax with the degree of ptosis present or to be expected. There was no relation between the size and shape of the thorax and the posture. The costal angle in these cases was generally normal or broad, in spite of the occasional flattening of the ribs, or contraction of the lower portion of the thorax, as is I believe true of children generally, which is also a point of difference from observations on the adult.

In the study of the literature, especially in Smith's (3) articles, it was noted that great stress was laid upon the so called index of Bescher and Lenhoff, the determination of which was supposed to give one an adequate idea as to the relative

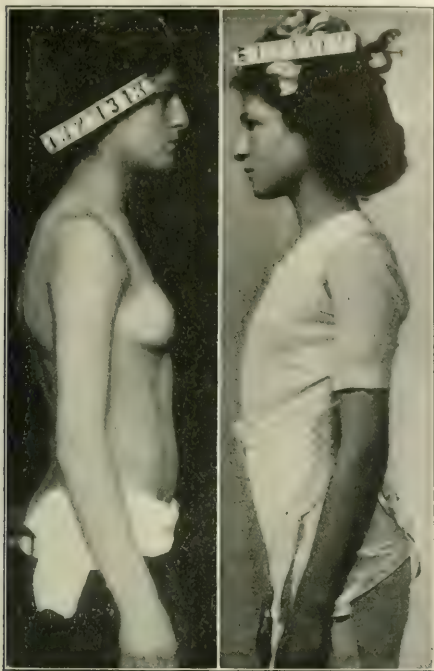
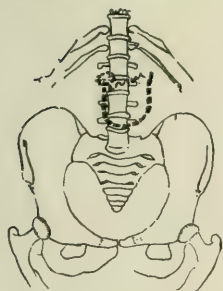


FIG. 11.—Class 3. Age, 13; height, 64½ inches; thorax, normal; costal angle, broad; index, 78.



to observe, general conditions and body weight, with or without much adipose tissue, had very little to do with the position of the stomach. Many children who were very well nourished had quite as much ptosis as others who had no signs of fat about them, and in fact there could be no rule established in regard to this point. The so called

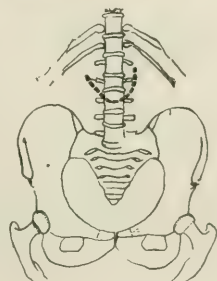
"enteroptotic habit" observed in adults is seen in children, often also the so called "carrying posture," where the whole trunk is thrown back from the hips, but it does not follow that in these cases one is to expect a ptosis. It may or may not be present, and one cannot tell until an adequate examination is made.

**The Thorax.**—The shape, capacity, and development of the thorax is supposed to play an important part in visceral ptosis. Here again children and adults differ markedly. In this series the capacity of the thorax was measured relatively by the chest expansion, which averaged as follows:



FIG. 12.—Class 3. Same patient as shown in Fig. 11. Note effect of corset on posture and position of stomach.

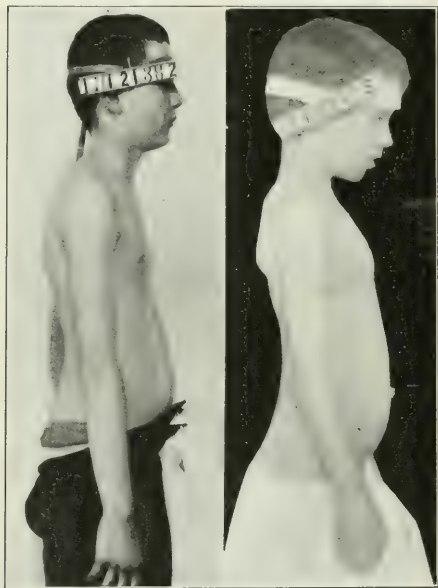
capacity of the upper abdomen. This index is obtained by dividing the jugulopubic distance by the waist measure, taken just around the lower ribs, and multiplying by 100. This gives one a purely relative index, and the higher the index the less the capacity of the upper abdomen is supposed to be. This has been done





on nearly every case in this series, and has proved to be rather a failure.

Indices over eighty are supposed to represent a condition of relative incapacity of the upper abdomen, whereas indices under eighty represent a normal capacity of this area. A study of the indices of this series of cases showed the following



showed no other evidences which would suggest ptosis, and others with low or moderate indices varying from 57 to 80 showed all degrees of ptosis. There could be no definite lines or relations established between the index and the shape, development, or capacity of the thorax, or shape of the costal angle. In fact, I feel very strongly that no one type of posture can be said to represent or indicate ptosis, which I believe can only be determined by an adequate x ray study of the stomach following a bismuth meal. The relative value of this index may work out satisfactorily in adults, but for children I feel that it has proved to be of little use or value.

#### THE POSITION OF THE STOMACH IN RELATION TO THE POSTURE.

We come now, after having covered the other point in our inquiry, to the classification of posture. We can study these cases in relation to the position of the stomach. They were classified as follows: 1. Good or so called normal posture. 2. Forward shoulders, normal dorsal curve increased backward and normal lumbar curve increased forward, abdomen protuberant. This type is commonly called the forward shoulders, round hollow back type. 3. Cases in this class showed the forward shoulders, the increase backward of the normal dorsal curve, but had a normal lumbar spine and a flat abdomen. 4. Cases in this class were selected because of the predominating feature of a flat back, that is, the normal physiological anteroposterior curves of the spine were all flattened.

Taking these now in order I will endeavor to show you how little posture in general affects the condition or degree of ptosis, regardless of the other point previously covered.

*Class 1. Posture Good.* Twelve cases. The cases comprising this class were supposed to represent normal types of children in all respects, that is, in regard to posture, development, and nourishment. The fact that they did so is shown by the following figures:

The average age of this class was 10 years, the average height of this class was 55 inches, the average weight of this class was 68 pounds. Comparing these figures with Emmett L. Holt's averages for the age of ten, we find that these children were three inches taller and two pounds heavier, showing that they were well above the normal average.

The index of Bescher and Lenhoff average 79+ for eleven cases, being a normal index.

The average chest capacity was 1.81 inches, which is satisfactory. Some children had as much as three inches chest expansion, and the lowest was one inch.

No connection could be observed between the development of the thorax or the shape of the costal angle and the position of the stomach. In fact, the child which showed the greatest chest capacity and a broad costal angle, showed also the greatest degree of ptosis, that is, a stomach of the *sink drain* type, with the lower border four inches below the crests. Out of twelve cases in this class, ten had the lower border of the stomach well below the crests of the ilia, and the other two showed the stomach at the top of the crests in one case, and at the lower border of the fourth lumbar vertebra in the other. The shape of stomachs varied consid-

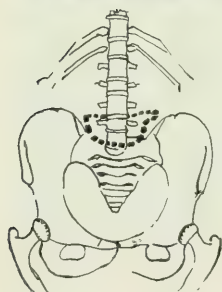


FIG. 13.—Class 4. Flat back; note position of stomach. Age, 7; height, 55 inches; weight, 65½ pounds; thorax, flat; costal angle, normal; chest capacity, 2 inches; index, 71.

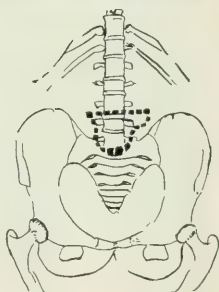


FIG. 14.—Class 4. Flat back; otherwise position good; stomach sink drain type. Age, 6; height, 48½ inches; weight, 50 pounds; thorax, normal; costal angle, normal; chest capacity, 1 inch; index, 78.

facts: The average index of 50 girls was 80, the average index of 23 boys was 75, and the average index of 73 cases was 78, or normal. These data show a relatively normal average index for this series. The average and individual indices for the cases of the individual classes of posture showed that very little reliance was to be placed on these data as a guide to the presence or absence of visceral ptosis. Cases often with the highest indices

erably, although the most persistent type was that of the *sink drain* variety, and while they were generally all dilated, a few were more horizontal and near the normal size.

**Class 2. Forward Shoulders, Round Hollow Back, Protuberant Abdomen.** This class represented the largest group of cases, forty-five in all, comprising eleven boys and thirty-four girls, whose ages varied from four to eighteen years. The average age was  $9\frac{1}{2}$  years, the average height fifty-five inches, and average weight sixty-four pounds, giving one a moderately better average for these various conditions than Holt gives for the same age. The index of Bescher and Lenhoff varied from 93 to 57. There were two cases with an index of 93, in one case the stomach being at the top of the fifth lumbar vertebra, and in the other at the lower border of the fourth lumbar, while in the case with the index at 57 the lower border of the stomach was also opposite the fifth lumbar vertebra. These three children were respectively aged nine, twelve, and four years, and were normally developed except for the child aged twelve, who was under weight for her years. The average index for eleven boys of this class was 76, and for twenty-eight girls was 80, while the average index for thirty-nine cases was 79. The average chest capacity for forty-four cases was 1.64 inch.

The marked predominating features of this class were the round back, forward shoulders, and protuberant abdomen, with the element of hollow back generally present. Now, an analysis of the position of the stomach shows that in sixteen cases the lower border was just above the crests, that is, in the region of the fourth lumbar vertebra, in seven cases just at the crests, and in twenty-two cases was well below the crests, in some instances as much as three or four inches. The size and shape of the stomachs in general impressed me. A good many seemed large and rather dilated, and presented either a dilated horizontal appearance, or were of the *sink drain* variety. There were very few of the so called normal *cow's horn* shape, and none of these was normal in position.

This class then represents a condition of so called "ptosis" of the stomach in practically every case, if we are to consider the second lumbar vertebra as the normal landmark for the lower border of the stomach.

Why is this? Goldthwait (5) states that this posture of forward shoulders, round hollow back, and protuberant abdomen is one of two distinct types commonly met with which cause this condition. To quote from his paper, he states that "in the forward bend of the upper body, or the consequent increase of the anterior curve of the dorsal spine, there is a compensatory increase in the lumbar curve, lordosis, with the protrusion of the lower abdomen forward. In this change the pelvis maintains its normal position and relation to the legs, but as the upper part of the lumbar spine moves backward, as it must in the position of lordosis, the depressions into which the posterior viscera rest are consequently deepened, and as far as this feature alone is concerned there is less liability of the organs becoming displaced downward than is normal. Since, however, this feature is only one part

of the support of the viscera, and since the anterior abdominal wall is of much importance in this support, it is evident that as this position necessarily means relaxation of the abdominal muscles, a definite portion of the normal support is lost. It is also evident that as in this position the abdominal cavity, as well as the entire length of the trunk, is shortened, the viscera are naturally crowded downward. In this shortening of the trunk the anteroposterior diameter of the abdomen is necessarily increased, and with this increase of the diameter the diaphragm must be stretched anteroposteriorly, with the result that it becomes flatter and the upper part of the dome is lowered. Since at the back the diaphragmatic attachment extends down to the last rib, and since the liver rests directly against this posterior portion of the diaphragm, if the dome of the diaphragm is flattened it must result in forcing the liver and stomach forward and downward, lifting them out of their normal positions in the spaces at the sides of the spine in the curve of the ribs."

Now, as shown by a study of the average height, weight, and indices of the cases of this class, these children represented nothing abnormal except posture, and many of them, as shown by their photographs, were not extreme types. Coffey (8) has shown that this so called kidney or visceral shelf averages an angle of 51 degrees from the vertical, is four inches deep and takes up 30 degrees of the weight of the organs resting on it, which surely represents an adequate slope to hold almost anything. He compares the abdominal wall to a strip of wood along the edge of a shelf as seen in china closets. Surely now if this slope is increased backward, increasing the angle 51 to a greater one, any relaxation of the abdominal wall must be compared with a removal of such an edge as has been described, and which would of course be then unnecessary, so that as far as the relaxation of the abdominal wall goes, I think we can safely dismiss it from our consideration. Any question as to the flattening of the dome of the diaphragm I believe may be answered by noting the normal chest capacity and development, with a normal index. The influence of such a flattening I believe is more theoretical than real. The average indices and chest expansion were well within normal limits, and the costal angles not narrowed, showing a normal relative capacity of the upper abdomen and a good chest development, so that we cannot attribute such ptosis as existed to these conditions, and as the degree of ptosis was no more marked than in the cases of class 1, representing normal individuals, we cannot properly attribute the ptosis to the posture, but can only state the stomach was lower than has been supposed to be normal, and that not one case had any symptoms referable to it. The cases of this group studied in regard to the comparison of the normal weight and height for their age, with the presence or absence of ptosis as compared to the crests of the ilia as landmarks, showed that four patients below weight had ptosis, two patients below height had ptosis, and six patients both below weight and height had ptosis, and five were without ptosis if the fourth and fifth lumbar vertebrae were taken as landmarks. Of the patients above

weight one showed no ptosis, two above height had ptosis, and thirteen patients above both weight and height for their age showed ptosis, while ten showed none.

*Class 3. Forward Shoulders, Round Back, Abdomen Flat.*—The cases in this class differed from those of class 2, as far as posture was concerned, only by virtue of the fact that they had a flat abdomen, and no hollow back. In all there were fourteen cases, eleven girls and three boys. The average age of the eleven girls was thirteen, the average height fifty-seven inches, and the average weight 82.7 pounds, being about normal for height, but ten pounds under weight for Holt's average for the same age. Of the three boys the average age was ten, the average height 52½ inches and the average weight sixty-two pounds, showing as compared with the normal average for ten years a greater height and four pounds less weight. The average chest capacity for eleven girls was 1.75 inches and for three boys was two inches. The average index for twelve cases was 80, nine girls giving an index of 82 and three boys one of 76.

One girl considerably under height and weight for her age, with an index of 90, and a slightly flattened lower thorax, showed a large stomach with its lower border at the middle of the fourth lumbar vertebra, and lying down at the third lumbar. The fourth lumbar was the highest point any of the stomachs reached in the erect position in any of the cases of this class. The majority of the stomachs were apparently large organs, and as has been true in all of the cases studied, some were of the *sink drain* type and some of the *horizontal* type, and many are of the so called *midline ptosis* class, but many are also seen well to the left, apparently resting well within the iliac fossa.

A number of these children exhibited the so called carrying posture or position, which, however, did not seem to affect their degree of ptosis. One patient was fitted with a supporting corset, and x rays before and after fitting the corset were compared, showing that the corset tended not only to raise the stomach slightly, but also altered its shape somewhat. I might add, however, that the corset was applied not for the correction of the ptosis but to improve the general posture. The case with the lowest index, 69, a boy aged twelve, normal in height and a few pounds below the average weight, showed a *horizontal stomach* one inch below the crests. This class then showed an average ptosis of the stomach to a point well below the crests, with flat abdomen, differing not at all from the observations noted in the other previously mentioned classes.

The examination of the stomachs showed that in this class there were nine below the crests, one at the crests and four at the fourth lumbar vertebra. The presence or absence of ptosis cannot be inferred by the presence or absence of a flat or protuberant abdomen. I believe that such a condition is of relatively little importance in children.

*Class 4. Flat Backs, with or without Round Shoulders, and with or without Flat or Protuberant Abdomens.*—There were twelve cases included in this class, five girls and seven boys. The average index for the boys was 73, and for the girls

81, the average total index being 78. The average age for the five girls was ten, the average height fifty-one inches, and the average weight fifty-six plus pounds, showing an average height, but a few pounds under weight for the normal. Of the seven boys the average age was nine, the average height seventy-one plus inches, and average weight seventy-nine plus pounds, showing a considerable increase over the normal average in height and weight for that age.

There was an equal degree of ptosis for each sex, the two greatest being respectively in a boy aged eleven, well above height and weight and with an index of 72, the lower border of the stomach being 2½ inches below the crests, and a girl aged ten, being both below height and weight, but with an index of 78, and a stomach 2¾ inches below the crests.

An analysis of the position of the stomach in these cases in relation to the crests of the ilia showed that eight were below, three were at the level of the crests in the region of the lower border of the fourth lumbar vertebra, and one was at the fourth lumbar, with the child lying down in the only picture I was able to get of this case. The actual amount or degree of ptosis was no greater in this class than existed in any of the other classes, as far as I could see.

The posture represented by this class is the second type spoken of by Dr. Goldthwait (5) as a cause of visceral ptosis. He believes that the absence of the compensatory increase in the lumbar curve or its entire obliteration is a cause of visceral ptosis, due to a change in the normal axial relations of the abdomen and pelvis, and so causing an obliteration, partial or otherwise, of the kidney shelf, at the same time decreasing its angle of slope, to which I have already called attention, and because of this making more of a direct pull on to the visceral supports. It would seem then that if any one class of individuals was to have ptosis greater in frequency and degree than all others this would be the class. This has not proved to be so in this study. Neither was there a greater degree of ptosis in these cases, nor was it any more frequent than a study of all the previous classes has shown it to be in them.

#### CONCLUSIONS.

Now what has this investigation shown? Namely, that in these eighty-three cases, of generally average developed children, the average position of the stomach is a much lower one than had been previously suspected, and that to find a stomach at or well below the crests of the ilium is not at all unusual. But one of these children had symptoms which were due to a dilated colon, which condition caused chronic constipation, and not to a stomach which showed a moderate ptosis. They were otherwise perfectly well as far as their digestive apparatus was concerned. We must also, I believe, change our ideas as to the shape of the child's stomach. As seen in this series it was generally large and either *horizontal* or of the *sink drain* type. The ideal so called *cow's horn* stomach was rare. Finally, I would state that I do not believe that posture in children, apart from the erect po-



sition of humans in general, has nearly as much to do with ptosis as has formerly been believed. What I believe has been shown proves that the child's stomach is lower than we generally supposed, and to find a stomach low in a child does not therefore mean that there is a pathological ptosis. It is of course obvious that poor posture should be corrected and impaired general health built up, but I believe that neither is a cause of ptosis in children, nor that a low stomach is necessarily a weak link in the chain of a child's development.

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234 MARLBOROUGH STREET.

## THE CLIMATE OF SAN DIEGO, CALIFORNIA, REGION, WITH RELATION TO RENAL DISEASES.\*

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## INTRODUCTION.

One of the objects of this Association being the study of climatology, its founders were obviously of the opinion that climate has an effect on the incidence of disease, and therefore must have a therapeutic value in the treatment of disease. Much of the literature of climate in recent years has dealt with the subject from the standpoint of the value or lack of value of climatic treatment of tuberculosis, but other diseases are affected (beneficially, some of us believe) by suitable climates, and among such diseases chronic nephritis in its various forms may be classed.

Most of us who extol the excellencies of the climate of some particular locality are, in a measure at least, prejudiced by personal benefit received, by pardonable local pride, or by personal interest. The writer belongs in the first class, having recovered from a tuberculous infection in New Mexico, and afterward having derived great benefit from a two years' residence in San Diego, where he was sent to recuperate from an attack of nephritis.

Our opinions as to the value of this or that climate are largely empirical, being based chiefly on clinical experience. Still, a study of mortality statistics throws some light on the subject, and, if confirmatory, strengthens our convictions and fixes our opinions. It has been said that figures do not lie, but that liars sometimes use figures. I do not accuse our statistics of mendacity, nor acknowledge

myself mendacious; still, in considering mortality statistics, with reference particularly to the chronic diseases, some corrections or explanations are necessary to make them tell the truth, for in our system of collecting vital statistics no provision is made for charging back to the locality of origin deaths of transient residents, from diseases contracted elsewhere than at the place of death, so that in the Southwest, for instance, where large numbers of consumptives resort, the death rate from tuberculosis is high, although the climate of that region is a most favorable one for consumption.

**Geographical and General.**—San Diego, California, at the present time a city of between seventy-five and one hundred thousand population, is located on the shores of the bay of the same name and the



FIG. 1.—San Diego.

Pacific Ocean, in north latitude about  $32.5^{\circ}$ , and about seventeen miles north of the Mexican border. That portion of the town along the bay and ocean front is but little elevated above sea level, but the main portion of the residential section is built on hills and mesas, ranging from one to two hundred feet in elevation, and separated by many cañons leading into the bay; thus giving the city a most excellent natural drainage.

The character of the soil is such (being composed largely of decomposed granite on hills and mesas, and sandy loam in the valleys), and the drainage so excellent, that there is practically never standing water or mud, even after the heaviest rains. Fifteen miles inland we strike the foothills, and a little farther east the southern part of the Sierras, which in this latitude rise to an altitude of fifteen

\*Read at the Thirtieth Annual Meeting of the American Climatological Association, held in Washington, D. C., May 6, 7, and 8, 1913.

hundred or two thousand feet. In this region flowers blossom every month in the year, lawns are ever green, and these add beauty to the scene and promote enjoyment and pleasure. It is the land of the fig, the lemon, and other citrus fruits. All sorts

maintained uninterrupted meteorological observations at San Diego since 1849, when medical officers of the army instituted them, afterward continuing in charge of them for over twenty years. In 1871 these duties were taken over by the signal



FIG. 2.—La Mesa, a suburb of San Diego, Cal.

of fruits, berries, and vegetables thrive during the greater part of the year, and the adjacent waters supply a variety of edible fish (all very important factors in the dietary of nephritics), while the city is furnished with an ample, unflinching supply of pure mountain water, and an excellent sewage system assists in maintaining the exceptionally good sanitary condition of the municipality. The entire county of San Diego is traversed by a recently completed system of good roads, built at an outlay of \$1,250,000.

*History of Weather Observations and Some Opinions of the Climate.*—The government has

corps of the army, which was intrusted with such matters until the Weather Bureau took charge of all meteorological stations in 1891.

For the past fifty years the meteorological instruments, although their location has been changed several times, have been located within a radius of one half mile, so that in estimating the character of the climate we have not only the advantage of long continued observations, but also, for the last fifty years, observations made under practically unchanged conditions. Noninstrumental weather observations, indeed, extend back to 1542, when Cabrillo entered San Diego Bay and recorded its ex-

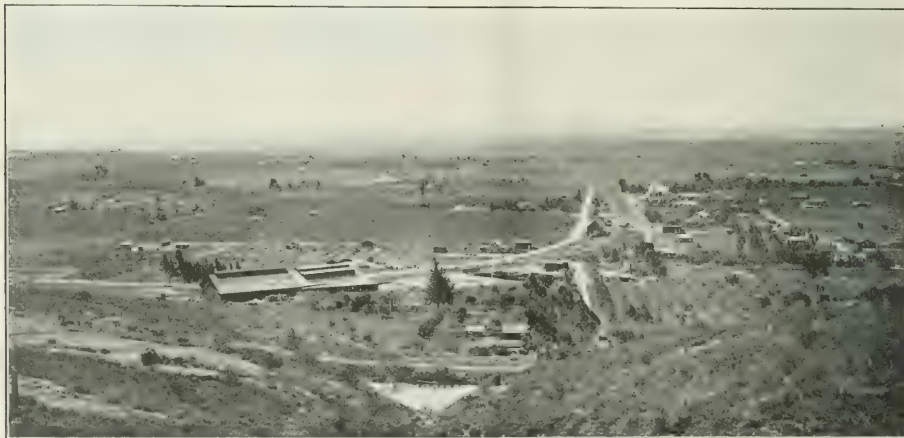


FIG. 3.—Lemon grove, a citrus fruit suburb of San Diego, Cal.

cellent qualities as a harbor of refuge from the southwestern gales, and Father Junipero Serra, who established the first California mission at San Diego in 1769, praised the climate, which he said reminded him of that of Spain.

Richard Henry Dana, in his *Two Years before the Mast*, published in 1835, gave an account of the early days of this region, and recorded his observations of the climatic conditions. Alexander Agassiz visited San Diego in 1872, and said, speaking of the climate: "This is one of the favored spots of the earth, and people will come to you from all quarters to live in your genial and healthful climate—a climate that has no equal." General A. W. Greeley, while head of the Signal Service, United States Army, wrote:

The American public is familiar on all sides with elaborate and detailed statements of the weather at a thousand and one resorts. If we may believe all we read in such reports, the temperature never reached the eighties, the sky is flecked with just enough of cloud to perfect the

hot days in summer, but great heat is prevented by two factors: During the forenoon in summer a low lying cloud, locally referred to as the high fog, but spoken of by the Spaniards as "el velo que cubre la luz del sol," or "el velo de la luz," "the veil which covers the light of the sun," or "the veil of the light," tempers the heat of the day until the trade winds, blowing from the ocean, dispel the cloud which is no longer necessary because of the cool breeze. The temperature goes as high as 90° F. four hours in a year, and as low as 40° F. for ten hours. The mean maximum ranges from 62° F. in January to 75° in August, and the mean minimum from 44° in January to 63° in August and September. The annual rainfall of San Diego is ten inches, and occurs during the so called rainy season, which extends from October or November until March. The humidity is relatively high, ranging from 67 in December to 80 in July, with a mean annual of 75. Occasional temperatures of

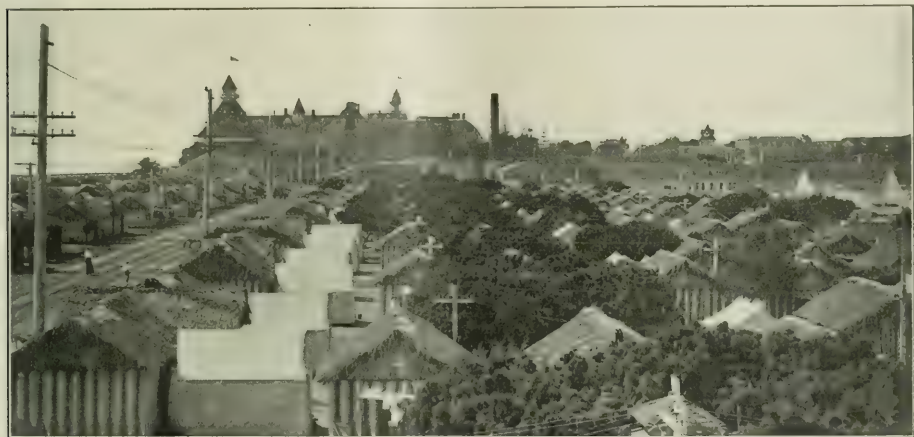


FIG. 4.—Coronado tent village, San Diego, Cal.

landscape, the breezes are always balmy, and the nights ever cool. There is possibly one place in the United States where such conditions obtain; a bit of country about forty miles square at the extreme southwestern part of the United States, in which San Diego, California, is located.<sup>1</sup>

*General Characteristics of the Climate.*—In general, the climate of San Diego is characterized by uniformity of temperature, the average daily range being from 10° to 12° F., and the variation between winter and summer being less than 20° F. There is also a high proportion of sunshine, which is even more constant in winter than in summer. Very hot and very cold periods are infrequent, high winds are unknown, and fogs are of less frequent occurrence than in the average sea coast locality. The climate may be described as cool in summer and warm in winter, and the short range of the temperature is due partly to the latitude, partly to proximity to the sea, and the absence of mountains in the immediate neighborhood contribute to infrequency of cloud or fog.

In this latitude one would naturally expect very

100° F. have been recorded. These high temperatures occur during the so called desert winds, but at such times the relative humidity is very low, ten per cent., or even as low as three per cent. having been recorded.

I will not bore you with statistical tables, but briefly, the extremes of temperature in San Diego are 101° F. and 32° F.; the average of the three consecutive warmest days was 82.9° F., while the average of the three coldest days was 40.2° F., recorded in September and January, respectively. In a period of twenty-five years the thermometer was lower than 80° F. on an average of 364 days a year, while the average daily range of temperature during the same period was 13° F., and the average difference between the mean of one day and the next is 2° F.<sup>2</sup> The sun shines in San Diego on an average of 356 days a year, and the proportion of possible sunshine is sixty-eight per cent., and the equability of

<sup>2</sup>The great California freeze occurred January 6-7, 1913, after this article was written. At this time the temperature at San Diego was lower than 12° F. for twelve hours, reaching an absolute minimum of 25° F., the lowest ever recorded.

<sup>1</sup>Quoted by Carpenter.



temperature is the characteristic of the climate to which your attention is particularly invited.

Mr. Ford A. Carpenter, a corresponding member of this association, and for sixteen years in charge of the Weather Bureau at San Diego, summarizes the climate as follows:<sup>3</sup>

*Temperature.* Since the beginning of meteorological records the temperature has averaged less than one hour a year above 90° F. Highest and lowest temperatures ever recorded are 101° F. and 32° F., and no snow has ever fallen, although the records extend back to 1871.

*Rainfall.* The annual rainfall averages ten inches. Back from the coast the rainfall increases to over forty inches. It is in this well watered region that the magnificent water supply of San Diego is located.

*Wind.* The sea breeze keeps San Diego cool in summer and warm in winter, and the nearby mountains and desert give it a dry marine climate. The wind averages five miles an hour throughout the year.

*Sunshine.* The sun shines in San Diego on an average of 356 days a year. The photographic sunshine recorder shows that for twenty years there has been less than nine days a year without one hour or more of sunshine.

throughout the year. On this coast diseases of the kidney are less frequent by one half than on the eastern coast of England, bathed by the cold waters of the North Sea, where the summers are much hotter and the winters colder than on the Atlantic shore, and where there is a wider range of temperature and greater variability of climate; and he attributes the extreme infrequency of renal diseases in the Shetland Islands to the uniformity of the temperature, notwithstanding its comparative low range. He says:

Renal disease, putting aside that of lardaceous origin, is the compatriot of wheat and barley, rather than of the vine and of the olive. It abounds wherever the climate, however cool during the winter, is warm enough in the summer, as in Canada, to bring wheat to perfection; and becomes scarce where oranges and lemons grow, and where deciduous trees, as generally characteristic of the scenery, are replaced by palms and other tropical endogens.

It may be stated that the figures given by Dickinson refer to the year 1863, when diagnosis was

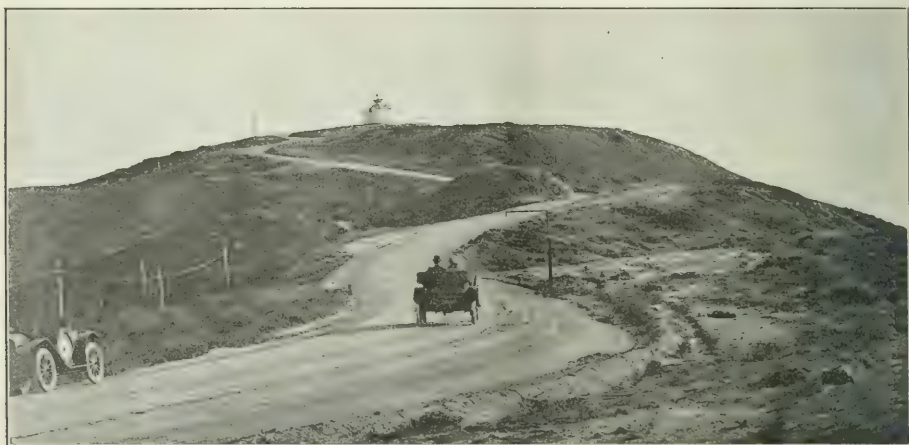


FIG. 5.—Point Loma Boulevard, San Diego, Cal.

*Comparative Seasonal Temperatures.* Temperatures are usually shown on a globe by lines which pass through regions of the same degree of heat or cold. Red lines of 60° F. or 70° F., showing the summer temperature at San Diego, also enclose Alaska and Siberia. Blue lines of 50° F. and 60° F., showing the winter temperature at San Diego, enclose Egypt and Arabia. Thus San Diego may be said to have Alaskan summers and Egyptian winters.

*Climatic Prevalence of Nephritis.*—Dickinson has shown, with relation to Great Britain and Wales, that deaths from renal diseases increase with the variability of the temperature in the various parts of the kingdom, ranging from one nephritis in fifty-three from all causes in Aberdeen, with an annual mean temperature of 47° F., and a mean monthly variation of 30.7° F. to one in 487 in Shetland, where the mean annual temperature is 43.8° F. and the mean monthly variation 19.9° F. On the western coast, by reason of the influence of the Gulf Stream, the winters are warmer and the summers cooler, and a fairly uniform temperature prevails

less accurate than at the present time. Consulting a recent report of the registrar general of vital statistics for Great Britain and Wales, I find that renal diseases have greatly increased in that country in recent years, although their relative climatic prevalence remains essentially the same, while the mortality statistics of our own census bureau shows that renal diseases cause a much larger proportion of the total deaths in this country than in Great Britain.

Our own vital statistics are less satisfying and convincing than those of Great Britain for several reasons: The registration area of the United States includes little more than fifty per cent. of our entire population, and a considerable part of that proportion has been so recently added that, while the laws are excellent, they have not yet attained full perfection of execution and administration. Again, our people are less firmly attached to localities, or are more roving than our English cousins, and so mortality statistics of chronic diseases are less truly

<sup>3</sup>The Climate and Weather of San Diego, Cal., by Ford A. Carpenter.

indicative of actual health conditions; the mortality rates for some sections thus showing, for some of the chronic diseases, higher percentages than local conditions justify, by reason of the large numbers of invalids resorting to those localities. If it ever becomes possible to require every physician to keep complete records of all cases of disease and injury treated, as hospitals now do, and make periodical reports to the health authorities, then we shall have correct and complete morbidity and mortality statistics.

In the registration area of the United States, the proportion of deaths from nephritis to the total mortality for 1909 is one to fifteen and sixteen one-hundredths, this including both urban and rural rates. In New York city the proportion is one to eleven; Philadelphia, one to ten; St. Louis, one to 11.29; and in general, it may be stated that the rate is high in cities having a very variable climate, subject to great and sudden changes. Herrick, in *Osler's Modern Medicine*, says:

The relative infrequency of this form of nephritis (chronic interstitial) in the warmer climates has been frequently noted. This may be in a measure accounted for by the fact that in the warmer climate there is less exposure to cold, inclement weather, and sudden changes of temperature.

He advises resort to a warmer climate in winter and to a cooler one in summer for nephritics.

Now, the proportion of deaths from nephritis in San Diego to the total from all causes is one in eighteen, but eliminating from consideration deaths from nephritis occurring in persons who had lived in San Diego less than twelve months, the proportion is one to forty-three. The Board of Health in San Diego has no data as to the length of residence in the persons who had been there more than twelve months before death, but, based on experience of local physicians, few or none occur in residents. This, on the face of it, while establishing the fact that nephritis is not relatively of so frequent occurrence in the climate of San Diego as elsewhere, does not seem to prove the excellencies of the climate in the treatment of the disease, but we must consider that, if one desires to be benefited by climatic treatment, one must resort to the desired climate before the disease has completely demolished the structure of the organ for which relief is sought; since no remedy, climatic or otherwise, is capable of restoring or replacing tissue which has already been destroyed, and it is the common experience of all climatic resorts that a vast majority of patients come after their organs are irreparably damaged.

Bullard, of Los Angeles, in his work on *Apparent and Actual Mortality*, written in 1893, showed that twenty-five per cent. of those dying in Los Angeles from nephritis had come to California within two years in an advanced stage of the disease, and the experience of San Diego physicians shows that the proportion of imported cases is much larger in San Diego at the present time; which is supported by the mortality statistics of the San Diego health office above referred to. To state the matter in somewhat different form, the death rate in the entire registration area as shown by the census reports for 1909 was 1,440 per hundred thousand of population; from Bright's disease,

95.2, and from pneumonia and other diseases of the respiratory organs, 178.5. During the same year in the entire State of California the corresponding figures were 1342.8, 85.3, and 144.3. For the State of New York, 1566.2, 127.5, and 226.8. For the city of San Diego, 1594.2, 89.9, and 161.3. These are the uncorrected figures, no allowance being made for nonresident decedents. The rates for pneumonia and other respiratory diseases are given to show the comparative infrequency in San Diego of these diseases, which are often intercurrent causes of death in the subjects of renal disease. Figures of this character might be multiplied indefinitely, but enough have been quoted to show that climate does play a part in the causation of renal diseases, although I do not mean in any sense to minimize the other well known causes, nor even to assert that unfavorable climatic conditions may have a preponderance of causative action.

*Advantages of the Region for this Class of Diseases.*—The first and chief advantage of this climate in renal disease lies in its equality and uniformity, not only as between night and day, but as between the different seasons, there being no sudden drops in the temperature, and the difference between summer and winter temperatures being greatly less than is frequently experienced in the Mississippi Valley and on the Atlantic Coast in a period of twenty-four hours. As a consequence of this uniformity and equability, there is a relative infrequency of the acute respiratory and intestinal diseases, which so often in less favorable climates become the intercurrent cause of death in nephritis. Since the climate is one suitable for and favorable to nephritics during the entire year, it becomes possible for these patients to remove with their families to this region, establish homes and settle permanently, thus avoiding the separation from family and homesickness which are so often inseparable from climatic resorts.

While the climate of San Diego is such as I have described, there are two other distinct climates different from that of the immediate coast within a distance of forty or fifty miles from the city of San Diego. One is the climate of the mountainous district some twenty miles inland, which is characterized by warm summers and cool winters, with a considerable daily range of temperature, moderate daylight rains, low relative humidity, fairly heavy winter rains, and some thunder storms during the summer. Another twenty miles eastward we have a distinct desert climate, with its almost unvarying sunshine, warm winters, and with great variation between day and night temperatures, hot summer days, extremely low relative humidity, and almost no rainfall. So persons resorting to the San Diego climate may readily and easily avail themselves of a temporary change without traveling great distances, and at trifling expense.

*Reference to Some San Diego Cases.*—My friend, Dr. P. C. Remondino, for nearly thirty years a resident of San Diego, who has written very extensively concerning the climatology of Southern California, says: "A well man will stand less chance of ever becoming sick here, and an invalid will, on the average, live longer and more comfortably and with the greatest possible and probable chances of

ultimate recovery, than in any other portion of the United States."

Two of the prominent physicians of San Diego went there on account of nephritis, one sixteen and the other six years ago. The first was apparently in a very advanced stage of the disease, with general anasarca, ascites, and great general debility, and was physically unfit for the least activity. In such cases we must use the expression "cured" with great caution, but this gentleman is now doing a very large practice and is very active in many ways, and is to all appearances, intents, and purposes a well man. Another very pronounced case is that of a gentleman sent to San Diego sixteen years ago on account of nephritis, and, as his medical adviser said to me, "completely water logged," and who for several years has taken a very active part in the political life of the community; he is to-day a vigorous and apparently healthy man. These are but a few examples of the scores of well known citizens whose cases are equally striking.

It is a climate which necessitates no seasonal change of clothing, where neither great heating nor cooling is required at any season, and where vegetables and some fruits grow during the entire year, making proper diet for nephritis easily obtainable. In such a climate attacks of diseases invited or influenced by change of weather, diet, or clothing, must necessarily be reduced to a minimum, and Dr. Remondino says: "I know from observation that a weak heart and defective kidney will support work better here than in the East."

#### CONCLUSIONS.

Experience shows, and the opinions of those whose judgment we must respect support the proposition that renal diseases are more prevalent in climates subject to great and sudden changes of temperature, and where other causative factors are practically the same as in regions where such diseases are less prevalent. Vital statistics, while not so conclusive, in general bear witness to the same facts. The experience and testimony of our *confrères* in localities of equable climate is to the effect that nephritis do well, feel better, live longer, and even, in some cases, seemingly recover in climates of which San Diego presents an example. That a part of the observed beneficial effect may be due to more sane modes of living is admitted, but both reason and experience persuade us that the even climate must be credited with an influence in the general good results, even though the exact proportion of its influence is not demonstrable. For the official figures of meteorological observations used in this article, as well as for many other facts, I am indebted to the work of Mr. Ford A. Carpenter on the *Weather and Climate of San Diego*.

#### THE DIFFERENTIATION BETWEEN MORONISM AND IGNORANCE.

By HOWARD A. KNOX, M. D.,  
Ellis Island, New York,  
United States Public Health Service.

This problem is one that has never arisen in this country until recently, owing to the fact that our excellent school system has reached every one and

educated him, if this was possible. If he were incapable of acquiring knowledge then that fact classed him as a mental defective. At the present time the great influx of uneducated aliens renders it necessary in justice to ourselves and to them,

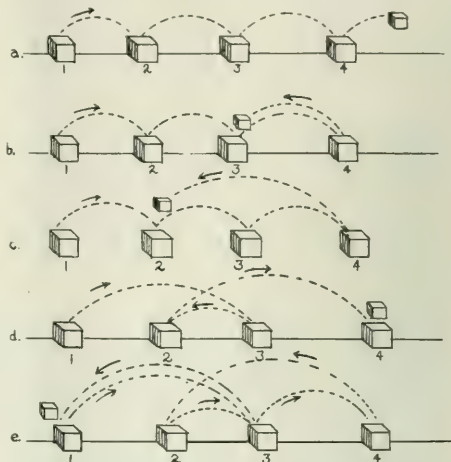


FIG. 1.—The author's "Cube Imitation" Test. This consists of four large and one small black cube. Beginning on the left, the examiner moves the small cube, as shown by the dotted lines, and the subject is asked to do what the examiner did. The examiner's movements are slow and deliberate. A study of a large series of cases has shown that high grade imbeciles can imitate line (a) but not (b), that feeble-minded can imitate line (b) but not (c), that morons or higher feeble-minded imitate line (c) but not (d), that normal persons can imitate line (d) and that only bright persons can imitate line (e). This test was developed at Ellis Island, and is one of the most valuable single performance tests. This standardization is for illiterates over twelve years of age. a, high grade imbecile; b, feeble-minded; c, moron; d, normal; e, bright.

that we become proficient in separating moronism (higher feeble-mindedness) from gross ignorance. After studying carefully the methods used at the various schools for the feeble-minded, the medical officers at Ellis Island were obliged to discard the great majority of them as unsuitable for their work and unfair to the immigrant. This was for the reason that in most cases the originators of these tests were working on children whose deficiency had already been easily recognized by their teachers or relatives, and to recognize them as defectives no nice differential test had been required. It has been necessary therefore to evolve accurate standardized tests at Ellis Island, and this was only possible after considerable painstaking work had been done by members of the Public Health Service to discover a normal for each nationality and degree of illiteracy.

It is probably now possible to say in every case whether an alien is defective or whether he is simply ignorant. The ignorant who are not defective possess among

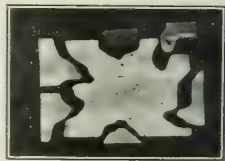


FIG. 2.—This is the "G" test or geographical puzzle, and it is a valuable test since in attempting to fit the pieces into their proper places the defective demonstrates that muscular incoordination, limited sense of adaptability, and lack of decision which are often seen in defectives, and hence aid in their detection.



other attributes, the following: Didacticity, originality, ingenuity, the power of prolonged attention, and the ability to cooperate intelligently if not accurately with the examiner. They also possess a natural moral tone and finesse, re-

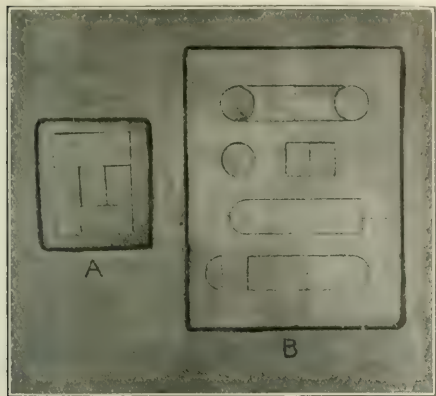


FIG. 3.—A, "H" Test—This is the Healy puzzle, and consists of a wooden frame with five blocks inside. The blocks are to be placed in the frame, as shown in the cut in the time limit stated, fifty-five seconds.

B, "F" Test—Healy-Fernald test here shown consists of a wooden frame with blocks inside of various shapes, but all of the same width. A time limit for illiterates has also been worked out for this test. The Healy and Healy-Fernald tests give valuable contributory evidence in deciding whether the subject is ignorant or defective.

ardless of whether these have been taught or not. The tests evolved and made use of at Ellis Island at the present time are intended to, and probably do, show a presence or absence of these characteristics.

The following is a general method of examination for aliens over twelve years old, which is applicable to almost any illiterate for the purpose of determining whether or not he is feeble-minded, and to be classed as a moron. Educated persons, of course, should be tested by means of the ordinary Simon-Binet scale.

1. The first point to determine is whether or not, in dealing with foreigners, the subject and the interpreter understand each other perfectly. When this is determined to the satisfaction of the examiner, he should question the subject with a view to



FIG. 4.—This patient, while in a mild state of psychogenetic aberration induced by fright, measured but five years on the Simon-Binet scale. After recovery, as shown here, she measured twelve years on this scale. She is eighteen years old and illiterate. The primary disorder was one that would have been interpreted by a layman as a natural characteristic, and she would consequently have been classed as an imbecile, whereas postpsychotic examination shows that she possesses normal intelligence.

finding out, what he knows and remembers of the ordinary occurrences and everyday duties of his previous environment; for instance, if he was a farmer, ask about the farm, if a tailor, ask technical questions about that trade, and so on, suiting the questions to the calling and method of living. Further than this, ask about conditions in the place from which the subject came.

2. Determine what the subject remembers about his journey, whether he knows the names of the large cities through which he passed, and whether he knows the name of the ship he came on.

3. Is he well oriented for time, person, and place?

4. Has he ordinary facts of common knowledge, such as the number of days in a week and months in a year, with their names?

5. Can he meet the ordinary little emergencies of life? What would he do if tempted in various ways? Would he avoid trouble and questionable things? These points should be determined by special questions suited to the age, sex, and standard of living in each case.

6. If he can count forward from one to twenty, he should be able to count backward from twenty to one.

7. He should be able to remember and repeat, after ten seconds, five figures.

8. He should be able to obey three simple commands, and he should be able to touch with a pencil, after the examiner, four like objects such as dice or cubes, skipping any one and jumping back to any one; this latter is the "C. I.," or cube imitation test. (Fig. 1.)

9. After looking at an ordinary picture containing a dozen objects for thirty seconds, he should be able to name six of them from memory.

10. He should be able to copy a diamond or a square with a lead pencil.

11. He should be able to arrange in the order of their weight five cubes of different weights.

12. He should be able to do the "G" or geographical puzzle in two minutes and twenty seconds. Defectives nearly always attempt the impossible in doing this puzzle, and they thereby show that they possess but a small sense of the "fitness of things." Clumsiness and incoordination are also shown, and these are important since nearly all defectives possess them to some degree. (Fig. 2.)

13. The "F" or Healy-Fernald test should be accomplished in three minutes, and the "H" or the Healy puzzle in fifty-five seconds. (Fig. 3.)

These thirteen elements of the examination can be gone through within twenty minutes, and repeated on the following or subsequent days if desired, and when this is done the examiner is quite well acquainted with his subject and is in a good position to give him a mental rating. If he makes a total failure of four thirteenths of the examination as given here, he should be considered in the moron class, provided a reasonable attempt has been made to instruct him, in points that could not be accomplished at the primary examination. This examination will seem, to one who has not worked with alien defectives, rather easy, but experience has shown it to be the hardest, that is in all ways fair to the illiterate immigrant. (Fig. 4.)

I wish to add one word of caution, and that is to be certain that the case of moronism is of congenital origin, and not a simple transient condition due to anemia and toxemia, as in uncinariasis, to pellagra, to other toxins, to hypothyroidism or disturbances of other internal secretions, and lastly, and by far the most important, to psychogenetic depressions. These transient conditions, which may simulate true congenital moronism or feeble-mindedness, are in the main curable, and it would be unjust to certify and deport such a person. It is therefore very essential that all such examinations be conducted by persons with medical training.

## THE USES AND LIMITATIONS OF PARAFFIN IN THE TREATMENT OF OZENA.

BY JULIUS AUERBACH, M.D.,  
New York.

This paper is based on the study of thirty-two cases of genuine ozena. The writer's primary object was to note the effect of paraffin injected subcutaneously or subperichondrially into the nasal chambers; such injections have been done by our European colleagues, and they have reported brilliant results from its use.

It becomes evident that one must start with some definite ideas as to what constitutes true ozena. If, as some authors assert, Grunewald, Noebel, and others, that it is a disease secondary and dependent upon an accessory sinus empyema, and does not exist *per se*, the logical view to take is one that would be directed to the treatment of the primary disease; other authorities, and they are not a few in number, recognize ozena as a disease beginning in the nasal mucous membrane, and if accessory sinus disease is present, that it is secondary to the atrophic rhinitis. Others, again, are of the opinion that the presence of empyema of the accessory sinuses is but a coincidence.

The nature of the process is as yet not fully explained. Sufficient anatomical material is on hand to show that we are dealing with an inflammatory process, but from the vast amount of literature on the subject it may be seen that the causes leading to the pathological changes have not been made clear. How the disease begins is another question; one which is a large and tempting problem in itself, but which it is not the purpose of the writer to take up. Here, too, battles are being fought between those who regard a distinct organism as the etiological factor and those who assert that it is but an advanced condition of hypertrophic rhinitis. It is not easy, from the mass of conflicting statements, to draw conclusions as to the origin, or as to the primary or secondary nature of the disease; in fact, many of the strong adherents of one theory or another believe that the element of doubt is considerable for each. Loewenberg and Abel look upon ozena as an infectious disease, the former, in 1885, having described the diplococcus which he could differentiate from the pneumococcus. He was able to immunize mice against the pneumococcus, while he could infect those

animals with the ozena coccus. Abel could demonstrate his ozena bacillus in one hundred cases, as could von Pölsen his *Bacillus mucosus fetidus*. Strubing is of the opinion that the microorganisms entering the nose set up a catarrhal inflammation of the mucous membrane, leading to hypertrophy, with atrophy as an end stage.

Empiric treatment of disease is not taken up enthusiastically in this day of serums and specifics, and justly so, unless it can be shown by actual results that such treatment is accompanied by marked benefits. That the paraffin treatment of ozena will some day be shown to be crude and unscientific I do not doubt, but that time will be one in which the bacteriological obstacles have been overcome, and a specific serum or vaccine has been evolved. Coldera and Gaggia made serological examinations from extracts of ozena crusts, and in none of the examined ten cases was there a complement fixation with the blood serum; from this the authors conclude that the excitant of ozena is not a specific one.

I have attempted in each of my cases to find a localized pus focus, where possible, and to note whether treatment directed to the foci tended to influence the atrophy, with its manifestations of crusts, foul odor, etc. This, in itself, puts a severe test upon the examiner, who must use every diagnostic measure at his command, and must subsidize his olfactory sense in the painstaking efforts to determine the origin of the secretion. Hajek, in his discussion of the relation between atrophic rhinitis and accessory sinus empyema, holds that in all instances there will be found a pus focus somewhere, and that where this is not found, our diagnostic measures are at fault.

I shall precede the account of my own cases in this paper by a short description of the disease under discussion. The most pronounced symptoms are those for which the patient generally seeks relief, namely, the fetor and crust formation. The former, in advanced cases, is characterized by a detestable odor, which has been compared by some to the odor of sweating feet, by others to the odor of crushed bed bugs. Certain it is that it is atrocious enough to be long remembered when once inhaled, and to make its possessor a menace to society. It can be detected not only when within close range of the unfortunate, but even when removed from him by a considerable distance. In early cases the fetor has a sweetish, depressing character. In women the fetor becomes more pronounced during the menstrual period. At times the odor of ozena is similar to that of tertiary luetic nasal affections accompanied with bone necrosis. The odor from accessory sinus empyema is different. Freese's chemical analysis of the secretion taken from ozena patients found it to be highly alkaline in reaction, rich in indol, skatol, phenol, sulphureted hydrogen, and fatty acids.

Next to the fetor, the crust formation is the most bothersome symptom to contend with. The former, in fact, is dependent upon the latter, and the crusts still further, by their mechanical presence, set up a syndrome of symptoms, consisting of difficulty in nasal breathing, headache, anosmia, dryness of the

throat, etc. According to Zarnicko, the freshly removed secretion is free from odor. Juraz states that the odor sets in only after the secretion has been allowed to stagnate for some time. One sometimes meets with cases where the interior of the nose is free from secretion, yet the odor is present, even pronounced. In these cases a postrhinoscopic examination will reveal adherent crusts in the nasopharynx or in the posterior part of the middle or inferior meatus.

Rhinoscopic examination of typical cases, after the removal of the crusts, discloses the anemic, atrophied turbinal bodies, although in many instances the middle turbinate is found in contact with the septum and occluding the olfactory fissure. The atrophy is most marked in the inferior turbinate; sometimes the middle turbinate is so atrophied that the region of the hiatus semilunaris is freely exposed. Sometimes, also, the atrophy permits a full view of the anterior wall of the sphenoid sinus with its ostium; the posterior wall of the nasopharynx comes particularly into view, and allows the inspection of the tubal musculature during speaking or swallowing. On postnasal examination, one finds the mucosa dry and shiny, or covered with tenacious yellow or greenish mucus.

That my cases may all come under the definition of genuine ozena, as given by Frankel, I have not included cases of accessory sinus empyema or cases having local areas of suppuration which are accompanied by atrophy and crust formation, and which in many instances cannot be differentiated from the true type of ozena. Of great value in determining the origin of the secretion in the nose is the method of tamponage of Gottstein; the middle meatus being closed off by small pledgets of cotton tightly placed one upon the other, the secretion originating from the antrum of Highmore, the anterior ethmoidal cells, or the frontal sinus should not be able to gain access to the inferior meatus. In true ozena the lower meatus will still be found to contain secretion, and this, if allowed to stagnate, forms into crusts.

The use of paraffin in surgery was first suggested by Corning, and was practically demonstrated a few years later by Gersuny. Numerous followers have used it with various degrees of success in cases of umbilical hernia, prolapse of the rectum and vagina, prolapse of the uterus, incontinence of the bladder and rectum, and in cases of facial deformities, as in depressed noses; also in facial hemiatrophy and to fill in depressions following the radical operation on the frontal sinuses. That it was not altogether free from deleterious consequences was soon evidenced by reports of collapse following its use, and in some instances sudden blindness due to embolism. The literature is rich in reports of cases where untoward effects were noticed. Pfannenstiel reports a case of combined cerebral and pulmonary embolism after the injection of a mixture of hard paraffin and petrolatum for incontinence of urine. Halban also reports a case of lung embolism following the injection of petrolatum for prolapsus vaginae. Kofman, upon injecting twenty c. c. of petrolatum for prolapsed vagina, observed a coughing spell while the patient was still on the operating table, with exitus twenty-

four hours later from embolism. Gersuny reports two cases of embolism. Broecaert reports slight lung embolism following injection of paraffin for ozena. Leiser, after injection of a mixture for saddleback deformity of the nose, witnessed the onset of blindness of the left eye due to thrombosis of the ophthalmic vein. Hurd and Holden report a similar case, with blindness coming on directly after injection of semisolid paraffin for a nasal deformity. Ophthalmoscopic examination disclosed an embolism of the central retinal artery.

An analysis of the above cited cases discloses that invariably soft paraffin or a mixture of soft and hard paraffin was used, and it has remained for Eckstein to prove that where hard paraffin of high melting point is used embolism never occurs. Eckstein himself has given thousands of injections, and in no instance has embolism resulted. It therefore becomes evident that in the selection of paraffin it becomes of supreme importance to use hard paraffin (hard at the temperature of the room) and of a high melting point ( $50^{\circ}$  to  $52^{\circ}$  C.). It is conceded that this form of paraffin is difficult to handle, and that specially constructed syringes have to be used, but its efficacy has been proved, and, with the improved syringe of Mahu and Brunnings, its manipulation becomes comparatively easy.

The use of paraffin in ozena is based partly on the theory that the abnormal width of the nose has something to do with the stagnation of the secretion, and that by the mechanical narrowing of the nasal cavity a stronger expiratory current may be made to take place, and so aid in the expulsion of the secretion. It has been noticed that when ozena exists in unsymmetrically developed noses the narrower side contains fewer crusts than the wider side. Broecaert thinks that paraffin has a trophic influence on the mucous membrane; he has shown that a regeneration of the sclerotic mucous membrane occurs, and that the epithelium takes on its natural characteristics. It is also thought that this trophic influence is brought about by the mild inflammatory reaction set up by the paraffin and by the stretching of the tissue fibres.

*Technic.*—Next to the proper selection of the paraffin, the syringe plays a very important rôle in the proper carrying out of the injection. The writer employs hard paraffin of a melting point of from  $50^{\circ}$  to  $52^{\circ}$  C. Of the numerous syringes on the market, all enjoying certain special advantages over the others, and among which may be mentioned that of Onodi, Harmon Smith, Yankauer, Botey, and Mahu, the writer prefers that of Brunnings, which is powerful, adaptable to the use of hard paraffin, easily manipulated with one hand, allowing proper localization of the paraffin and, by the notch arrangement, prevents overinjection. The last advantage is a very important one, not only in the intranasal use of paraffin, but also when used for cosmetic purposes, as in cases of saddleback deformity, where many failures may be attributed to overinjection; and this, not because of lack of judgment as to the amount to be injected, but because of the difficulty in propelling the paraffin and the consequent use of excessive force.

The paraffin, after having been melted in the hot water bath, is drawn primarily into the Eckstein



syringe (glass barrel insulated with thick rubber), and then forced into the barrel of the Brunnings; the piston is next introduced, and the syringe is then worked very much after the manner of the trigger on a pistol. With each pull of the trigger, one drop of paraffin is expressed; when the paraffin hardens in the syringe, it no longer appears in drops, but in the shape of a thin strand. The needle which fastens on to the syringe is then dipped into hot, sterile water, and the paraffin again liquefies. However, as soon as it strikes the tissues it again solidifies, and so is prevented from entering the circulation. The keynote to success lies in thoroughness of aseptic technic. Of over three hundred injections given by the author, he met with but one case of infection; here septal abscess took place.

After thorough cleansing of the nose, with the removal of all the crusts, the nasal mucosa is anesthetized with a ten per cent. solution of cocaine; no epinephrin is employed, as it causes shrinking of the mucous membrane. The writer carries out the injections with the patient in a sitting posture. A self retaining speculum is introduced, permitting the index finger of one hand to guide the needle while the syringe is manipulated with the other. The amount injected varies; the best guide is the appearance of the mucous membrane; this is to be raised until it is seen to be almost white. The site of injection may be the mucous membrane of the inferior turbinate, the septum, or the floor of the nose. Where sufficient paraffin is not injected under the mucous membrane of the inferior turbinate to bring about a narrowing of the nasal cavity, or when the mucous membrane is so friable that it will not retain it at all, other sites must be sought; the septum, the floor of the nose or the outer nasal wall, between the inferior and middle turbinate. In fact, one must seize the opportunity to inject into any available tissue in the nose. The most difficult place for injection is the floor of the nose, on account of the concavity of the region.

The writer employs no preliminary incision of the mucous membrane, and, where possible, injects both sides of the nose. Often the cartilaginous septum is found so atrophied that the needle will easily perforate it, and one finds himself injecting the opposite side. Weleminsky, after injecting with Schleich solution, makes an incision in the septum about one c.m. in length, separates the mucous membrane from the perichondrium, and introduces the paraffin into this newly made space. Lubers raises the mucous membrane by injection with normal salt solution, and then proceeds with the injection of the paraffin.

*Clinical Observations.*—From within three days to a week after injection there is produced a change in the character of the secretion; it becomes more liquid, is less tenacious, there are fewer crusts, and the patient, in spite of narrower nasal chambers, seems to breathe more freely; soon the crusts disappear almost entirely, and little effort is required to clear the nose. This improvement lasts for a variable length of time—from two to five months. Whether the improvement is due to the narrowing of the nasal chambers or to the trophic influence on the mucous membrane I cannot say; probably both are factors. In the author's cases the average time

which the paraffin was retained is four months. Ten cases have retained it for five months; the majority about four months. The writer knows of no other treatment that will give the same improvement for the same length of time without the persistent cleansing and removing of the crusts. The amelioration of the disagreeable symptoms, notably the fetor and crusting shortly after injection, is, in most cases so marked that the delight of the patient is only equalled by the enthusiasm of the operator; but alas! the delight and enthusiasm are both of short duration, because it is not long before the dreaded symptoms reappear.

Out of thirty-two cases of genuine ozena treated by injections of paraffin in the past year and a half, twenty-six were markedly improved for months following the injections, with absence of foul odor and crust formations, and no other treatment, local or general, was instituted. Six cases could not retain the substance in the slightest degree, and no beneficial results were manifest. I must say, however, that these were extremely advanced cases, with the mucosa so friable that it tore with the introduction of the first drop. In five cases of my series one side was used as a control, while the other was injected, and then both sides compared. The injected sides in all these cases showed, after the lapse of a week to ten days, a marked improvement over the noninjected sides. Eventually both sides were injected. The number of injections for each patient varies; where the mucous membrane has still retained its resiliency, two or three injections along the septum, floor, or outer wall are necessary to bring about a narrowing of the nasal fossæ. In more advanced cases, when the mucous membrane has become sclerotic, I have made as many as twenty injections before any appreciable reduction in the calibre of the fosse was noticed. The writer met with septal abscess in but one case; the paraffin was spontaneously cast off, and the abscess was treated in the usual way. Five patients complained of rather severe frontal headache, which lasted for one day following the injection. One patient complained of pain over the left eye; this subsided in twenty-four hours. In one case there was slight swelling and discoloration of the lower lid. The bleeding is practically nil except where injections are made into the septal mucosa, and here it is generally so slight as to require no special consideration.

Brindel and Broecart were the first to use paraffin as a therapeutic measure for ozena, and both reported favorable results. Of the ten cases treated by Blau with injections of paraffin, he reports five that had been under observation for from one and a quarter to two and a quarter years, as entirely free from crusts and foul odor. Three cases showed a slight amount of crust formation, though the fetor was entirely absent. Two of his cases did not respond to treatment. S. Wetterstad also injected ten cases of ozena with paraffin, and reports healing (cure) in three, and improvement in seven. Botey reports twenty per cent. perfectly cured from the functional standpoint, and forty-five per cent. curable but not absolutely cured. Clayton Fox has found that all his patients have been cured or relieved from the fetor and crusting.

To illustrate the results of my observations, I will cite the histories and behavior of a few cases.

CASE I. Mary V., aged sixteen years, for the past three years had had a disagreeable odor from the mouth or nose, she could not tell which, as she herself was not able to notice it; her attention was first called to it by her parents, and then she noticed that her schoolmates would keep at a safe distance from her. Every day she would expel large greenish crusts from both sides of her nose. *Examination:* Odor characteristic; girl pale and poorly nourished; nares of more than usual width, though nose not flat. Large greenish crusts filled the middle and inferior meatus of both sides. After their removal, the pale, atrophic inferior turbinates were seen; middle turbinates in contact with the septum, the olfactory fissures obliterated; tubal musculature plainly visible during the act of swallowing. Transillumination showed antra and frontal sinuses clear, light reflexes present; washings from both antra returned clear.

Both nasal cavities were injected with hard paraffin at intervals of two weeks. Calibre considerably reduced by the artificial spur made on the septum and by injections under the mucous membrane of the inferior turbinates. Patient observed every day for a week following the injection. Crusting on injected side gradually diminished; odor less. After injection of other side, same improvement noticed; within three weeks after the first injection, was free from odor, and crusts were considerably diminished and could be expelled with ease. No other treatment instituted; no washings nor sprays. (At end of three months, slight odor again noticed, crusts assuming larger size. Examination disclosed disappearance of the paraffin from the inferior turbinal. Again injected, and patient remained free from disagreeable symptoms for four months. Received eight injections in all.)

CASE II. J. T., aged twenty-four years, a barber by trade, chiefly complained of crusting and dryness of the throat for many years. Had had several intranasal operations performed for difficulty in breathing; headache over left frontal region; great difficulty in expelling the crusts, which form chiefly on the right side. Examination showed septum deviated to the right; right middle turbinate hypertrophied and in contact with the septum. Lower turbinate pale, atrophied, and covered with mucus. Left nasal cavity filled with large crusts, with mucoid secretion in the olfactory fissure; middle turbinate moderately enlarged; nothing left of the inferior turbinate; odor pronounced, pharynx and epipharynx dry, glazed.

Hard paraffin injected into the outer nasal wall and floor; mucous membrane of septum very friable and could not retain the slightest amount. Injections given in three sittings at intervals of one week; improvement noticed after the first injection, and patient continued to remain free from symptoms for three months. The paraffin at the end of that time no longer found in the outer nasal wall, though the floor was still raised by the mass. Had repeated injections, which relieved him for about four months; no other treatment employed. At last sitting had again to inject the floor.

This is a case of so called unilateral ozena, but which nevertheless had all the characteristics of the usual bilateral variety, except that on the side of the narrow nasal chamber there were no crusts. How much the trauma of the previous nasal operations contributed to his present condition it is hard to estimate. I have frequently seen atrophic rhinitis set in after the complete removal of the lower turbinate, although no less an authority than Freer states that he has never seen atrophic rhinitis as a consequence of removal of the inferior turbinate, and thinks that the disease has a distinct pathology which cannot be surgically treated.

CASE III. Miss S. K., aged seventeen years. Since childhood had had large greenish masses come out of her nose, and she had been told by members of her family that the odor emanating from her person was sickening; to this I could personally attest. Her nose was abnormally wide and flat, especially in the middle third, but did not present a characteristic saddleback deformity. Marked

atrophy of all the intranasal structures; the sphenoidal ostium of the left side plainly visible, and the sinus could be probed with ease. On account of the marked atrophy of the middle turbinate and bulla ethmoidalis, a catheter could easily be introduced into the frontal sinus; washings from this region, as well as from both antra, showed clear fluid.

Injection, hard paraffin into every available space; improvement began at once; at end of ten days fetor entirely disappeared, as well as the crusts; patient elated. Hard paraffin injected extranasally for the depressed deformity, straight profile resulting. This patient received no setback for a period of five months, during which time she was frequently observed. At times small crusts could be removed from the floor of the nose posteriorly, but they were not nearly of the dimension which they were before injection. She received only three injections altogether.

CASE IV. W. K., aged twenty-eight years. Referred to me by Dr. George K. Hildreth. For the past three years had had difficulty in removing large green, foul smelling crusts from both nares; sense of smell very markedly diminished; no previous operations on nose. Throat dry; voice husky. On examination, both nasal cavities found filled with greenish yellow crusts, after removal of which the floor of the nose still contained a tenacious yellow mucus of foul odor. Inferior and middle turbinates found atrophied. Hiatus semilunaris easily probed. Clear fluid from washings of frontal sinuses and antra. Both nasal fossæ injected at same sitting. Improvement, lasting three months, without any local treatment. In the year that he had been under observation received four injections.

CASE V. Mrs. L., aged forty-eight years. Since childhood, stinking discharge from the nose, with formation of large crusts. Great difficulty in nasal breathing, and throat dry; voice weak. At times, after considerable hawking, would expel greenish mucus from throat. Skeleton of the nose atrophied; nose was broad, flat, and very pliable. The cartilaginous septum was so atrophied that it could be easily pushed with the probe from one side to the other, very much as one is able to do with septa that have been resected. She had never had any operation performed on her nose. Both nasal fossæ injected at same sitting. Left nasal fossa retained the paraffin on the lower border of the inferior turbinate and on floor. On the septum the paraffin made its exit from the point where the needle entered. In the right nasal fossa, no retention possible on account of the extreme friability of the mucous membrane. Improvement, lasting about three months on the left side. Repeated injections given on the right side, with no success.

CASE VI. Miss J. F., aged twenty-one years. Very pronounced case; atrophy unusually far advanced; just a ridge left of the inferior turbinate. Under observation since August, 1912. Received twelve injections, with no influence on the condition.

CASE VII. M. F., aged eighteen years. Moderately well advanced case of ozena of four years' duration. Under observation fifteen months. Both sides injected at one sitting. Showed improvement shortly after injection. About a month following the treatment had severe attack of influenza; when he reappeared, the prostheses were no longer in place, and he said that the crusting had returned. After second injection improvement again noticed. Gets relief for about four months.

CASE VIII. H. F., aged eighteen years. Seen through the courtesy of Dr. I. W. Voorhes. Pronounced odor, crusting, and atrophy. No focal suppurative area. Prostheses introduced into both nasal fossæ and the chambers narrowed considerably; could inject considerable quantity of paraffin, the mucous membrane being quite elastic. Bleeding from a point on the septum where needle was introduced. A few hours after injection patient experienced pain in the left eye, and lower lid became swollen and discolored. When seen the following day swelling and discoloration of lid were no longer present, but slight tenderness was found over the orbit; after the use of cold applications this had disappeared by the following day. Has relief for about four months, after which time he returns for injection.

#### CONCLUSIONS.

1. In the injection of hard paraffin of high melting point the danger of embolism is eliminated.

2. The results so far obtained even in severe cases afford encouragement for the further use of paraffin injections in ozena.

3. It is impossible to speak of a "cure," even in those cases which show a disappearance of the disagreeable symptoms.

4. There is no influence anatomically on the atrophied structures.

5. Functionally the results are all that can be desired, though all cases eventually require reinjection.

62 WEST NINETY-SIXTH STREET.

## TRAUMATIC PERIOSTITIS OF THE LUMBOSACRAL SPINE.\*

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During the past few years a lot of attention has been given to the diagnosis of lesions of the spine and particularly the lower lumbar and sacral region. As a result of this study and demonstration it has become an accepted fact that most backaches present some definite lesion. If in this brief paper, we confine our observations to the lower lumbar and sacral areas and also take into consideration only those backaches due to trauma, we will still find many cases in which a positive diagnosis of a definite lesion is not always easy. Many of these patients will present the characteristic symptoms of sacroiliac strain or displacement: in such, the diagnosis is not often difficult. Others will give evidence of a fracture, and the x ray will show a fracture of a transverse process of the fourth or fifth lumbar, a fracture involving the body of the vertebra, an articular process, some part of the neural arch, or a fracture into the sacroiliac articulation. Because of the severity of injury, in this class of cases, the symptoms presented will often be confusing, and accurate diagnosis is impossible without the x ray.

Dislocation of the fifth lumbar vertebra or spondylolisthesis, is, I believe, not as common as fractures in this region.

Abnormalities of the fifth lumbar vertebra and of the sacrum must not be overlooked; while of themselves they may not be the primary cause of backache, yet in the presence of an injury such abnormalities may exert a powerful influence. Dislocation of the articular processes of the fourth and fifth lumbar and of fifth lumbar and sacrum also occur.

If we also exclude for the present these cases in which there is a clearly demonstrable lesion we still have many backaches of the lumbosacral region which occur after an injury, and the symptoms are often very persistent, and it is in these cases that it is often so very difficult to make a diagnosis between something and nothing—to know whether the patient is a malingerer or not, and particularly is this so, when called upon to testify as a witness in court in a negligence action.

During the past year I have been called upon to examine fifteen cases, in which none of the lesions cited above could be demonstrated.

In a general way all of these patients complained of pain in the lumbosacral region, all had muscular spasm, preventing free flexion of the lumbar spine. Some had localized paralysis, anesthesia, or hyperesthesia; in none was it possible to demonstrate any abnormality of the bone, either congenital or as the result of trauma.

In this series of cases in which the diagnosis seems fairly accurate, examination was requested not less than one month after the injury. Twelve of the series were examined during the first year, and three after one year. In all cases a careful x ray study was made in addition to the clinical examination.

CASE I. E. F. man, aged thirty-five years, fell from a scaffold a distance of twelve feet, six weeks previous to examination. He injured his right arm and back and was in the hospital four weeks, unable to move without assistance, on account of pain in back. At present all movements of the lumbar spine are extremely limited. Muscular spasm and hyperesthesia, more marked in the left lower extremity, patellar reflexes exaggerated. X ray showed haziness with indistinct bone outlines in the region of the fifth lumbar vertebra. Same characteristics shown on plates at reexamination several days later.

CASE II. Mrs. D. S. Patient was quite stout. Injured seven months previous getting off trolley car while in motion. She fell and rolled down an embankment, receiving injuries to the kidneys, rectum, and the back. At present there was some pain in lower back. All movements of the back were sharply limited. An unusual amount of lumbar lordosis existed for a fleshy patient. Anesthesia of outer side of left thigh present. An x ray showed very indistinct and irregular outlines of the fifth lumbar vertebra and the top of the sacrum. There was some evidence of callus formation.

CASE III. Mr. H. C. B. Injured fourteen weeks previously by being caught and doubled up between two freight cars. He was in the hospital four weeks, and had been unable to work since the injury on account of pain in the small of the back. There was tenderness on pressure in the fifth lumbar region. No anesthesia or hyperesthesia present. All movements of lower lumbar spine were restricted.

The x ray outlines of the fifth lumbar vertebra and the top of the sacrum were not clear.

CASE IV. Mr. M. W. Injured nine and one half months previously, by falling from a scaffold a distance about twenty-three feet. He landed in a sitting position. He was unable to move either lower extremity for five weeks. He had not good control of the muscles of the right lower extremity at the present time. The left extremity seemed all right. No sensory disturbance except pain in the back. He stood with an absence of lumbar lordosis. Attempts to restore the normal curve caused severe pain. All movements of the back were limited.

The x ray showed a marked irregularity of the outlines of the right side of fifth lumbar, and of the upper part of sacroiliac articulation, with a possible fracture of the transverse process. The left side of the vertebra was cloudy and indistinct.

CASE V. Mr. C. A. H. Injured two months previously by being hit in the back by a trunk which fell from a truck. The patient was doubled up as he fell. He had a lot of pain in his back and thighs. The movements of the lumbar spine were limited in all directions. The patient was rather stout and had more than an ordinary amount of lumbar lordosis. There was tenderness on pressure in the fifth lumbar region.

X ray examinations were made on four different occasions during one month, in an effort to make a positive diagnosis. Each time the exposure was made at a different angle, stereoscopic, etc. The outlines of the fourth and fifth lumbar were not clearly defined and irregular.

CASE VI. Mr. A. W. Fell into a furnace hole, nine months and three weeks previously, striking on his back

\*Read at the meeting of the Lake Keuka Medical and Surgical Association, held at Keuka, N. Y., July 17 and 18, 1913.



and side. He passed blood and pus in his urine for a time. He complained now of pain in the back and rectum. There was tenderness on pressure over the fifth lumbar vertebra. The back flexion was about half normal.

The x ray showed a fuzzy appearance of the transverse process, and of the left side of the fifth lumbar vertebra.

CASE VII. Mr. E. E. L. Injured three and a half months previously. He fell about fourteen feet and injured his back. He was unable to use his right lower extremity for about four weeks. He complained of pricking in both feet. The patellar reflexes were very much exaggerated. The patient stood with a decided list to the left. The flesh was very tender on pressure over the fifth lumbar vertebra. The movements of the back were very limited. Right lateral flexion was entirely absent.

An x ray and tilting seemed to indicate a fracture of the left side of the body of the fifth lumbar vertebra. The outlines were very indistinct.

CASE VIII. Mr. H. M. P. Caught in an elevator one month previously. For about ten days he was unable to turn over in bed on account of severe pain across the back and hips. Three days after accident both lower extremities felt prickly and numb. During the first week any attempt to move the legs would produce spasm and pain in the muscles of the back and hips. At present there was no impaired sensation or motion in the legs. The patient stood with a list to right. There was tenderness on pressure in the lower lumbar region. Forward and right lateral flexion of back were fairly free. Left lateral flexion was very limited. Repeated x ray examinations failed to show fracture. The right side of the fourth and fifth lumbar vertebrae very indistinct. The left side less so.

These brief reports of cases are fairly typical of the others of the series observed. A routine examination, as to posture, movements, impaired nerves, etc., was made in each case. The abnormalities only are here noted. A majority when examined showed little or no deviation of the spine. Spasms of the hamstrings were not marked, and were usually present about equally on each side. The symptoms common to all are entirely subjective and consist of pain, tenderness, and limited motion. No constant objective symptoms could be found except the evidence offered by the x ray plates, and these seemed to present the same general characteristics in each of the series, viz., the cloudy, fuzzy appearance of the bones in the painful area, and this was interpreted to mean that because of the injury the ligaments and periosteum were injured, and the resulting inflammation, aggravated by more or less constant use of the part, had produced a condition allied to callus formation, and that there was a considerable deposit of lime salts in the tissues immediately surrounding the bone; that because of the irregular distribution of this deposit, being more dense near the bone, the x ray outlines of the bone were invariably obscured, and it was impossible, even with repeated examinations, to get a clear, well defined shadow of the bones of the injured area; at the same time, and on the same plate, the bones above and below the painful area produced a clear and well defined shadow. This cloudy appearance could not be shown in cases examined less than one month after the injury, which seems to agree with the x ray appearance of callus formation in bone injuries elsewhere. Much might be written of the frequency of injuries to this part of the spine, as to its causes, etc., but if we have in mind the anatomy of the part and know something of the direction of the force applied at the time of injury it will be readily seen that this part of the spine is very liable

to be injured. And in this series of cases the force which produced the injury was not sufficient to cause a fracture or dislocation, but had produced a stretching or tearing of surrounding ligaments and periosteum, and in the process of repair, nature had deposited some lime salts.

This calcareous deposit cannot be demonstrated until about one month after the injury, but when present helps to explain why many of these back-aches are so persistent.

In the early cases studied, I supposed that the x ray appearance of this area might be due to faulty technic in making the plates, or to some condition of the patient such as thick abdomen or collection of feces. Many cases were repeatedly examined at different angles, after catharsis, etc., and, after all precautions were taken, there still remained the hazy and ill defined outlines. The interpretation of these plates must be made from the original negative with correct light, and reproduction by any process, either on paper or glass has failed to bring out the detail and for that reason I am unable to present prints from these negatives for your inspection.

The treatment of these cases can be stated in one word—rest. Given a patient complaining of pain, tenderness, and inability to move freely, with a history of previous injury, and a series of x ray plates showing more than normal obstruction to passage of light rays, I think we are justified in making the diagnosis of traumatic periostitis.

507 GURNEY BUILDING.

## RETROPHARYNGEAL ABSCESS.

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There is a rather prevalent belief that retropharyngeal abscesses are seldom encountered except in children, and that caries of the vertebrae due to cervical Potts's Disease is the chief cause of this condition. That such a belief should be so widely held is probably due to the fact that the condition is often overlooked, except in the cases of tuberculosis of the cervical vertebrae where its possibility is always kept in mind, and where its diagnosis is comparatively easy. It is with the idea of drawing attention to the fact that this disease frequently occurs in adults who have been previously healthy, and that the condition is an extremely serious one when not early recognized, that we report the following case:

J. K., a healthy appearing, strongly built Slovak, aged eighteen years, was admitted to the Immigrant Hospital, Ellis Island, August 5, 1911, suffering from sore throat, which he said was better than it had been a few days previously. There was swelling of the left side of the neck, most prominent at the posterior border of the sternocleidomastoid muscle, and a slight bulging in the rhino-

pharynx, more marked on the left side, and pushing the tonsil on this side slightly forward. By palpation behind and above the soft palate a small area of fluctuation was discernible. On admission it was impossible to procure a history of his case owing to the fact that no interpreter was available. Later we ascertained that he had complained of sore throat and difficulty in swallowing for two days previously. On admission his temperature was 38° C., his pulse was 94, and his respirations were 28. He did not look nor act like a sick man. By motions he indicated that his neck pained him slightly. He was bathed and put to bed in the usual manner. Hot compresses and a hot water bag were placed to the neck. He had a good night and slept well. His temperature the next morning was 38° C. The swelling in the neck had diminished and there was no tenderness on pressure. This drop in temperature and the diminishing swelling of the neck continued steadily, until on the 10th, five days after admission the temperature was normal and the swelling in the neck had about gone. There was now no bulging in the pharynx although the throat was still somewhat red and inflamed. The patient said that he felt well, and it was confidently expected that he would be discharged in a day or two. Two days later, at 8:45 a. m., he had a chill, accompanied by a pain in his left side. His temperature rose sharply till it reached 39° C. He expectorated blood streaked sputum which showed the presence of many pneumococci and some streptococci. Physical examination at this time elicited nothing in the lungs except a friction rub at the base of the left lung in the midaxillary line. His condition remained about the same until the 15th, when he began to expectorate a large amount of slightly bloody, foul smelling sputum. A small area of consolidation was noted in the left lung, and it was considered that he was now suffering from bronchopneumonia. The pharynx continued inflamed but no area of fluctuation could be made out. On this day, the 15th, an irregular, scattered eruption appeared on his arms, legs, and buttocks. The lesions varied in size from pinhead to that of a dime. They were bright red, and did not entirely disappear on pressure. This eruption came out in the course of twelve hours. His general condition grew steadily worse and we believed that our patient was suffering from septic pneumonia with a toxic rash. On the 16th, the pharyngeal wall was again bulging a little and there was increased difficulty in swallowing and more pain in the throat.

A free incision was made in the median line of the pharynx and 240 c. c. of foul smelling pus was withdrawn. The temperature dropped to 37.8° C. by the next morning. The pain and difficulty in swallowing had entirely disappeared. He seemed brighter but was still very weak and prostrated. The rash was now fading and assuming a darker color. On the 19th, a scarlet rash appeared on the chest. There were also noted at this time the presence of lesions in the throat and around the anus, which resembled mucous patches. A Wassermann reaction done at this time was unsatisfactory on account of an anticomplementary reaction, but it was the consensus of some half dozen physicians who saw the patient, that the first rash, and the patches around the anus and in the mouth were typical of secondary syphilis. The condition remained about the same except for a gradually increasing prostration and a more marked involvement of the lung until the evening of the 22d, when death occurred suddenly from respiratory failure. The autopsy was negative, except for the evidences of pneumonia in the left lung, which showed involvement of all three lobes.

This case illustrates three points: First, the signs of retropharyngeal abscess may quickly disappear, the pus being dissipated in the loose fascia, and finding its way to some point distant from the original seat of fluctuation within the course of a few hours. Second, the necessity for immediate evacuation the moment the diagnosis is made, as a few hours' delay may make such a change in the picture that the diagnosis becomes doubtful. Third, the extreme gravity of the condition and the danger of complications.

Besides these three main points there are other minor points that are worthy of note.

Chief of these is the fact that infection in this case was from a sore throat that was in all probability due to syphilis. Owing to the failure of the Wassermann reaction and the inability to get a good history through lack of interpreters, this point can never be definitely decided, yet the probabilities remain in favor of syphilis.

Another point which has been often emphasized before is that retropharyngeal abscess is especially liable to be complicated with pneumonia. Finally, the case will serve to emphasize the statement we made in the beginning, to the effect that the disease is not one solely of childhood, and that owing to the anatomical arrangement of the parts it is especially liable to give rise to the most serious consequences. Without going into the details of the anatomy of these parts, it will suffice to say that the arrangement of the muscles, fascia, and the lymph glands of this region is such that we may have infection occurring in any one of the following manners:

1. Infection from the middle ear, via the canal for the tensor tympani muscle.
2. Sphenoidal sinus infection.
3. Necrosis of the cervical vertebrae.
4. Direct injury to the pharynx itself.
5. Extension from lymphatic gland involvement; the lymph nodes lying between the anterior surface of the vertebral column and the pharyngeal aponeurosis being especially liable to involvement.
6. Thrombosis or embolism arising in connection with septic processes.

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THE BELNORD, EIGHTY-SIXTH STREET AND BROADWAY, NEW YORK.

## CYLINDER SHOWERS. THEIR SIGNIFICANCE.

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Paris, Ill.

Diagnoses and prognoses have oftentimes been based upon the count of cylinder casts found in a specimen of urine; and it may be ventured that the cylinder shower, i. e., the sudden increase in the number of these casts, is not without clinical significance.

However, some caution is necessary. For example, I recall the case of a man of fifty, which proved a puzzle to diagnosticians for almost two years. He was termed by many, a neurotic. One consultant, a man of nation wide authority, assured the family that the trouble lay in the gall-bladder, while another was certain that the diagnosis of nocturnal epilepsy was more probably correct. Sputum, gastric contents, and urine were repeatedly analyzed without additional information being gained. Upon one occasion, more than one per cent. of serum albumin was found in the urine, but this was ignored by the physician. At another date, a tapeworm was secured by the use of pumpkin seed. Suddenly he passed into a typhoid state, and a temperature chart was very suggestive of typhoid. Analysis of the urine at this time showed the presence of dozens of casts in each field, most of them hyaline, but quite a few of them were

granular and minute. The albumin content averaged nearly one per cent. He died within twelve hours after the analysis was completed. A private and incomplete autopsy revealed findings which were not disclosed to the other consultants.

One year later a pregnant woman passed a hydatid mole. She became dropsical and drowsy, and passed very little urine. Just as the case seemed hopeless, the urinary output was increased and she appeared to be somewhat better. I was asked to examine some of this urine. It was fairly filled with large, hyaline casts. An occasional granular cast, but no albumin, was found. Twelve hours later not a single cast could be found in the centrifugalized urine. The patient rapidly recovered. I could report a similar case of this kind. How may findings of this nature be reconciled with those detailed above? Sometimes they cannot, although a general survey of these cases might confuse, a close study will bring out the fact that these cylinder showers had very few features in common.

Men who have given to the cylinder cast considerable study have been struck with the variations in size, by the relation of the amount of urine being passed when the showers occur, by the relation of edema (if present), by the symptoms, by the persistence of the showers, and perhaps by other coincident urinary findings. Erdman (*Journal of the American Medical Association*, November 30, 1912) suggests that hyaline casts are produced by the retention of hyaline material in a tubule. He ventures that this form may remain in position until sufficient pressure is established behind to push it on. The idea is not a bad one when attempting to explain the sudden appearance of large hyaline casts where there is an increase of urine, a decrease of edema, and recovery associated with one of these showers. I am not inclined to apply to the grave cases any such principles. Showers in a person dying of Bright's disease are characterized by casts from the smaller tubules and are essentially degenerative.

*The Favorable and Unfavorable Cases.*—Elucidating somewhat further, we note that in the unfavorable cases the urine is likely to show no changes in quantity or may be decreasing, that the casts are not huge, but often imperfect and minute, and consist of many granular or otherwise degenerative types, often containing blood cells, renal cells, or pigment.

But the favorable cases show increasing output and monster hyaline casts. When edema is decreasing at the same time, the idea is highly suggestive that the process has been in part a general damming back.

In the favorable cases, moreover, the cylinder shower is quickly completed; whereas in the grave ones, the casts may persist, or be found to be actually increasing in number so long as urine can be secured. In either instance, the shower probably occurs but once, and may be regarded as a crisis especially in those cases which recover.

The subject of cylinder showers needs further study. It is unfair with our present knowledge to assume that a sudden increase of these elements spells a hopeless prognosis.

109 EAST COURT STREET.

## Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXXVII.—How do you treat threatened abortion? (Closed August 15th.)

CXXXVIII.—How do you treat insomnia? (Closed September 15th.)

CXXXIX.—How do you treat chancroids? (Answers due not later than October 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXXVI was awarded to Dr. Nelson Du Val Brecht, of Washington, D. C., whose article appeared on page 475.

## PRIZE QUESTION CXXXVI.

### THE TREATMENT OF CHOLERA INFANTUM.

(Concluded from page 527.)

Dr. J. R. McClure, of Newark, Ohio, emphasizes that:

In the treatment of cholera infantum it must be remembered that we are confronted with a case of acute intoxication, with an appalling array of symptoms and conditions, which must be immediately and judiciously handled.

The main indications are: (1) To empty the stomach and intestines; (2) To neutralize the effect of the poison upon the heart and nervous system; (3) To supply fluid to the blood and make up for the very great drain of the discharges; (4) To reduce the temperature; and (5) To treat special symptoms as they arise.

Gastric lavage and colonic irrigations meet the first indication: For the stomach use two teaspoonfuls of bicarbonate of soda to the quart of hot water, giving repeated washings; for the colon, give high enemas of normal salt solution, repeated in two hours. Nothing better for the second indication than the use of morphine and atropine. To a child, two years of age, morphine 1/50 grain combined with atropine, 1/600 grain, given hypodermically, and repeated, if necessary in one hour; small doses frequently administered are much better than a single large dose.

Morphine is contraindicated when there is drowsiness, stupor, or relaxation, when there is a cessation of vomiting or when vomiting is only slight. It is indicated to neutralize the effect of the toxins upon the heart and nervous system; it is therefore an useful expedient for allaying undue excitement, nervousness, vomiting, or purging.



Hypodermoclyses of normal salt solution meets the third indication to relieve the extreme thirst and excessive loss of fluid from the blood; about one half pint being introduced into the cellular tissue of the abdomen, thigh or back every eight hours.

For the fourth indication, nothing equals hydrotherapy; cold baths or cold sponging, continued for ten to thirty minutes, and repeated every hour, if necessary, is safe and very effectual in the reduction of temperature. Ice cloths, the ice cap applied to the head, cold or ice water injections, or rectal suppositories of ice may be used where the temperature is not sufficiently lowered by the baths.

The fifth indication may be understood to include a résumé of the preceding indications, and the treatment of any other symptoms that may arise.

It is worse than useless to attempt internal medication before the vomiting and purging have abated. After the subsidence of these symptoms thorough purgation by the use of calomel, 1/10 grain, with soda, is administered every twenty minutes, until ten doses have been given. If the calomel is not retained I use one ounce of castor oil, added to four ounces of milk, which has been brought to a boiling point in a double boiler, and fed as hot as can be taken. By securing a thorough evacuation of the bowels, and thereby eliminating the products of decomposition, the bacteria and their toxins, we have taken the first great step in the cure of our little patient.

As a conservator of tissue, but more particularly as a stimulant, brandy or champagne should be given frequently and in small doses. When vomiting does not permit of their use by the mouth, brandy, ether, or camphor may be given hypodermatically.

For cold extremities, or a cold, clammy skin with subnormal temperature, a hot mustard bath or a mustard paste applied all over the body, and hot water bags and bottles placed around the patient, should be used until a suitable reaction has occurred.

Further medicinal treatment consists in the use of an intestinal antiseptic such as the following:

R	Guaiaacolis, .....	℥v;
	Cupri arsenatis, .....	gr. 1/20;
	Bismuthi subgallatis, .....	gr. ij;
	Zinci sulphocarbollatis, .....	gr. j;
	Sodii sulphocarbollatis, .....	gr. j.

M. ft. pulv. No. i.

Sig.: To be given in milk or brandy every four hours.

Of a corrective consisting of:

R	Hydrargyri chloridi mitis, .....	gr. 1/20;
	Pulveris ipecacuanhæ, .....	gr. 1/50;
	Sodii bicarbonatis, .....	gr. 1/2;
	Bismuthi subnitratiss, .....	gr. j;
	Saccharini, .....	gr. 1/100;
	Olei anisi, .....	gr. 1/20.

M. ft. tabella vel pulvis, No. i.

Sig.: One powder, in water, every three hours.

Of an anodyne consisting of:

R	Nicotelli bromidi, .....	gr. 1/134;
	Codeine sulphatis, .....	gr. 1/67;
	Pulveris ipecacuanhæ, .....	gr. 1/134;
	Lithii carbonatis, .....	gr. 1/25;
	Olei anisi, .....	gr. 1/134.

M. ft. pulvis, No. i.

Sig.: To be administered whenever restlessness, flatulence, or colic indicate.

The subsequent treatment consists of hygienic and dietetic measures, together with general tonics,

such as arsenic, iron, nux vomica, and wine. Cod liver oil should be deferred until the stomach and appetite are quite normal and the stools free from mucous. It should, however, be continued throughout the succeeding winter months.

During the acute stage, all food, especially milk, should be withheld, so long as a disposition to vomit continues—for a period of at least twenty-four hours. Thirst may be allayed by giving frequently, but in small quantities, cold whey, thin barley water, or albumin water. If they are refused or vomited, absolute rest will do more than anything else to hasten recovery. After the stomach has rested for twenty-four hours it is generally safe to permit a nursing child to take the breast tentatively. The intervals of nursing should not be shorter than four hours, and the amount allowed not to exceed one fourth the usual quantity. Nursing may be gradually increased, so that in three or four days the usual feedings may be resumed.

In the case of artificially fed infants, a wet nurse should be secured. Where this is impossible sterilized cow's milk, properly modified, should be used, at first in small quantities, and the effect upon the stools and temperature watched. Later a return to certified milk may be made.

In no disease is a change of air more desirable than in this. As soon as the subacute symptoms have subsided, cold baths are indicated. If living in the city a change to the seashore or to the mountains in the summer, and to a warm equable climate in the winter, will be found very beneficial.

*Dr. Samuel Stulberg, of Philadelphia, holds that:*

In the treatment of cholera infantum we must first take into consideration the attacks. Prompt treatment is imperative. First thoroughly cleanse the whole digestive tract. If there are signs of foreign matter still being in the stomach, *i. e.*, if the vomiting has not stopped, immediately wash out the stomach and give a colonic irrigation of a quart of normal saline solution, at 100° F. Give castor oil, ℥ii, to a child one year old, other ages in proportion. If the oil is vomited, give calomel, 1/10 grain, with sodium bicarbonate, one grain every fifteen minutes for ten or fifteen doses. Glauber's salt in one drachm doses may be used instead. Apply an ice bag to the head, and reduce fever by cool baths and cold packs. For infants under one year, the temperature of the water should be about 95° F. Apply turpentine stupes for abdominal pain. When pulse is weak or irregular give strychnine hypodermatically, grain 1/400 to 1/200. When there is prostration with other signs of a rapid loss of fluid give an hypodermoclysis of normal saline solution. Caffeine citrate, ½ grain, or Siberian musk, one grain, repeated every three hours, may be given if the strychnine fails to benefit. Where there is persistence of the profuse watery stools, with its consequent drain upon the system, morphine, 1/50 grain, combined with atropine sulphate, 1/600 grain, should be given hypodermatically, and be repeated not oftener than once in three hours. The effects of the morphine should be carefully watched, and should be stopped when the purging has been controlled, or there is stupor or drowsiness. When

the temperature is below normal the extremities are cold, etc., a warm bath (108° F.) and hot water bottles to the feet are of use. All food and drink should be stopped absolutely. After several hours, when the vomiting has been somewhat controlled, small pieces of cracked ice, or teaspoonful doses of cold boiled water may be placed in the child's mouth. If the water is not vomited it may be given *ad libitum*, and the little patient usually drinks with avidity. The patient should be kept in a cool place, in the fresh air, and protected from flies, etc. Absolute muscular rest should be enforced. A single loose flannel or cotton garment is sufficient. The arms and buttocks should be cleansed, dried, and powdered after each evacuation. Removal to the seashore often has a wonderful effect in causing immediate improvement.

Later Treatment.—At the end of twenty-four hours, or after the subsidence of the acute symptoms, feeding may be resumed by giving, in addition to the water, barley water, albumin water, or cold whey. The return to milk should be very gradual and not be begun for several days. In the breastfed infant, milk feeding may be resumed earlier than in the bottlefed, but the intervals of nursing should be longer, and only one fourth or one half the usual amount be given. Between the nursings, whey, barley water, or albumin water should be given. In the artificially fed, milk should not be resumed until the bowel movements are free of curds. It is given at first in the form of skimmed milk, one fourth ounce in every second cereal feeding. Then sterilized or pasteurized milk, rendered alkaline by the addition of lime water, and modified to suit each particular case, is substituted. An additional, occasional dose of the laxative, and of the colonic irrigation may be necessary. In making a return to the usual diet, starvation must be guarded against. Ten grains of bismuth subnitrate in solution, or five grains of salol may be given for their astringent and disinfectant effect.

Prophylaxis.—This is of prime importance. First, since the great majority of the summer diarrhea cases occur in the artificially fed, the great importance of maternal feeding as a preventive of infant mortality is realized. Mothers, and even physicians, should be educated to the great importance of encouraging maternal nursing.

Second, keep the baby's intestinal tract in as good a condition of health as possible, by combating indigestion whenever it appears, and especially in warm weather. In the summer all the requisites of fresh air, bathing, cleanliness, should be observed. The milk supply of artificially fed babies, especially during the summer is of the highest importance. The protection of the milk against infection from flies, insects, manure, hairs from the cows, and decomposition from high temperature, is one of the great problems of the day, the proper solution of which will go far toward reducing the morbidity of cholera infantum. The bacterial count of a given milk is not the only consideration. The proper modification of the milk in regard to its constituents of fat, proteid, and sugar, in proper proportions for each child, is of equal importance. In hot weather milk should be sterilized or pasteurized. Bottles, nipples, cooking utensils, and the

mother's hands should be clean. Whenever possible children of the tenements should be removed to the country during the summer. Cholera infantum is a bacterial disease, of course, although the specific organism has probably not yet been isolated. It is, however, believed to be caused by either a modification of the Shiga-Flexner bacillus or by a virulent strain of the *Bacillus coli*, *streptococcus*, *staphylococcus*, or *proteus*, or both. The practical application of this fact is that the other forms of summer diarrheas have a similar etiological basis, as well as an almost similar symptomatology; and that treatment of the latter conditions, when the line of demarcation between them and the disease under discussion is not well defined, is along similar lines.

### Therapeutic Notes.

**Treatment of Rheumatic Headache.**—Plicque, in *Bulletin médical* for July 19, 1913, enumerates, after Auerbach, the following differential characteristics of rheumatic headache: Incidence usually in elderly persons, often of the female sex; radiation of the pain from the occiput as starting point; exposure to cold as an etiological factor; constancy of the pain without any interval of complete cessation; unilateral situation of pain rare; absence of vomiting, aura, and almost always, of similar affection in the antecedents. Tender nodes varying in size from a millet seed to a pea may be noticeable under the skin, in the fasciæ, or in the deeper tissues of the posterior or lateral aspects of the neck, down to the shoulders, and are pathognomonic.

Prophylaxis consists in avoiding exposure to cold, and in particular, refraining from washing the head with cold water; the latter should be replaced by alcohol, and thorough drying should follow. Alcoholic beverages should be abstained from and regular bowel movements procured.

In the treatment of the developed condition, patients expecting drug medication may be given potassium iodide, together with mild sedatives, such as potassium bromide, codeine, antipyrine, and zinc phosphide, during the attacks. Iron, arsenic, and general hygiene are also advisable.

Massage is, however, the most efficient therapeutic procedure, and should be practised for fifteen or twenty minutes daily, and later, as soon as improvement is noticed, on alternate days. Hot fomentations applied to the parts, for an hour or two before the massage, are of marked value. Where the callous areas are large and very hard, an ointment consisting of one part of ichthylol in five parts of hydrated wool fat is useful as a preliminary application, which is further to be rubbed in during the massage.

In severe cases, massage should be performed by the physician himself, the patient's head being meanwhile supported by his or her hands on a table, in order to avoid painful commotion of the head. Effleurage of the neck, from the mastoid to the acromion, should first be practised, with the palms. Then pétrissage of the skin and muscles should be executed five times, the attempt being made, as it were, to detach the deep muscles from their inferior attachments and seize them between

the fingers. This is followed by more effleurage, and finally, by rubbing of the small nodosities, each for not more than half a minute, as though one were trying to dissipate them by pressure. General effleurage terminates the procedure. The patient should then remain quiet for from one half to one hour, preferably in the recumbent posture.

With such treatment improvement, even in grave cases that have necessitated abandonment of the patient's occupation, is generally secured in two or three weeks, though a complete cure may demand six weeks or more. Radium emanations, particularly inhalation of them in closed chambers, are worth trying in cases that remain partially unrelieved.

**How to Administer Codliver Oil in the Form of a Jelly.**—Mouchon, in *Paris médical* for July 12, 1913, is credited with the following formula for the above mentioned purpose:

R Gelatini puri, ..... 3ss (16 grammes);  
Aque, ..... i ..... 3iv (125 grammes);  
Syrupi, ..... i ..... 3iv (125 grammes);  
Olei morrhue, ..... 3viii (250 grammes);  
Olei cinnamomi (vel coriandri, etc.), ..... q. s.  
Fiat secundum artem.

The gelatin should first be dissolved in the water, the latter having been previously heated to boiling. The syrup, oil, and aromatic essence are then to be added, the receptacle placed in cold water, and the mixture beaten for five minutes and then allowed to solidify.

**Treatment of Bronchitis in Infancy and Childhood.**—G. A. Sutherland is credited, in *Pediatrics* for March, 1913, with a description of the management of these cases, essentially as follows: The patient should be kept in bed in the acute pyrexial stage, and placed on a restricted fluid diet. Warm demulcent drinks may be given freely. If the cough is dry and irritating steam inhalations, for fifteen minutes at a time every hour or two, may give great relief, but if there is a free and overabundant secretion of mucus, this measure is contraindicated.

If there is dyspnea from bronchial spasm hot fomentations to the chest, front, and back, with, perhaps, a drachm (4 c. c.) of turpentine added, will often give relief. If plain fomentations are used, they may be applied continuously for an hour and then intermitted. In many mild cases it is sufficient to apply to the chest twice daily a stimulating liniment such as the following:

R Linimenti terebinthinae acetici (N. F.), ..... 3iii (12 c. c.);  
Linimenti belladonnae, ..... 3i (4 c. c.);  
Olei lini, ..... 3ii (8 c. c.).  
M. ft. linimentum.

At the onset of the attack three grains (0.2 gramme) of powdered rhubarb and two grains (0.13 gramme) each of gray powder and magnesium carbonate should be given at night, and followed in the morning by one drachm (4 grammes) of sodium or magnesium sulphate. A simple febrifuge mixture such as the following may be ordered:

R Liquoris ammoniae acetatis, ..... 3xv (1.0 gramme);  
Potassii citratis, ..... gr. v (0.3 gramme);  
Tinctura aurantii dulcis, ..... 3v (0.3 gramme);  
Aque camphorae, q. s. ad, ..... 3i (4.0 grammes).  
Fiat mistura.

Most cough mixtures upset the digestion. In the early stage, when there is dry catarrh of the tubes,

two grains (0.13 gramme) of potassium iodide and one half to one grain (0.03 to 0.06 gramme) of ammonium carbonate may be added to the mixture, or given separately, as long as necessary. When the secretion is overabundant, a diminution may be effected by the following:

R Tinctura belladonnae foliorum, ..... 3iv (0.25 c. c.);  
Acidi nitrohydrochlorici diluti, ..... 3iii (0.2 c. c.);  
Glycerini, ..... 3x (0.6 c. c.);  
Infusi gentianae compositi (N. F.), ..... 3i (4 c. c.).

M. Sig.: One teaspoonful every four or six hours.

When there is persistent cough one should examine the nasopharynx and throat for signs of irritation, which may be relieved by a nasal lotion or a simple throat lozenge. If rest at night is disturbed, from five to ten drops of paregoric may be given occasionally to procure relief.

In the stage of convalescence a combination of codliver oil and hypophosphites gives good results in restoring a healthy condition of the bronchial tubes.

**Treatment of Erysipelas.**—Cavazzani, in *Paris médical* for May 10, 1913, is credited with the following combination to be applied in erysipelas:

R Camphorae, ... } ..... 3aa gr. xv (1 gramme);  
Acidi tannici, }  
Aetheris, ..... 3iii (12 grammes).

Solve.

The preparation should be painted over the involved area, and slightly beyond it, every three hours.

**Treatment of Tuberculosis.**—Lereboullet, in the recently issued *Thérapeutique des maladies infectieuses*, favorably mentions the so called "recalcification" treatment, first advocated by Ferrier, Sergeant, and Rénon. In this form of treatment the following three measures are to be instituted:

1. The ingestion of inorganic or organic acids is to be limited in so far as is possible, though some chlorides are to be allowed.

2. Calcium is to be administered in some such form as this (Sergeant):

R Calcii carbonatis, ..... gr. v (0.3 gramme);  
Calcii phosphatis, ..... gr. viiss (0.5 gramme);  
Sodii chloridi, ..... gr. iiss (0.15 gramme);  
Magnesii oxidi, ..... gr. iss (0.1 gramme).

M. et pone in cachetam No. i.

Sig.: One cachet twice daily with meals.

3. Fermentative processes in the stomach are to be overcome. Three quarters of an hour before each meal a glassful of some mineral water rich in bicarbonates, preferably of calcium, is to be taken.

The treatment may be further reinforced by the administration of calcium chloride in dilute solution, and by the addition to the cachets, already referred to, of from five to eight drops of a 1 in 1,000 epinephrin solution or an appropriate dose of dried adrenal substance.

Where the diet measures instituted in connection with recalcification are not made too severe, this method gives distinctly good results in tuberculosis and is worthy of being frequently recommended. In elderly tuberculous patients, however, who are often subject to arterial supertension and in whom the ingestion of large amounts of calcium salts might be prejudicial, some caution is necessary in advising this form of treatment.



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## THE PATHOGENIC ORGANISM OF RABIES.

The pathogenic organism of rabies, the source of  
toxines or endotoxines found by Pasteur in abun-  
dant quantities in the nerve centres, has been  
sought with much zeal by many investigators, in-  
cluding Rivolta, Foll, Ferran, and Memmo, the  
latter having substantiated his statement by repro-  
ducing the disease by means of his microorganism,  
in dogs, rodents, and birds. These statements have  
not, however, owing to their inability to meet all re-  
quirements, earned the acceptance of investigators  
and the question as a whole still belongs to the  
domain of conjecture.

Recent labors by Doctor Noguchi at the Rocke-  
feller Institute seem to afford greater hope of a suc-  
cessful issue, though it is impossible at the present  
time to foretell the importance of the discovery in  
the therapeutics of the disease. In the course of  
studies initiated last year, this accomplished investi-  
gator obtained fifty cultures of the cerebrospinal  
system of infected guineapigs, rabbits, and dogs by  
employing the culture methods resorted to for the  
relapsing fever spirochetes. Extremely minute  
polymorphic granules ranging in size from one mi-  
cron to twelve micra were found which reappeared  
in new cultures in the course of numerous trans-  
plantations. Besides these minute bodies, Noguchi  
observed round or oval nuclear bodies showing a

highly refractive, distinct membrane different from  
that of the former though occurring in the same  
cultures. These oval bodies appeared suddenly and  
lasted four or five days, disappearing concomitantly  
with an increase of the granular bodies. They were  
observed in cultures of fixed and passage virus  
which had produced hydrophobia, though in two  
instances the negri bodies could only be demonstrat-  
ed with difficulty either in films or sections. They  
multiplied by fission or budding, but exhibited the  
characteristics of protozoa rather than of bacteria.

Noguchi produced rabies in guineapigs, rabbits,  
and dogs by inoculating these animals with cultures  
containing the nuclear bodies. The symptoms were  
typical, while film preparations from the brains of  
the animals always contained the nuclear bodies in  
large numbers. On the whole, the results obtained  
exceeded by far those previously attained and fully  
warrant the belief that at least a profitable clue to  
the nature of the virus of rabies has been discov-  
ered.

## THE THERAPEUTIC USE OF PRISMS.

In the July number of the *Annals of Ophthal-  
mology*, Wendell Reber presents a strong argu-  
ment in favor of a conservative treatment of cases  
of imbalance of the ocular muscles, rather than of  
submitting such patients at once to an operation.  
We believe that in many cases of muscular imbal-  
ance we are dealing with ocular symptoms of an  
unbalanced nerve action, rather than with demon-  
strable lesions of the muscular or nervous system,  
and that every condition of the organism that may  
disturb the nervous equilibrium, whether in the eye  
or not, should be taken into account in deciding  
upon the treatment of any individual case, so we  
agree with him that "there is no department of  
ophthalmic science which more requires that the  
surgeon shall be not only a thoroughgoing refraction-  
ist and oculomyologist, but also something of a  
neurologist and an allwise general practitioner."

Among 7,000 consecutive patients he found 1,276  
who had muscular imbalance. In 267 of these the  
symptoms were dispelled by the correction of the  
refraction alone and needed no treatment directed  
toward the muscles. The remaining 1,008 cases of  
exophoria, esophoria, and hyperphoria were treated  
with prisms in one of two ways; either by wear-  
ing them for exercise at stated intervals, or by wear-  
ing them incorporated with the glasses in the posi-  
tion of rest. Prism exercises gave good results in  
exophoria in 130 cases out of a possible 190, nearly  
seventy per cent.; poor results in forty-six, twenty-  
four per cent, and unknown in fourteen. In  
esophoria they gave good results in fourteen out of  
a possible twenty-eight, fifty per cent; poor in

eight; unknown in six. In hyperphoria the results were generally poor, so these exercises were tried in only fourteen cases. When the prisms were incorporated with the glasses the results were much better; twenty-two good out of a possible twenty-four of esophoria, 193 good out of a possible 250 of exophoria in which the glasses were worn constantly, 135 good out of 160 of exophoria in which the glasses were used for reading only, and 297 good in 336 cases of hyperphoria. The known failures from this second mode of treatment with prisms amounted to about ten per cent.

These figures speak strongly against submitting any patient to an operation for an imbalance of the ocular muscles until this conservative treatment with prisms has been thoroughly tried. The textbooks agree in recommending this treatment, but it is mentioned less often in current literature than the operative, possibly because the brilliant possibilities of an operation always form more interesting reading than the humdrum actualities of everyday practice.

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#### THE MEDICAL INSPECTION OF INFANTS AND CHILDREN UNDER SCHOOL AGE.

Among the many valuable papers read at the English speaking conference on infant mortality held on August 4th and 5th, in London, that by Dr. David Forsyth is especially worthy of earnest consideration. He points out that the widespread physical deterioration that overtakes children during the first four or five years of life is only now beginning to receive the attention its importance deserves. This fact has been clearly established by the medical inspection of elementary school children, the majority of whom prove to be physically unsound, most of their defects, moreover, being preventable. The age between infancy and schooling needs to be medically supervised, together with facilities for remedial treatment, extending over the whole of the first lustrum. In Great Britain and in America too little or nothing has been done toward the solution of the problem. In Great Britain, and to a lesser extent in America, much has been effected in the way of antenatal hygiene and in the care of the child during the first year of life, with a consequent remarkable reduction of infant mortality. But, as Forsyth shows, the results of medical inspection have already clearly demonstrated the fact that the physical defects of the future school entrants do not exhibit themselves until the second year at earliest and that therefore preventive measures limited to the first year are unlikely to have much influence in warding off these later troubles.

The scheme followed in the city of Westminster by the Westminster Health Society is outlined by

Forsyth, the essence of which is to keep every child under medical supervision from the time of its birth up to the end of its fifth year and then to hand it over sound and healthy to the school authorities, together with the medical record of the material facts in its life for the information of the school doctor. In America, owing to better conditions of living, young children are not so liable to physical defects as in Great Britain and in Europe generally. On the other hand, the population is becoming more and more urban, the quality of the immigrants is not as good as formerly, either as regards physique or education, and the infant mortality in many cities is far too high. Though the question of conserving the lives and health of young children may not be now so pressing as in Europe, it is yet an important one and is becoming more insistent every day. It will be wise to grapple with the problem in time and to take warning by the bitter experience of Europe in this respect. Consequently, Doctor Forsyth's paper is timely both as regards America and Great Britain.

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#### THE SANITARY RESULTS OF AMERICAN OCCUPANCY OF THE PHILIPPINES.

The possession of the Philippines is scarcely to be regarded as an unmixed blessing to this country: yet, whatever may be one's opinion as to the propriety or desirability of long continued or permanent possession, it must now be acknowledged by all that as regards sanitation and health, as well as in various other respects, their occupancy by the United States, despite some individual hardships, has been of vast benefit in general to the people of those islands. Moreover, it is stated on reliable authority that, although the sanitary work in the Philippines, equal to that in the Canal Zone, has attracted comparatively little attention, the great results accomplished there, among a population of eight millions occupying an area of one hundred thousand square miles, have practically cost the United States nothing; on the other hand, in the Canal Zone, with an area of only three hundred and eighty square miles and a population of but seventy thousand, the work has cost the government nearly fifteen million dollars.

Some of the happy results following American occupancy were set forth by Colonel L. Mervin Maus, Medical Corps, United States Army, in a most interesting paper read at the last meeting of the Medical Association of the Greater City of New York, in which he described the special achievements of the civil government in the Philippines, which, he said, might well be compared to the admirable work of the army medical board in the suppression of yellow fever in Cuba. When the American troops entered the city of Manila

they found the existing sanitary conditions about like those of the European towns during the middle ages. There was practically no board of health for the Philippine Islands, and but few hospitals, and while there were no vital statistic records, there was reason to believe that no less than eighty per cent. of the children died in infancy from malnutrition, gastrointestinal disease, and convulsions. The people were also illiterate, but few of the natives being able to read or write, and their general condition might aptly be compared to that of our semi-civilized Indians in Arizona and New Mexico. At the end of the first year of its existence the Insular board of health, which was organized in 1901, had succeeded in reducing the death rate in Manila one half, and through its efforts the sanitary conditions there and, indeed, throughout the archipelago, were revolutionized. Among the acts of the board were the creation of laws regulating the practice of medicine, midwifery, dentistry, veterinary surgery, and embalming and undertaking, and of laws providing for compulsory vaccination, the segregation of lepers, and the organization of provincial health boards.

One of the greatest menaces to health was smallpox, which prevailed in a virulent form throughout the islands; but as the result of the enforcement of the law requiring compulsory vaccination the disease was eliminated. In 1901 there occurred a serious epidemic of bubonic plague in the city of Manila, and this was completely overcome by the universal and systematic extermination of rodents. In 1892 Asiatic cholera broke out in Manila and rapidly spread throughout the archipelago. On account of the ignorance and superstition of the natives it was a difficult situation to handle, but the disease was held in check after a time, and eventually eradicated, though this required some years of effort on the part of the authorities. As to the segregation of the lepers, who are numerous, it was decided, after mature deliberation, to colonize them on a single island. This was selected with care, and it was equipped for the desired purpose, with suitable quarters, hospitals, schools, churches, etc. The colony has now been in operation for some years, and it is believed that within the next generation leprosy will disappear from the islands.

#### THE CAUSES OF ANEMIA IN MALARIA.

Among the most interesting chapters of recent work on malaria is that concerned with the origin of the blood changes typical of this disease. Beside the destruction of red corpuscles through direct development of the malarial plasmodia in them, there have been suggested several accessory causes of the anemia in this affection, prominent

among which is that of a toxine prejudicial to the cells, circulating in the blood. Recently Wade H. Brown (*Journal of Experimental Medicine*, July, 1913) has presented an account of researches which lead him to regard the pigment hematin, set free from hemoglobin by the malarial parasite, as an active factor in the production of many, if not all, of the important blood changes observed in the various forms of the disease. Injection of only ten to twenty milligrammes of hematin (to the kilogramme of animal) into rabbits on several successive days was found to produce a well marked anemia, consisting both of reduction in the number of red cells and of the presence of immature cells. The mechanism of this destruction of red cells could not be definitely made out; some degree of hemolysis was often noted, but microscopic study of the tissues showed that red cells were also killed without disintegration, numbers of them being found included within phagocytes.

In addition to its effects on the red cells, hematin was also found by Brown to induce changes in the leucocytes, platelets, and coagulation time. The first were usually increased in number, as in the pernicious forms of malaria, and there was always a high percentage of large mononuclear cells—a characteristic feature of malarial blood. The effect of a single injection resembled the cycle of changes occurring in the leucocytes at the time of the malarial paroxysm. The platelets were found to be markedly reduced in number by hematin, and ultimately a prolongation of the coagulation time and the bleeding time took place. The resulting tendency to hemorrhage has its counterpart in the well recognized class of hemorrhagic cases of pernicious malaria. Thus, so numerous are the points of resemblance between the effects of hematin and those of malaria on the blood that a partial causal relationship of the former to the latter appears, to say the least, probable.

#### STUDIES OF SYPHILIS.

*Studies of Syphilis* is the title of the third bulletin, June, 1913, published from the office of the surgeon general, the issue being made possible by an appropriation of a small sum for the year 1913 for publication of bulletins for the instruction of medical officers. The present pamphlet is such a worthy contribution to our science that it is hoped that this appropriation will be continued from year to year in the future. If such would be the case, the surgeon general would be in a position to publish these bulletins quarterly. The present issue contains eight essays contributed by Captain Henry J. Nichols and Captain Charles F. Craig, both attendants at the Army Medical School under the command of Colonel Charles Richard.



## Obituary.

### THEODORE SCHAEPKENS VAN RIEMPST, M. D.,

of New York.

Doctor van Riempest died suddenly on August 21, 1913, at Saranac Lake, N. Y. Educated at the University of Louvain, he received his medical degree at the University of Ghent, Belgium in 1900. Following an internship of a year and a half at the Staivenberg Hospital in Antwerp, he was appointed surgeon to the Red Star Line. When he resigned in 1907 he was ranking surgeon of the fleet. Coming to New York he specialized in genitourinary surgery and, receiving an appointment in 1910, as assistant genitourinary surgeon to the Massachusetts General Hospital, he went to Boston. After a severe attack of typhoid fever and a prolonged convalescence, he returned to New York, where he had since practised.

## News Items.

**Typhoid Fever in St. Louis.**—During the month of August, 1913, there were reported to the Department of Health 172 cases of typhoid fever, and during the first five days of September 72 cases, making a total of 244 cases reported from August 1st to September 5th.

**Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.**—Tuesday, September 23d, St. Mary's Hospital Clinical Society; Thursday, September 25th, Germantown Branch of the County Society; Friday, September 26th, Northern Medical Association; Board of Directors of the Medical Club. The Medical Society of the State of Pennsylvania will be held in Philadelphia, September 22d to 25th.

**Cholera.**—According to reports received in Washington, D. C., by the United States Public Health Service during the week ending September 12th, cholera is spreading in Hungary, Rumania, and Turkey in Europe, and press despatches state that the disease is also spreading in Russia. In Rumania up to August 14th, thirty-seven cases in eleven localities, with sixteen deaths were reported, and on August 21st, forty fatal cases in fourteen other localities were reported.

**To Study Pellagra in the West Indies.**—Dr. Louis Sambon, of the London School of Tropical Medicine, accompanied by Captain Joseph F. Siler, of the Medical Corps of the United States Army, a member of the Thompson-McFadden Pellagra Commission, sailed a few days ago for the West Indies for the purpose of studying pellagra and other tropical diseases. It is said that plans are being made for an international congress on pellagra to be held in Washington next year.

**Pellagra.**—During the week ending August 23d, one death from pellagra was reported in New Orleans, one in San Francisco, and fourteen cases of the disease in Providence, R. I. Surgeon P. M. Carrington, of the United States Public Health Service, reported two cases in St. Louis, Mo., recently, and five fatal cases previously, making a total of seven cases of the disease since January 1st. In the Eastern Washington Hospital for the Insane, in Spokane County, Wash., two cases of pellagra have been reported recently.

**New Hampshire Surgeons' Club.**—The autumn meeting of this association was held at the Hotel Wentworth, New Castle-by-the-Sea, on Thursday, September 4th, under the presidency of Dr. T. W. Luce, of Portsmouth. There was a good attendance and an excellent programme was presented, which included addresses by Doctor Luce, Dr. Farrar C. Cobb, of Boston, Mass., and Dr. A. P. Leighton, of Portland, Me. Dr. Frank E. Kittredge, of Nashua, was elected president of the club, and Dr. E. H. Carlton, of Hanover, vice-president. The proceedings were brought to a close by a banquet, Dr. H. L. Smith, of Nashua, acting as toastmaster.

**Flushing's New Hospital Opened.**—In Flushing, N. Y., on the afternoon of Wednesday, September 10th, the new \$100,000 hospital was formally opened, and as soon as the building has been equipped with the necessary furniture, most of the patients in the old building will be moved into it. The money for the new hospital was raised a year ago last June in a twelve day campaign. Four stories have been completed, but a fifth is to be added later, which will necessitate an additional outlay of about \$60,000.

**Changes at the Army Medical School.**—Many changes at the Army Medical School are involved in orders issued by the War Department on September 9th. Colonel Walter D. McCaw and Major Charles R. Reynolds are relieved from further duty at the school. Lieutenant Colonel Champe C. McCulloch, Jr., is assigned to duty as professor of military and tropical medicine; Lieutenant Colonel James D. Glennan, as professor of medical department administration; Major Eugene R. Whitmore, as professor of bacteriology, pathology, and clinical diagnosis, and Captain Edward M. Talbott, as assistant professor of ophthalmology.

**The Convalescent Service of St. John's Guild.**—On Monday, September 15th, with the opening of the new buildings of the Seaside Hospital at New Dorp, Staten Island, St. John's Guild inaugurated its convalescent service for the fall and winter terms. Heretofore the work of the guild has been a summer charity exclusively, caring for sick children of the poor and their mothers. To this has been added the fall, winter, and spring service for the care of convalescents. Four wards will be used, one for cardiac, one for orthopedic, one for maternity, and one for general cases. The new hospital, which consists of two pavilions facing the ocean, is well equipped to handle all cases, whether medical or surgical. Admission to the hospital is gained by a card, signed by the physician under whose care the patient has been, and endorsed by one of the physicians of the Seaside Hospital. The office of the guild is at 103 Park Avenue.

**Distribution of Antitoxine Free of Charge in Manhattan.**—It is the firm conviction and belief of the Department of Health that, if every case of diphtheria in New York city received five thousand units of antitoxine on the first day of the disease, the number of deaths from this cause—now entirely too high—would be markedly diminished. To further this end the Department of Health of the City of New York recently announced that, beginning September 1, 1913, it would, whenever necessary, between the hours of 9 a. m. and 2 p. m., deliver promptly, free of charge, to any address in Manhattan, antitoxine for the treatment of diphtheria, provided the request was made to the Department of Health at 149 Centre Street, and the person receiving the antitoxine sign a receipt therefor, containing a statement that the patient (or legal guardian) was unable to pay for it. This offer is for a limited period only. If physicians avail themselves of it in sufficient numbers, the procedure will be extended to all boroughs and made permanent. The antitoxine will be furnished in syringe containers, ready for immediate use, the empty or unused syringes being collected by the Department of Health the following day.

**A Course in Tropical Diseases at Harvard University.**—The Harvard Graduate School of Medicine announces that a systematic course in tropical medicine will be inaugurated at the school on November 1st, and will last six months. It will be open to graduates from all recognized medical schools, and is intended to provide adequate preparation to those physicians who intend to practise where tropical diseases may exist. The course is under the direction of Dr. Richard P. Strong, who was at one time chief of the biological laboratories of the Bureau of Science of the government of the Philippine Islands, and was recently appointed professor of tropical medicine in the Harvard Medical School. Dr. Harold C. Ernst, professor of bacteriology in the Harvard Medical School, Dr. Theobald Smith, professor of comparative pathology, and Dr. Milton J. Rosenau, professor of hygiene and preventive medicine, will constitute an advisory board, and, with other professors, both from the medical school and other departments of the university, will participate in the instruction. A detailed announcement of the complete course will be issued later and may be obtained by applying to the dean of the Graduate School of Medicine, Harvard University.

**Michigan State Medical Society.**—Nearly four hundred delegates attended the forty-eighth annual meeting of the Michigan State Medical Society, held in Flint on Thursday and Friday, September 4th and 5th, under the presidency of Dr. W. H. Sawyer, of Hillsdale. This is the largest number on record, with but one exception. Dr. Guy L. Kiefer, of Detroit, was named as president by a unanimous vote. In a short speech before the convention, Doctor Kiefer stated he would endeavor to promote a campaign of publicity tending toward the improvement of the health of the State. Other officers chosen were: First vice-president, Dr. H. E. Randall, of Flint; second vice-president, Dr. O. E. Taylor, of Jackson; third vice-president, Dr. E. H. Webster, of Sault Sainte Marie; fourth vice-president, Dr. H. A. Spencer, of Grand Rapids; members of the council, Dr. A. E. Burleson, of Jackson, Dr. A. L. Seeley, of Mayville, and Dr. R. S. Buckland, of Baraga. Next year's meeting will be held in Lansing.

**Personal.**—Dr. Ralph H. Spangler has resigned as supervising medical inspector of the public schools in Philadelphia, pressure of duties in connection with his practice being assigned as the reason. His successor has not yet been appointed.

Dr. James C. Byrnes, medical director in the United States Navy, retired, has been appointed medical director of Jefferson Hospital, Philadelphia, succeeding Dr. E. H. Funk.

Dr. I. L. Nascher, of New York, professor of geriatrics in the Boston College of Physicians and Surgeons, delivered the address at the opening of the thirty-fourth session of that institution on Wednesday, September 17th, his subject being *The Medical Care of the Aged*.

Gold medals have been awarded to Rebmam Company and Messrs. Fairchild Brothers & Foster, of New York, for their exhibits at the Seventeenth International Congress of Medicine, held in London last month, to the former for medical publications, and to the latter for their physiological pharmaceutical preparations.

**New Regulations Regarding the Shipment of Bodies Dead from Infectious Diseases.**—At a meeting of the Department of Health of the City of New York, held on July 30, 1913, the duties of undertakers in cases in which death was the result of infectious diseases were discussed and certain rules relating to the shipment by rail or boat of bodies thus infected were formulated. It is desired again to call attention to these rules, which differ to some extent from those which have previously been operative. They are as follows:

In deaths from infectious diseases where the remains are to be shipped by rail or boat:

(a) The inspector of the division of infectious diseases shall determine who may accompany the remains to the place of interment or cremation.

(b) The undertaker, in addition to complying with rules heretofore specified, shall file with the Department of Health a certificate of death and an affidavit to the effect that the rules of the State Department of Health have been complied with as to the preparation, disinfection, embalming, and enclosure of the remains, specifying in such affidavit the rule or rules under which the body is being shipped or transported, and he shall notify in the name of the Department of Health of New York city, by telegraph and before shipment of the remains, the health officer at point of destination, advising the date and train upon which the remains may be expected.

**Kentucky State Medical Association.**—The sixty-third annual meeting of this association was held in Bowling Green on Tuesday, Wednesday, and Thursday, September 2d, 3d, and 4th, under the presidency of Dr. W. O. Roberts, of Louisville. There were about four hundred delegates in attendance, and the meeting was in all respects one of the most interesting in the history of the organization. The most important feature of the last day's session was the election of officers, which resulted as follows: Dr. J. W. Ellis, of Masonville, president; Dr. A. T. McCormack, of Bowling Green, reelected secretary; Dr. W. B. McClure, of Lexington, reelected treasurer; Dr. H. L. Neel, of Drake, first vice-president; Dr. M. McDowell, of Cynthia, second vice-president; Dr. J. B. Kinnaird, of Lancaster, third vice-president; Dr. D. S. Wilson, of Louisville, counselor, Fifth District; Dr. E. Rau, of Bowling Green, reelected chairman of council; Dr. J. E. Wells, of Cynthia, counselor, Eighth District; Dr. W. W. Richmond, of Clinton, reelected delegate to the American Medical Association; Dr. W. P. Poole, of Henderson, orator in medicine; Dr. A. D. Willmoth, of Louisville, orator in surgery. Newport was selected as the meeting place for 1914.

## Pith of Progressive Literature.

### MEDIZINISCHE KLINIK.

August 8, 1913.

**Alcohol in Infectious Diseases.**—C. A. Ewald believes that the freedom of Europeans from becoming infected with the pest, prevalent in India, was rather due to the general hygienic mode of life of the Europeans than to their consumption of alcohol. With regard to infective diseases of the tropics, it is the expressed opinion of all observers, that alcohol has a decidedly deleterious effect, in that it lowers the resistive power of the organism, and increases the susceptibility to infection. All authorities agree that children should be given as little alcohol as possible. In all nervous conditions, epilepsy, gout, and in chronic diseases of the heart, kidney, and liver, alcohol should be prescribed. Rosenfeld drew attention to the fact that digitalis was borne longer in heart disease by those who had abstained from alcohol; an observation which the author could substantiate. The writer observed that in continuous vomiting after chloroform narcosis and in convalescence from typhoid alcohol may at times be of use. According to Collin, after refusal of food for several days, and in cases of continuous vomiting, its careful administration may assist in sustaining the patient. A direct indication for its use is found in diabetes, as it decreases acidity.

**Diuresis.**—L. Hess reviews some new methods of diet (the salt free diet (von Noorden, Strauss, Widal), and the Karell cure). Von Noorden advocates a decreased consumption of fluids, the aim of which is to save work for the heart and kidneys. This is directly opposed to former methods of flushing the kidneys with large quantities of fluids. In treating chronic nephritis von Noorden limits the quantity of fluids to from 1,500 to 2,000 c.c. during the day, and permits only occasionally, or at longer intervals, a day for a larger intake of fluids. This is a prophylactic where there is a tendency to edema, as in chronic parenchymatous nephritis, in all cardiac weaknesses resulting from fatty degeneration, and in sclerosis of the coronary vessels. The second dietary method—the salt free diet—is only indicated where a renal disturbance results from an inadequate elimination of sodium chloride resulting in edema. Should the dropsy be the result of other causes, as poor circulation from weakened heart action, or from primary insufficient excretion of water by the kidneys, the salt free diet is of no avail. Foods most free from salt are: Eggs, sweet butter, fruit, vegetables, salads, and asparagus; cereals, fresh water fish, and the different varieties of white meats. The beverages advised are water, tea, coffee, and grape juice. Bread should be baked without salt, and have other flavoring substituted, as kummel (caraway seed) or mohn (poppy seed). Strauss recommends eggs in the form of omelette with jelly and tomato stew. Salt should be omitted in the preparation of all vegetables; in its place thyme, laurel leaves, sweet marjoram, and at times parsley may be used. Milk diet results in lowered nutrition, and contains too large a proportion of sodium chloride. The Karell cure has given



good results where renal disturbances complicated with arteriosclerosis and myocarditic processes are the cause of dropsy. For from five to seven days the patient receives a diet of boiled milk 200 c. c. four times daily, at 8, 12, 4, and 8 o'clock, the patient remaining in bed during the treatment; for the following two to six days, one egg only is added at 10 a. m., later also some zwieback. Twelve days after the beginning of the cure, full diet is gradually allowed, and in the following two to four weeks the total amount of fluids given should not exceed 200 c. c. daily. By strict adherence to these rules active diuresis is attained in about three days without the use of medicines. Subjective relief of cardiac oppression follows and this in patients with whom, in the beginning, diuretics had failed.

August 10, 1913.

**Pathology and Therapy of Renal Calculus.**—W. Karo observes that in view of our limited knowledge of metabolism, we do not yet know what foodstuffs cause the precipitation of oxalates, phosphates, xanthin, and cystin, all of which may give rise to stone formation. Rosenbach has shown, by experiments on dogs, that a healthy kidney has the power of ridding itself of concretions. The appearance of acute phenomena, caused by the presence of stone, can only be met by symptomatic treatment. For pain, hot applications, as hot sand or poultices, applied to the region of the kidneys; hot baths also prove grateful. Posture may sometimes prove beneficial. Massage sometimes causes the calculus to change its position and in this manner the pain is relieved. When the pain becomes intolerable or if there is long continued colic, a hypodermic injection of morphine or a suppository of 0.008 gramme of heroin with 0.25 gramme pyramidon will relieve. The patient should drink freely of milk, tea, and any of the mineral waters suited to the character of the concretions. An internal urinary antiseptic is given as a prophylactic against secondary infection for the trauma caused by renal colic. To prevent any recurrence of the attack, a rigid diet, in accordance with the nature of the concretions, is observed and the urine is kept neutral. A mixed diet is given. Very little meat, no thyme, liver, kidney, nor caviar. Give generous portions of vegetables and fruits. To increase the alkalinity of the urine bicarbonate of soda, or perhaps magnesium, 2 grammes, three or four times daily; carbonate of lime is also useful. Table waters should be chosen according to the character of the concretions we wish to combat.

August 17, 1913.

**The Significance of Ions as Therapeutic and Climatic Factors.**—P. Grabley says that the influence of wind, the vapor content of the air, as well as the atmospheric pressure, have been fairly well investigated; but not so the electric phenomena nor the ion content of the atmosphere. For instance, it has been found that the motion of the wind and not the salt content of the air, is of therapeutic value at the seashore. That an increase of hemoglobin in the blood is made by the low barometric pressure of great altitudes; but what it is that causes many sick, and also many healthy, sensible people, independent of location and climate, to become generally irritable, has not yet been explained.

It is a well known fact that many people experience a feeling of discomfort before a thunder storm, followed by a feeling of wellbeing when the electric tension of the atmosphere was accompanied by precipitation. It was observed that this depended upon the meeting of various components of the atmosphere. Ions originate almost exclusively from radium emanations streaming from the ground into the air. After vapor precipitation, and the production of high water levels, gas forming ions escape from the pores of the earth with difficulty. Therefore there are more ions passing out in dry weather. The quantity of radium emanation depends upon the character of the soil. When eruptive concretions are present in the deeper strata of the soil, and when the soil is very porous, ions stream out abundantly. Great activity and numbers of ions in great altitudes and mountains, as compared with those of the lowlands and seashore, are thus explained. The author believes that treatment in an air space, of large cubic content of negative ions, given for gout, rheumatism, and various nervous diseases, would give the same results as when treated with radium emanations.

August 24, 1913.

**The Etiology of Arteriosclerosis and Its Significance in Therapeutics.**—M. Herz explains that persons with arteriosclerosis present changes in bloodvessels resulting in certain functional disturbances. These may be divided into three classes: 1. Changes in the cerebral vessels; 2, changes in the coronary vessels of the heart, and in the aorta; 3, changes in the vessels of the kidneys. Among various causes the author lays most stress on the psychic attitude of the patient. With regard to physical work, he notes that people working much with their hands often suffer with sclerosis of those vessels. Farmers who make most use of their legs often develop sclerotic vessels of their legs; but these varieties have no relation to those of the psychic nature, which are rather brought on by sorrow and worry and this cause, though frequent, is hardly referred to in textbooks, though the intimate relation between bloodvessels and mind is well known. For the cerebral neurasthenic form of arteriosclerosis we give potassium iodide in small doses. For the thorasthenocardial character, nitrite of theobromine is indicated. The third group is where the contracted kidney is prominent and possibly only detected by continuous high blood pressure and where no albumin may be found in the urine. Only diet is indicated in this third variety; potassium iodide and theobromine are useless. The author lays stress on prophylaxes; the teaching of which should begin with the children. With regard to the all important psychic treatment, he urges the practitioner to be a spiritual friend to the patient, as well as well as a family friend.

August 31, 1913.

**The Present Status of Dietetics in Nephritis.**—T. Janowski reviews the dietetics of nephritis as having shown deficiency in variety and as having been prescribed rather too summarily. The selected diet of to-day is more in keeping with individualism. The tolerance of the kidneys must be ascertained. This has proved of service in diabetes. For instance, a patient whose kidneys excrete so-



dium chloride, may take it in his food as he deems necessary and so with nitrogenous substances. The careful findings in the urine should aid in the selection of the diet. Patients excreting albumin should not be stinted in the albumin content of their diet; but should rather be given sufficient to replace that lost in the excretions. The degree of tolerance for work, on the part of the diseased organ, should be carefully estimated. Pumpkin caused no irritation of the kidneys, and when eaten in sufficient quantity, resulted in diminishing the number of erythrocytes, cylinders, and epithelial cells in the urine; but even more important was the fact that in many patients it was known to increase diuresis.

#### ZENTRALBLATT FÜR GYNAKOLOGIE.

August, 1913.

**The Clinical Importance of Abderhalden's Serodiagnosis in Pregnancy.**—Mayer considers Abderhalden's reaction to be of great importance in several ways. He believes that it is positive in the very earliest stages of pregnancy and may be therefore of great value in medicolegal cases. As the reaction remains positive for two to three weeks after delivery it likewise may be used to determine whether or not there has been a previous pregnancy. In relation to extrauterine pregnancies the reaction is positive only in recent cases, being negative in old hematomas where there is no longer any functioning tissue. Mayer states that in fifteen cases of eclampsia the test was distinctly less marked than with normal placenta. He also considers that probably the greatest value of Abderhalden's reaction may be along the lines of investigation of the pathology of the internal secretions, inasmuch as this method enables one to determine the presence, within the blood serum, of foreign substances.

**Trachelorrhaphy as Prophylaxis for Cervical Cancer.**—Asch believes that at the present time sufficient attention is not paid to the importance of repairing lacerations of the cervix, particularly as they not uncommonly are the locations in which cervical carcinoma develop. Even if so serious a condition does not result the inflammatory process may extend upward giving rise to endometritis, dysmenorrhea, and menorrhagia.

**Serodiagnosis of Pregnancy.**—Porchownick, after calling attention to certain difficulties encountered in the making of Abderhalden's reaction, reports several groups of cases in which he employed this method of diagnosis. As a result of his investigations he concludes that the dialysis method of Abderhalden is fairly trustworthy in making a diagnosis of pregnancy at a time when the findings of a gynecological examination are insufficient. He also finds that the reaction will appear for some two weeks after pregnancy. It also is valuable in the diagnosis of extrauterine pregnancies, although in general the reaction is not as marked as in normal cases. Sometimes a slight reaction is obtained in patients who are not pregnant but are suffering from fever. This is probably due to the presence of substances resulting from increased cleavage of albumin. This can be differentiated from the true reaction in pregnancy by the fact that the control dialysate will also show color changes.

**Partial Retroflexion of a Pregnant Uterus.**—Fonyó reports a case in which a diverticulum of the posterior wall of the uterus extended behind the promontory and was adherent to the coccyx. In this portion was situated the placenta.

#### PRESSE MÉDICALE.

August 26, 1913.

**Investigation of Nitrogenous Metabolism as Reflected in the Urine.**—L. Lematte describes a method of separating and estimating volumetrically the urea and ammonia in the urine. It is based upon the fact that when phosphotungstic acid and magnesium chloride in definite proportions are added to urine, all the ammonium salts are precipitated, leaving the urea, which can be estimated by the hypobromite method. Again, if urine be treated with lead subacetate, all nitrogenous compounds except ammonia, urea, and aminoacids will be precipitated. Upon testing such a urine by the hypobromite method, the sum of the ammonia and urea nitrogens can be ascertained.

August 26, 1913.

**Agglutination of Micrococcus Melitensis.**—Martel, Tanon, and Chrétien, discussing the prophylaxis of Malta fever, state that in order to diagnose the disease in goats, serum agglutination in dilutions greater than one in 100 must be present. A blood culture, on the other hand, permits of making a diagnosis in all safety. In all cases showing agglutination, raw milk, or cheeses made from the milk of goats that are suspected of, or actually show, melitococcia should be forbidden.

**Modified Technic in Application of Thiersch Grafts.**—P. Hardouin advises waiting, before applying Thiersch grafts, until the surface to be covered shows reddish granulations, bleeding readily, and the discharge has been reduced to a slight serous or seropurulent oozing. A few days before grafting, moist dressings should, if necessary, be applied to soften crusts; a one in 1,000 solution of potassium permanganate is recommended. On the day preceding operation, a dry dressing should be applied. In preparing the surface for the grafts, the entire layer of fleshy granulations should be removed with a curette, until a firm stratum of tissue, with a whitish, fibrous appearance, is exposed. After rubbing this surface with a gauze compress, bleeding can be immediately arrested by placing dry gauze over it. The area from which the grafts are to be taken, usually the thigh, should then be strongly rubbed for three or four minutes with a pledget of gauze saturated with alcohol, until the skin has assumed a reddish color. After allowing the alcohol to evaporate, one next washes the area with warm normal saline solution. In removing the grafts, which should be as thin as possible, the razor should be seesawed tangentially to the skin, and the grafts kept on the blade throughout, i. e., not transferred, as is sometimes done, to a spatula and spread out before application to the open surface. When the latter has been completely covered, the surrounding skin should be carefully cleansed with dry or slightly moistened tampons, and a large compress consisting of six or eight thicknesses of dry gauze bandaged tightly over the

area. No impermeable covering should be used. The gauze should be left on six or seven days. Its removal without injury to the grafts, the use of a spatula for the purpose of separation being sometimes required about the edges, can usually be accomplished easily. Where this is not the case, bathing in boiled water for an hour or two will be sufficient to liberate the adherent gauze. A fresh, similar dressing is then to be applied. With this technic, perfect healing is not uncommonly observed when the first dressing is removed, and in any case, the desired result is obtained much more quickly than after the use of impermeable dressings.

#### REVUE DE MÉDECINE.

August, 1913.

**Anastomoses between the Greater and Lesser Circulations.**—Charles Trunczek calls attention to the fact that there normally exist in certain situations communications between the vessels of the systemic and pulmonary circulations. Thus the bronchial capillaries and veins open into the pulmonary veins instead of into the veins of the systemic circulation; most of the veins from the walls of the left auricle, and some from the left ventricle, open into the left side of the heart. Besides, there are anastomoses between the mediastinal venous plexus, and diaphragmatic, and esophageal veins, on the one hand, and the pulmonary veins, on the other, as well as between the anterior bronchial veins and the pulmonary veins. These communications between the two systems afford an explanation of the hitherto puzzling fact that the output of blood from the left ventricle is somewhat greater than from the right; of the early congestion of the bronchi and precordial discomfort observed in mitral insufficiency, even where the valvular defect is still compensated for; of the fact that lung infarcts are always of the hemorrhagic variety, while elsewhere anemic; and of the excess of hypertrophy of the left ventricle over the right almost constantly observed in plethora. This anatomical condition, moreover, permits of the passage of certain bodies contained in large amount in the venous blood into the arterial blood, in particular carbon dioxide, which in the arterial blood regulates and strengthens the respiratory and cardiac movements and prevents acapnia at great altitudes. Where, owing to various pathological states of the heart, the normal ratio in the outputs of the left and right ventricles is not preserved, the communications between the systemic and pulmonary circulations described permit of readjustment of the blood flow, thus relieving an otherwise unavoidably serious condition.

**Asthenic Form of General Paralysis.**—R. Benon and H. Cier assert that nearly all cases of general paralysis that are depressed, neurasthenic, hypochondriac, and melancholic, are in reality asthenic, *i. e.*, that physical weakness accompanies and even underlies the mental weakness in this stage. This is followed, as in two cases reported by the authors, by a period of hypersthenia or mania, with mental and motor excitement, euphoria, ideas of grandeur and satisfaction, etc. The diagnosis between true neurasthenia and the asthenia of beginning general paralysis rests, above all, upon examination of the mental state, *viz.*, for the disorders of

judgment and emotion characteristic of early paresis.

**The Psychasthenic Diathesis.**—S. Lubetzki, from a study of some thirty psychasthenic patients for a period of several years, is impressed with the fact that there exists a species of diathesis or psychasthenic soil, the subjects of which are predisposed to mental eccentricities, doubts, tics, phobias, anxieties, etc., which may coexist, appear, or disappear at different times in the same individual. Sensitiveness, a tendency to the absolute abstract rather than the concrete, and aboulia, are the three essential stigmata of the psychasthenic mental state. The toxic effects of the tubercle bacillus, generally in incipient cases, may be responsible for psychasthenia, while influenza often aggravates a preexisting psychasthenic state. The prophylaxis of psychasthenia consists in toning up the system, ordering special attention to the physical rather than the mental side of life, hydrotherapy, and the choice, for the maturing individual, of a profession which will not involve too great a drain on the nervous system. In the curative treatment of psychasthenia, rest, injections of lecithin in oil in increasing amounts, and a substantial diet, with the omission of fermented beverages and of meat in the evening, are essentials. These measures will facilitate the subsequent psychic treatment, in which an attempt should be made to strengthen the patient's will, lead him to make firm resolutions, and then to overcome through logical discussion of the facts, his systematized fears.

**Hematuria in the Course of Typhoid Fever Treated with Hexamethylenamine.**—J. Belkowski gave forty typhoid patients hexamethylenamine in doses of 0.5 or 0.6 gramme three or four times daily. Hematuria appeared in four instances, and in one patient death followed. At autopsy the bladder was found the seat of marked desquamation and bloody ecchymoses, and the intestines of numerous ulcers, one of which had yielded, the peritoneum exhibiting a grayish exudate. In the remaining patients of the series there was neither perforation, intestinal hemorrhage, nor relapse. While hexamethylenamine cannot be considered a specific remedy in typhoid, the generally favorable results obtained from its use invite further trial.

#### BRITISH MEDICAL JOURNAL.

August 30, 1913.

#### Treatment of Congenital Syphilis by Salvarsan.

—J. W. Simpson and Lewis Thatcher have had an experience of forty cases in children ranging in age from one month to eleven years. Their success has been noteworthy and they believe that two factors alone go far to account for it. 1. The use of a suitable dose. This should be 0.01 gramme for every kilogramme ( $2\frac{1}{4}$  lb.) of body weight. 2. An improved method of injection, which consists in cutting down upon the external jugular vein and inserting a cannula just as in transfusion. This is the method of election in children under one year of age, and in many cases has to be resorted to in those up to three or four years old. Attention is drawn to the undesirability of drawing blood from a small infant for the Wassermann test as this tends to reduce materially the child's total hemoglobin

and such infants are usually already deficient in this constituent. A Wassermann test of the mother's blood is quite as satisfactory, for it will always be positive if the child is congenitally syphilitic. Practically all of the syphilitic lesions seen in these early congenital cases responded very promptly to the use of salvarsan, only seven infants of the total of forty died, and in no instance was there a truly severe reaction to the injection. In comparison with mercury, salvarsan gives much better results, particularly in the more severe cases. It is always advisable, however, to carry on treatment with mercury and iodide after the use of salvarsan.

**Panniculitis.**—D. Durward Brown employs this term to mean one of the types of fibrositis of other authors—the form involving the subcutaneous tissues—or the disease sometimes known as Dermum's disease. The affection is very painful, very chronic, and if treated properly and persistently enough yields satisfactory results. Aspirin will undoubtedly relieve the pain temporarily, and the bath treatment of Harrogate does much to alleviate the suffering, but the important feature is properly practised massage. This must be performed with the lightest touch in the beginning, and for a few minutes only. Both the amount of pressure and the length of each treatment are to be increased gradually until a full hour of fairly vigorous massage can be given without any discomfort to the patient. In the experience of Brown most of these patients have a large neurotic element at the bottom of the trouble, and it is partly for this reason that it is so hard to treat them successfully, for few have the patience to persist long enough to be cured. The majority of the cases are in women and are seen in five distinct types, according to Brown: In young women after childbirth; in young women with neuroses; in young women after operations; in women after the menopause; and in women with abnormal thyroids, or some other abnormality of metabolism. The chief symptoms are pain on manipulation, specially with rolling movements, and pain simulating neuritis.

#### PRACTITIONER

August, 1913.

#### The Septum Nasi and Its Deformities.—

Francis Muecke insists that a certain amount of deviation of the septum is almost always present in adults which demands treatment only under certain conditions. When any surgical treatment is needed a submucous resection is best, except in cases of definite spurs. This operation is indicated when there is undoubted interference with breathing; in cases of troublesome nasal catarrh which cannot be cured by ordinary means; if, after an attack of acute otitis media, there is reason to believe that the lesion was actually due to, or favored by, the deformity; in cases of intractable or constantly recurring aural discharge; in cases of chronic catarrh of the middle ear in its early stages, in which improvement is noticed after inflation, especially if the passage of a catheter is interfered with; in cases of unilateral atrophic rhinitis of the concave side; of pharyngitis, laryngitis, bronchitis, asthma, hay fever, and severe headaches which have resisted all other forms of treatment. The external appearance he finds may be

improved by the operation, as ten of the seventy-four patients with whom he has been able to keep in touch volunteered the statement that their noses are now straight. He is convinced that a certain amount of reformation of cartilage takes place. The results were satisfactory in all of the seventy-four cases.

**Erythema Nodosum.**—A. Hope Gosse analyses 100 cases of erythema nodosum, which he believes to be an infective disease of separate entity. A specific germ has not yet been discovered. It is a disease of childhood, occurring about equally in males and females, before the age of twenty, but after that age almost wholly in females. It is more prevalent in spring, summer and early autumn. The cases are as a rule sporadic, but two or three members of the same family have been affected at the same time. Three cases described in one family suggest a period of about a fortnight from infection to the appearance of the rash. The onset of symptoms is frequently marked by an attack of tonsillitis; there may have been previously repeated sore throats, or, rarely, the tonsillitis may have been coincident with that of another disease. The tonsillitis may subside, and for a few days symptoms may be entirely absent; then the general infection is marked by a fairly constant train of symptoms. The onset may be sudden, with shivering or even a chill; more often it is insidious, and there are headache, vomiting, and anorexia. Occasionally no symptoms precede the rash. In the severe cases pain in the back is very frequent, and joint pains, and even effusion, may occur in the knees, ankles, or wrists. There may be conjunctivitis, and occasionally a phlyctenule. There is some pyrexia in the prodromal period, and sweating is often profuse. These symptoms may persist for any length of time up to about a fortnight, before the characteristic nodes appear. They are always present on the legs, frequently on the forearms, sometimes on the thighs and arms, and even on the face and trunk. On the limbs it has a predilection for the extensor surfaces, and is usually bilateral. The nodes vary much in size. Bright red at first, they are usually tender and may become progressively more so during the first few days. As a rule they are not painful when the patient is in bed, but often become so when he sits up with his legs dependent. As they fade they pass through all the changes of color of a severe bruise. They fade in from a few days to three or four weeks. Frequently they appear in a succession of crops, but rarely more than three or four. At this stage the tongue is usually thickly coated. The pyrexia usually persists for a few days after the appearance of the rash; sometimes it is septic in type; more often it does not rise above 101° or 102° F., and drops within a week to normal, as a rule. Until this stage there is very frequently myocarditis, or rather parenchymatous degeneration of heart muscle, the heart dullness is increased, and there is a soft systolic murmur at the apex, but this usually disappears in two or three weeks. There is occasionally albuminuria. The convalescence is often prolonged on account of the severe anemia which frequently results from the infection.



## JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

September 6, 1913.

**Epidemic Streptococcus Sore Throat; Symptoms, Origin, and Transmission**, by J. A. Capps.—See this JOURNAL for June 28th, p. 1370.

**Chronic Streptococcus Arthritis**, by D. J. Davis.—See this JOURNAL for June 28th, p. 1370.

**A Biological Classification of Pneumococci by Means of Immunity Reactions**, by A. R. Dochez and L. J. Gillespie.—See this JOURNAL for June 28th, p. 1370.

**The Intensive Treatment of Syphilitic Nervous Affections Controlled by Examinations of the Cerebrospinal Fluid**, by W. V. Brem.—See this JOURNAL for June 28th, p. 1365.

**The Value of Abdominal Measurements in Pregnancy**, by A. B. Spalding.—See this JOURNAL for June 28th, p. 1369.

**The Essentials of Sanatorium Treatment of Tuberculous Gravidæ and Puerperæ and Their Children**, by C. S. Bacon.—See this JOURNAL for June 28th, p. 1369.

**A Comparative Study of Antigens for the Wassermann Reaction**, by H. R. Varney and F. W. Baeslack.—See this JOURNAL for July 5th, p. 42.

**Clinical Observations on the Emetic Action of Digitalis**, by Cary Eggleston.—See this JOURNAL for July 5th, p. 50.

**Physiology of the Pylorus, Pileus Ventriculi, and Duodenum as Observed Röntgenographically**, by L. G. Cole.—See this JOURNAL for June 28th, p. 1370.

**A Study of the Spinal Fluid in One Hundred Cases of Syphilis; Including Investigations for Arsenic after Intravenous Administration of Neosalvarsan**.—M. F. Engman, R. Buhman, F. D. Gorham, and R. H. Davis state that as the result of their studies in these cases, thirty-six of which were of early syphilis and sixty-four of late syphilis, it would seem to be shown that, 1, only comparatively small proportion of those infected by the *Spirocheta pallida* give serological and cytological evidence of cerebrospinal invasions; and, 2, when such an invasion does occur there are usually early clinical manifestations of it, which substantiate clinical observation. In the endeavor to determine whether, if some of the spinal fluid were removed and an intravenous injection of neosalvarsan followed immediately, the fluid removed would not be replaced with a fluid surcharged with arsenic, four cases of paresis were selected; and the results were negative in all four instances.

**Chronic Adherent Pericarditis**.—From a study of sixty-two cases W. H. Smith arrives at the following conclusions: 1. It may be said that adherent pericarditis is impossible of diagnosis (which is unimportant under such conditions) in cases unassociated with cardiac symptoms, cardiac enlargement, or murmurs. 2. In a second type, in young adults, adhesive pericarditis, which is of serious import, is apt to be overlooked because the coincident endocarditis appears in the foreground. This affection should always be thought of in a young adult whenever rheumatism followed by endocarditis appears in the history, and especially when the

cardiac failure is more marked or the cardiac enlargement more extensive than the endocardial damage seems to warrant. 3. More careful records should be made of the presence or absence of cardiac dilatation in cases of acute rheumatism without endocarditis or pericarditis.

**Some Features of Röntgenographic Changes in Pituitary Diseases**.—Alfred Luger says that, in general, it may be said that conclusions in regard to disorders of the pituitary can be drawn only from the changes in the bony parts. It is of great importance to note that the order of appearance of the changes in the sella turcica is quite different in the case of a tumor of the pituitary gland itself, on the one hand, and tumor of the hypophyseal stalk, or other pathological condition of the immediate neighborhood of the gland, on the other. Having described the sequence of changes respectively in the two classes of conditions, the author states that in tumors of the brain which have no relation whatever to the pituitary, and in the case of internal hydrocephalus, there are not infrequently found changes due to the increase of intracranial pressure which are very similar to those met with in extrasellar tumors. In large tumors of the sella the so called sphenoparietal sinus is often enlarged; which can be explained by the pressure of the growth upon the sinus cavernosus. In tumors of the acoustic nerve a rather characteristic change in the dorsum sellæ has been noted; they sometimes produce not only a thinning of the dorsum, such as is observed in other extrasellar growths, but also a tendency of the dorsum to incline forward. All these examples show that changes of the sella turcica in size and shape occur rather frequently in conditions other than true pituitary tumors; but, on the other hand, the great influence of the other ductless glands on the development of the pituitary, and on the secondary changes of the sella turcica, has been demonstrated.

**Unique Wrist Injury: Recurrent Anterior Dislocation of the Ulna**.—A. C. Yoder reports this case, which makes the eleventh of the kind recorded. In summing up the diagnosis of the case he enumerates the following points: 1. Fracture and disappearance of the ulnar styloid; 2, recurrent forward dislocation of ulna, with probable rupture of triangular fibrocartilage; 3, subluxation, dorsally, of the radiocarpal joint; 4, crowding together of many of the carpal; 5, possibly a slight subluxation of semilunar and os magnum. The prognosis, he says, is good as to function, but absolutely bad with respect to restoration of parts.

## MEDICAL RECORD.

September 6, 1913.

**Lead Poisoning in New York City**.—J. S. Kenney presents a study of twenty-five cases of lead poisoning, with special reference to industrial hygiene from the dispensary standpoint. These cases were seen at the Cornell dispensary, where about one year ago, at the suggestion of Professor W. G. Thompson, a somewhat systematic study of trade diseases was begun with the view of gaining facts and information as to the extent of these conditions, how they were brought about, and other useful knowledge which might aid in their preven-

tion and control. In order to make hazardous industries more endurable and safer for wage earners the author believes that there should be carried on a nation wide campaign, both legislative and educational, on the same lines as the fight against tuberculosis. The suggestions he makes are: 1. The education of the worker and the employer; 2. legislative control along certain lines; 3, the enlistment of hospitals and dispensaries in the work. Included in the paper is a copy of a circular issued by the Cornell dispensary containing specific instructions for persons exposed to industrial diseases, especially lead.

**The Psychoanalytic Delusion. The Sexual Infantile.**—J. V. Haberman criticizes in a very caustic manner the theories of Freud and the attitude of his followers, asserting that "the psychoanalyst assumes in the absolute, is ever unerring, stretches and amplifies in terms elastic, and pities and commiserates the little oil aglow within one's uninitiate attic." This, he says, is the ring to be heard more or less plainly in the expoundings of our Freudists, or a gradually growing group of such enthusiasts on this side the Atlantic. After a review of the past and current literature, in which he quotes the opinions of a large number of writers, he remarks: "These citations, aggregated, amply confirm, and without further argument, the criticism intimated at the outset of this paper that the supposition of a sexual infantile or childhood's trauma as the causation of hysteria is utterly untenable, and that this is the opinion maintained by the authoritative writers on this and allied subjects and the neurological world at present."

**Is There Value in Electrotherapeutics?**—In some communities and in some medical circles, William Martin says, this would be answered in the negative. It is to be regretted, however, that there should be any question at all, since the value of properly applied electrotherapeutics has been amply proved. The fact that so many of the profession know so little of these modern therapeutic methods is traceable to two causes. First, the fault lies with the medical colleges; and the second reason is the direct result of the first. Because the regular profession has not been educated up to a working knowledge of electrotherapeutics, it has been taken up by charlatans and quacks, who have exploited it to their financial advantage. What applies to electrotherapy applies to all the other physical measures; there must be some good in each, or there would be no results of a satisfactory nature. The author takes up in succession some of the more important conditions which best respond to the application of electric modalities. Cardiovascular supertension, so frequently seen as the result of toxemias, can be readily relieved, particularly when recognized prior to organic changes; and in all cases of supertension, whether early or late, at least something can be done for relief of the urgent symptoms. Hardening of the arteries, which seems to be an accompaniment of the modern methods of living, and due frequently to toxemias, can be prevented from advancing by the use of the high frequency current given by the autocondensation method, and some physicians feel warranted in stating that this condition can even be measurably re-

moved. Under this method of treatment it is surprising to note the remarkable improvement, both mentally and physically, which takes place, due to the removal of the great strain from the cardiovascular system. In neuritis not only is the inflammation relieved, but the plastic exudate is broken up and absorption promoted. Even when more or less nerve cell degeneration has resulted, with or without muscular atrophy, a cure may be hoped for. In the treatment of rheumatism, osteoarthritis, gout, and allied ailments electricity is a valuable adjunct. Prostatic hypertrophy has recently been successfully treated by electrical methods, and this naturally has opened a wide field of usefulness, owing to the great mortality following prostatectomy. Other classes of affections in which the value of electricity is spoken of in the paper are diseases of the nervous system, chronic skin diseases, and conditions of lowered vitality and altered metabolism such as are met with in chronic digestive faults involving the liver and other organs.

#### AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

August, 1913.

**Experiences with Steinmann's Nail Extension Method in Fractures of the Femur.**—The essential part of this method, as explained by John C. A. Gerster, consists of a nail which transfixes the soft parts and bone, and which is the sole point of attachment for suitable traction upon the lower fragment. In other words, the bone and soft parts are transfixed by a drill, which is left in place with both its ends projecting. In certain cases nail extension is the only method to be used; in others it is an aid to previously existing methods. In recent fractures it is indicated wherever the usual traction methods fail. In old fractures, the fact that nail extension can be employed with success, at a considerable time after the fracture has occurred, makes it of value when a fracture is complicated by extensive abrasions of the skin or by acute disease. In malunion with much overriding, operation followed by the Steinmann method is the only way in which an ideal result can be safely obtained. As a preliminary to Lane plating, in cases where that method is indicated, nail extension is excellent. Synopses of twelve cases in which the method was employed are appended to the paper.

**The Relations of Internal Secretion to Mental Conditions.**—L. V. F. Hochwart takes up in succession, in this connection, the genital glands, the thyroid, the thymus, the pituitary, the pineal gland, the pancreas, and the suprarenals. From this review he says it will be seen that we know a number of the effects of internal secretions on mental conditions, and how the development of the mind depends on these secretions. Brain anatomy helps but slightly in showing how higher mental development is to be explained. Perhaps the time will come when we shall learn to perceive how much depends on the individual structure of certain glands and on their individual internal secretion.

**An Experimental Study of Sodium Bicarbonate and Other Allied Salts in Shock.**—As a result of this experimental study, M. G. Seelig, J. Tierney, and F. Rodenbaugh state that since none of the factors of bulk, hypertonicity, alkalinity, or

free carbon dioxide gas showed itself the sole cause of the pressor effect of sodium bicarbonate, they were forced by exclusion to assume that this salt acts specifically upon the heart muscle. This assumption receives corroboration from the fact that, with both vagi cut, and even with all the higher cerebral centres destroyed by Jackson's method, an injection of sodium bicarbonate is followed by a rise of blood pressure.

**An Intensive Study of the Epidemiology of Pellagra; Report of Progress.**—Joseph F. Siler and Phillip E. Garrison, of the Thompson-McFadden Pellagra Commission, conclude an elaborate report on this subject, which was begun in the July issue. Among the epidemiological data which are summarized at the end of the report are the following: Density of population, while showing a tendency to conform to the relative prevalence of the disease, does not alone offer an explanation of the geographical inequalities of its distribution within the county (Spartanburgh, South Carolina). The cotton mill village population gives a rate of prevalence of 104 per 10,000, against 19 per 10,000 for the remainder of the county, and against 16 per 10,000 for the rural sections alone. Excluding the mill village population (which is practically all white), the remaining white population still gives a rate of prevalence over two and a half times that among the negroes. The rate per 10,000 for males in the county is seventeen; for females, 50.5. The rate among children under ten years and adults of forty-five and older is practically equal in the two sexes. In both males and females there is a striking fall in prevalence between the ages of ten and twenty. The most significant fact with regard to occupation is the excessive prevalence of pellagra among women employed in housework. The excessive prevalence of pellagra in the mill village population is found largely among women and children at home during the day. Among actual mill workers the rate of prevalence between the two sexes appears to be about equal. Climatic conditions appear to influence the development of symptoms of the disease. The absence of properly constructed privies and the almost complete absence of effective screening of dwellings present a situation highly favorable to the transmission of disease organisms eliminated in the excreta, both by direct contamination of food and person, and by insects. The most striking defect in the general dietary of the working classes appears to be the limited use of fresh meats, but investigation of the kind, quantity, and quality of corn and corn products used, failed to bring to light any epidemiological evidence pointing to the agency of corn as an etiological factor in the disease.

**Pinching the Appendix in the Diagnosis of Chronic Appendicitis.**—A. Bassler says that while McBurney's point is undoubtedly of much value in the diagnosis of appendicitis, the sign fails at times. He recommends that, if the patient is not too stout, the lower border of the cecum should be percussed for. With an estimation of about where the appendix would be, as judged from the location of the lower end and sides of the cecum, pressure on the abdomen should be made at that point. A second plan (which is applicable whether the cecum

can be mapped out or not) is to palpate for the right edge of the rectus muscle—a matter which is facilitated by having the patient rise to a sitting posture. This site is maintained with a finger, and the thumb placed vertically on the abdomen, its tip pointing to the ensiform cartilage. It is then slowly pressed backward into the abdomen, and when it has been sunk about halfway down to the back of the abdominal cavity it is swung to the right of the patient, at a right angle to the downward pressure line. This pinches the appendix against the iliacus muscle and the unyielding structures about it, and usually elicits pain or tenderness.

AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF  
WOMEN AND CHILDREN.

August, 1913.

**Emptying the Uterus as a Means of Treatment of Puerperal Eclampsia.**—Reuben Peterson refers to the difficulty in restraining one's enthusiasm over some special kind of treatment in a few cases of eclampsia, which has reduced the maternal mortality to five or ten per cent. He also calls attention to the fact that we have no means of estimating the severity of the eclampsia in the patients who survived such treatment. The severity or the number of convulsions being no criteria of the degree of intoxication from the eclamptic poison, since patients have lived after many convulsions under all kinds of treatment and have died after one apparently mild convulsion. Inasmuch as the condition is due to pregnancy it would seem that the emptying of the uterus were the rational method of treatment. Through an examination of a large number of cases Peterson found that prompt delivery gave a maternal mortality of 15.9 per cent, as compared with a maternal mortality of 28.9 per cent where the delivery was long delayed. If the uterus is emptied immediately or very soon after the onset of the first convulsion, the maternal mortality is still lower. Peterson therefore concludes that the treatment of antepartum eclampsia should consist of emptying the uterus as quickly as possible after the onset of the first convulsion.

**Ovarian Teratoma.**—White briefly reviews the types of teratomata and the theories concerning their formation and then reports in some detail two instances. The first case being in a girl of four years, the second in a woman of thirty-two.

**Leucoplakia Uteri.**—Sweeney reports a case of this unusual condition and believes that it is the result of a metaplasia of epithelium, the columnar type being replaced by the squamous variety.

ARCHIVES OF INTERNAL MEDICINE.

August, 1913.

**Hydrogen Ion Concentration of the Urine in Heart Disease.**—L. H. Newburgh, W. W. Palmer, and L. J. Henderson found that the hydrogen in concentration of the urine from individuals with severe cardiac decompensation is higher than normal. It follows the general clinical course, becoming normal when compensation is restored.

**Acid Base Equilibrium and the Nature of Acidosis.**—W. W. Palmer and L. J. Henderson present evidence favoring the view that varying grades of acidosis may exist, apart from diabetes



and cases in which beta oxybutyric acid is produced in many pathological conditions not previously suspected. In many pathological conditions the administration of an alkali makes the patients feel better. It should be given in large amounts (if sodium bicarbonate, four grammes three or four times a day) until an effect on the urinary acidity is noted, and thereafter only in sufficient quantity to keep the reaction of the urine slightly more acid than the blood. If a marked reduction in urinary acidity occurs, alkali is not indicated. The authors describe a relatively simple method of determining the urinary acidity.

**Effect of Diuretic Drugs in Severe Acute Nephritis.**—Chandler Walker and R. P. Dawson found that diuretic drugs such as theocin, caffeine, and potassium acetate, definitely shorten the life of a rabbit having a severe acute experimental nephritis produced by uranium nitrate. Theocin and potassium acetate gave quite parallel results and were slightly more harmful than caffeine. Spartheine sulphate, although not nearly so detrimental as the other drugs, did in some cases shorten the animal's life. Water in large amounts is detrimental in some cases, possibly depending on the severity of the nephritis. The diuretics alone in large doses, and water alone in large doses, when given intravenously to normal animals for a reasonable length of time do not shorten their life, and probably are not toxic in themselves. Diuretics are probably contraindicated in severe acute nephritis in man, since in animals in such cases they shorten life.

**Bacteriology of the Duodenum.**—W. J. MacNeal and A. F. Chace found it possible, with care, to obtain a sample of the intestinal juice through the Einhorn duodenal tube sufficiently free from contamination for bacteriological study. They conclude that normal duodenal fluid during a fast is almost free from living microorganisms, although numerous dead bacterial cells are always visible on microscopical examination. In various gastrointestinal disturbances, the number of cultivatable microbes is markedly increased, these including bacilli, cocci, yeasts, and branching thread forms. In the one case of typhoid examined, *Bacillus typhosus* was isolated. Such a study of the intestinal juice would seem worth while in achylia gastrica with diarrhea, in cholecystitis, probably in the obscure diseases sometimes ascribed to abnormal intestinal digestion, and perhaps, for purposes of early diagnosis in typhoid fever and for the detection of typhoid carriers.

**Case of Acromegaly and Polyglandular Syndrome.**—F. K. Bartlett reports a case presenting the following pathological conditions: (1) Chromophil cell adenoma of the anterior lobe of the hypophysis; (2) persistent and noninvolved thymus; (3) colloid goitre with marked desquamation of the parenchymatous cells; (4) hypertrophy of the chromaffine cells of the adrenal medulla; (5) hyperplasia of the endothelial elements of the lymph nodes and of the spleen; (6) enlargement of the pineal body; and (7) atrophy of the cells of Serotoli and of Leydig. In this case the hypophyseal disorder probably underlay the disturbances of the other internally secreting glands, while the lymphoid hyperplasia was indicative of Paultoff's status

thymolymphaticus. The condition of the pineal gland, which was over twice as large as normal, was of special interest, though it cannot be determined whether its enlargement was primary, or secondary to the hypophyseal disturbance.

**Variations in Thyroid Colloid in Conditions of Hyperthyroidism and Hypothyroidism.**—A. P. Jones and A. L. Tatum found the iodine content of the thyroids of rabbits increased directly by the feeding of commercial desiccated thyroids, and indirectly, by intravenous injections of serum from hyperthyroid of rabbits. It was decreased, on the other hand, by intravenous injections of serum of thyroidectomized rabbits. After injections of normal serum, the iodine content was sometimes increased, sometimes decreased, or remained constant, indicating individual variations in thyroid activity.

#### MONTHLY CYCLOPEDIA AND MEDICAL BULLETIN.

July, 1913.

**Treatment of Chronic Antral Suppuration.**—E. B. Gleason describes a new trocar, one end of which is probepointed and the other a triangular sharp point, for the production and maintenance of a comparatively large opening from the maxillary antrum into the nose beneath the inferior turbinate body. On the concave surface of each of the slightly curved tips, for a distance of  $1\frac{3}{4}$  inches, is a coarse file or rasp so disposed as to cut only on the pull. Where, upon thrusting a hollow needle through the "soft spot" beneath the inferior turbinate, the irrigation fluid returning is observed to contain pus, the triangular point of the trocar is placed in the needle puncture, rotated until it penetrates to the lateral wall of the antrum, and the anterior edge of the opening cut away with the rasp until an orifice larger than a ten cent piece is obtained. The antrum is irrigated daily by the surgeon through a Eustachian catheter, until the patients learn to insert the catheter into the antrum and irrigate himself. One or two pints of normal saline solution are used each time. Cure is greatly hastened by the constant drainage of the antrum into the nose through the large opening made.

**Spondylotherapy.**—Albert Abrams cautions against exhausting the aortic reflex of contraction—elicited by percussion of the seventh cervical spine—by too frequent treatments in aortic aneurysm. One should not expect results in a less period than one month. By means of the pyloric reflex of dilatation, produced by pressure or concussion of the fifth dorsal spine, introduction of the stomach tube into the duodenum can be rendered easy, immediate passage of drugs from the stomach into the intestine caused, the nausea incident to ingestion of drugs avoided, indigestion of starchy foods prevented, vomiting often at once arrested, and symptoms due to gastric indigestion often relieved by causing the stomach contents to pass into the duodenum. Pressure at the eleventh dorsal spine straightens the sigmoid flexure and allows passage of a colonic tube beyond this portion of the gut. The author has seen three patients with chronic endocarditis "cured" by injections of fibrolysin coupled with concussion of the seventh cervical spine to elicit the cardiac reflex of contraction—this being practically a method of heart gymnastics.

## PENNSYLVANIA MEDICAL JOURNAL

July, 1913.

**Surgical Aspects of Furuncles and Carbuncles.**

—P. C. Skillern, Jr., says that to incise a boil in its hard stage is merely to carry the virulent, infecting bacteria through the barrier of leucocytes into healthy tissues and is wholly illogical. A most successful treatment in the hard stage is to shave the skin wide of the boil and without abrading it. Then bathe the area thoroughly first with benzin and then with alcohol. Paint with strong tincture of iodine, or three per cent. alcoholic solution of picric acid. Now scratch the cap off the vesicle with the point of a knife, boring a little into the centre of the boil if the exposed orifice is not larger than the shaft of an ordinary pin. Next secure gentle suction with a Bier cup for three minutes. Repeat in four hours. This withdraws some of the infected fluids and bathes the boil with fresh blood. Dress with a drain poultice made of gauze saturated with an isotonic solution, which prevents the clotting of blood or serum in the pit at the centre. Wright's solution is suitable, and consists of sodium citrate, one per cent., and sodium chloride, two per cent. Cover with waxed paper to retain the moisture; apply a cotton compress over this to make the pressure uniform, and secure with a muslin bandage. Have the patient keep the gauze wet with the solution. The boil will expel its core under this treatment in from one to four days, and, thereafter, heals rapidly, leaving a minute scar which is scarcely visible. If the boil has been squeezed, or if there is fluctuation due to free pus, it should be incised. In every case treat with an autogenous vaccine to prevent furuncular recurrence.

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**Proceedings of Societies.**


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**THE THIRTIETH ANNUAL MEETING OF  
THE AMERICAN CLIMATOLOGICAL  
ASSOCIATION.**

*Held in Washington, D. C., May 6, 7, and 8, 1913.*

The President, Dr. CHARLES L. MINOR, of Asheville, in the Chair.

**The Address of the President: A Retrospect and a Prospect.**—Dr. CHARLES L. MINOR, of Asheville, spoke in part, as follows: "A whole generation has elapsed since the founding of this society and in so progressive a profession as ours twenty-nine years bring changes so great as to almost revolutionize it, through the opening up of new territories and the development of new ideas. Bacteriology, asepsis, antisepsis, the whole brilliant hypothesis of immunity and its evolution of serum and vaccine therapy, laboratory diagnosis, and the knowledge of tuberculosis marks the steps in our progress. When such changes occur in so short a time it is evident that only by constant growth, and by adaptation to new conditions, can medical men and medical societies hope to keep abreast of the times. It seems to me that I might well devote the time of the presidential address, not to the consideration of medical topics, but rather to a review of our past, that from it we may draw inspiration

and suggestions for our future. Few of us have had time to inform ourselves of the work that our predecessors have done in this society; if we did, we would be surprised at the amount of valuable material that has first seen the light here. The study of tuberculosis has taken a large place in our work, and the future historian of the tuberculosis campaign in the United States cannot afford to ignore what has been done by the members of this society. But we should not be chiefly a society for the study of tuberculosis, but we should take pride in the fact that we have been active and prominent in founding the National Association for the Study and Prevention of Tuberculosis. Again we have a right to feel proud of the admirable work on diseases of the lungs and heart which has been done here, and especially on the physical diagnosis of those diseases. Again, our various mineral springs have been carefully studied and much information as to their qualities has been collected, though we are far from having the full information obtainable about the various European hydrotherapeutic resorts, and there is a movement in Congress now, for which our support is requested, to have the springs of the United States carefully analyzed. If we desire in the future, as in the past, to hold an honorable place among American medical societies we should critically study present conditions in order to see what we can do to advance our association. We should admit only men whose positions are established and who have a right to apply. We have reached a critical period in the history of this society, and climatology, even with the powerful addition of diseases of the lungs and heart, no longer offers a sufficient field for the activities of the society. We must widen our borders and let it be known that climatology is not the chief centre of our interests. We must feel ourselves free to study all subjects within the realms of clinical medicine; only so can we hope to keep up with the march of modern medical progress. There is, therefore, a very real demand for a society strictly clinical in its aims and scope, and where all men interested in general clinical medicine, of which climatology is only a small part, can bring their problems for discussion. The members of the society must realize that not good fellowship alone, but the ability and willingness to do first class clinical work and to read strong papers will be necessary for entrance into our ranks. Let us call our Association the American Climatological and Clinical Association, or possibly better, the American Clinical and Climatological Association. Let us amend our constitution so as to open our meetings to the discussion of all topics of general clinical medicine."

**On the Auscultatory Determination of Early Pathological Changes in the Lungs.**—Dr. HENRY SEWELL, of Denver, briefly summed up the evidences that had been presented as follows: 1. Auscultation was capable of giving the earliest objective information of physical changes in the lungs. 2. Such a study demanded analysis of the sound into those vibrations due to resonance of the viscera and those of the chest wall, and that the latter vibrations could be damped by pressure of an appropriate form of stethoscope. 3. Vibrations transmitting the whisper were confirmed almost wholly to the viscera. 4. The modification of the voice sounds

by which their quality became more amphoric and their duration prolonged into an echo were the striking characters which, when accentuated by stethoscopic pressure, indicated pathological changes in the viscera. 5. The character and distribution of vocal signs over the normal chest were sufficiently constant, so that a topographical study of the chest by auscultation may definitely suggest, through recognition of departure from the normal, the intensity and distribution of morbid changes within the lungs, even when these changes were too slight to appeal to the senses through any other methods.

**Auricular Flutter, with a Report of Three Cases.**—Dr. FRANK TAYLOR FULTON, of Providence, explained that this was a term which was applied to a condition characterized by an extremely rapid action of the auricle, the rate being usually somewhere between 200 and 330 to the minute. It was the result of some pathological impulse formation. The ventricular action might be varied. There was always some grade of heart block. The ventricular rate commonly was one half that of the auricle. Flutter was closely related to fibrillation, as well as to regular tachycardias of less rapid rate than itself. The condition had been considered as rare, but the electrocardiograph had demonstrated that it was probably not very uncommon. It might be detected by the use of the polygraph. It was not necessarily a permanent condition; the heart action might return to normal and remain so for a long time. Richie divided the cases of flutter into four groups. (1) Those in whom there might be or might not be other signs of cardiac disorder but in whom the symptoms could be ascribed to the increased auricular rate and the consequent rapid ventricular action. (2) Cases with a history of old standing cardiac disease with general edema and in whom flutter developed. (3) Cases in which there was a fairly marked degree of heart block, as in the case of Hertz and Goodhart, so that the ventricular rate from the onset was slow. (4) Cases in which flutter might develop where there was complete dissociation of the auricular and ventricular rhythm.

**The Effect of Climatic Changes on Rheumatism and Neuritis.**—Dr. JAMES DUDLEY MORGAN, of Washington, stated that there was much confusion as to what effect meteorological changes had on certain disorders and what would help some of the more common diseases. The effects of winds, seasons, climates, and localities as an influence on disease was recognized in the time of Hippocrates. Hipparchus had also written of climates and divided them, so far as they were known, into eight, extending from Merceo to the Nile, and to and including the British Isles. However, the literature in reference to the effects of climate on rheumatism, gout, and neuritis was astonishingly meagre. This paper did not presume or attempt to show that rheumatism was caused by any other factor than infection, but tried to draw a correlation between the primary attack and the weather, and the tendency of recurring attacks to be associated with changed conditions of the atmosphere. Some writers had seemed to see a relation between humidity and rheumatism, while others believed that there was no marked coincidence between the cause of rheumatism and the rainfall. Neither was it more common at the two extremes of life. Rheumatism had

been found to be more prevalent in a moderately low temperature accompanied by moisture. Beside moisture and temperature, ventilation seemed to have much to do with the prevention of rheumatism. One could not say too much of the advantage of ventilation and a locality that was open and airy. There was a popular idea that rheumatism, neuralgia, and gout were made worse by an approaching storm, and there seemed to be some foundation for this belief in certain cases that were on record.

**Climate of the San Diego, California, Region with Relation to Renal Disease,** by Dr. P. M. CARRINGTON. This paper appears in this issue, pp. 559 et seq.

**Clinical Observations on Blood Pressure.**—Dr. JUDSON DALAND, of Philadelphia, remarked the frequency of errors in the making out and interpretation of blood pressure records suggested the desirability of bringing up this subject for discussion. The mercurial manometer should be preferred to the small spring sphygmomanometer because of its accuracy. Diastolic pressure observations were often omitted, whereby valuable information obtained from a study of the low and mean pressure was lost. Too often but a single blood pressure record was made, although it was often necessary to observe the effects of work, rest, sleep, and emotional excitement. The most important factor, clinically, was the state of the vasomotor system. Physiologically, blood pressure varied at different times of the day and was influenced by rest, cerebral, or muscular work, and emotional or psychical excitement. Variations thus induced were modified by disease. A sudden unexpected noise had produced a sudden temporary increase in blood pressure of from 20 to 30 mm. A correct interpretation of blood pressure records, especially in those of nervous temperament, required not only the selection of a proper instrument and proper technic, but also that the patient be under average physiological conditions. Multiple blood pressure examinations were often necessary before sufficient data were secured upon which to base a proper interpretation. Idiosyncrasies regarding blood pressure might be expected analogous to those observed in the pulse rate, the respirations, and the temperature. Temperament played an important rôle in the production of variable and high blood pressure. No patient of nervous temperament should be examined immediately after arriving at the physician's office, unless a control observation was made later, and any evidence of haste or excitement should be avoided. The first observation was made in the sitting posture, the second after reclining for a few minutes, and the third immediately after making ten vigorous bending movements, touching the floor with each movement.

**An Inquiry into the Cause of Bronchial Asthma.**—Dr. ROBERT H. BABCOCK, of Chicago, suggested that, in order to facilitate discussion, the etiology of bronchial asthma be divided into two clinical forms. In one the paroxysms of dyspnea first made their appearance in early childhood and henceforth occurred with varying degrees of periodicity. The paroxysms usually lasted a variable length of time and were in most instances arrested by some particular remedy. During the interval the patient was usually free from dyspnea and felt entirely well. The individual might be permanently



relieved by a change of climate, especially when the exciting agent was found in some particular plant, though in some cases change of climate proved remedial, even when no special irritant could be identified. In every case of asthma one should search for some form of chronic infection of the nasal accessory sinuses, in a chronic hyperplastic ethmoiditis, or in some closed cavity in any other part of the body, and, finding it, advise its removal by surgical interference. If the asthma was traceable to some form of animal or vegetable emanation, or to some article of food to which the individual had become sensitized, one could only advise the avoidance of exposure to the exciting cause.

**What Relation, if Any, Have the Tonsils to Pulmonary Tuberculosis.**—Dr. E. FLETCHER INGALS, of Chicago, said that it was formerly stated that the tonsils were a common portal of infection for pulmonary disease, but subsequent research had demonstrated that the tubercle bacilli might penetrate the tonsils and pass through them to the lymphatic cervical glands, causing tuberculosis of the latter, without any involvement of the faucial tonsils. It had been shown that there was no connection between the cervical glands and the pulmonary lymphatics. In a small proportion of cases the tonsils seemed to be primarily involved in the process of pulmonary tuberculosis, but usually tuberculous changes in these glands were secondary, and the bacilli seem to have been absorbed from the sputum. It had been shown that the tonsils were the port of entry for the tubercle bacilli in many cases of tuberculous cervical adenitis. The consensus now was that pulmonary tuberculosis was generally a systemic infection of aerogenous origin, and that when the tubercle bacilli were taken up by the lymphatics they were poured into the general circulation. In pulmonary tuberculosis the bronchial glands might be primarily involved, but this did not seem to be the usual course of the disease.

**The Nutritional Effect of Intermittent Albuminuria of Adolescence.**—Dr. FREMONT SMITH, of Washington, reported two cases of transitory albuminuria occurring in lads, one seventeen years of age, and one twenty-one. Both had been under observation for ten years. The elder had entirely recovered. From the opinions of certain authors as well as from his own experience, not only with these two cases, but with others which he had been able to follow for a less period of time, the evidence seemed to be conclusive that transitory albuminuria, intermittent or remittent in character, had little or no effect upon the nutrition of the child.

**The Fruits of Laboratory Work in Relation to Clinical Tuberculosis.**—Dr. EDWARD R. BALDWIN, of Saranac Lake, remarked that the habit of making distinctions between clinicians and laboratory workers had grown up of late, and the result had been unfortunate in some respects. On the one hand there was the inability of the pure clinician to appreciate the laboratory specialist; and, on the other hand, a contempt for the art of medicine, at least the empirical side of it, had ensued on the part of the laboratory man. The fruits of laboratory work in relation to tuberculosis went back to Villemin in 1865 and to Koch. It was true that much time had been given to laboratory work, but so was it with the physician at the bedside. False deduc-

tions in the laboratory, as well as at the bedside, had cost men their lives. That was why medicine had blundered along toward an exact science but had never reached it. Probably no single fruit ever equalled the discovery of the tubercle bacillus in importance, and a close second was tuberculin, the value of which was now being appreciated. As an addition to treatment tuberculin had not been such a boon, but in revealing the enormous number of infected individuals, both human and bovine, the whole programme of tuberculosis prevention had been influenced. The idea of inheritance was so dominant in the past, that it was painful to think of what would have happened but for Koch's work. The laboratory had aided both directly and indirectly in the diagnosis of tuberculosis in addition to the discovery of the bacillus.

**A Year's Observations on Symptoms in Cases of Advanced Tuberculosis in the Los Angeles County Hospital, in Connection with Weather Conditions.**—Dr. CHARLES C. BROWNING, of Los Angeles, said that in 1908 he reported some observations to this society regarding the apparent influence on temperature and hemorrhage in tuberculous patients with reference to certain meteorological phenomena. It appeared from that report that unseasonable, or very sudden changes in temperature appeared to influence the temperature of the patients, while equal or greater changes occurring slowly did not. Of the cases of hemorrhages reported it appeared that these tended to occur in groups, about four times the number occurring when there was a barometric pressure change exceeding three tenths of an inch within twenty-four hours than when the barometric change was less. The hemorrhages seemed to be more frequent if there had been a decided change in one direction, a sudden fall. On this occasion he wished to call attention to some observations extending over a year on tuberculous patients, and to present charts showing the scope of the work. During the year there were recorded 21,968 patient day observations, with an average of sixty-one patients charted daily. There was an average of about seventy patients in the wards, but there were a number who were not noted. Hemorrhage and death groups were quite noticeable during some months, but not during others. There were recorded 217 hemorrhages, six of which were fatal, and 227 deaths. Climatic conditions could only act to a certain extent as determining factors in producing the symptoms recorded. The conditions which appeared to influence groups of hemorrhages and deaths appeared to be barometric pressure, humidity, and cloudiness, each in its turn appearing to be the most prominent index to weather conditions, which seemed to exert a limited determining influence as the charts demonstrated.

**The Influence of Smoke on Acute and Chronic Lung Affections.**—Dr. WILLIAM CHARLES WHITE and Dr. PAUL SHUEY, of Pittsburgh, observed that their mortality statistics were based on the mortality statistics received through the courtesy of Dr. C. L. Wilbur, chief of the Division of Vital Statistics of the United States Census Bureau, and also through the courtesy of the boards of health of various cities. Smoke as a problem of health had its main influence upon the respiratory pas-

sages. Pneumonia and tuberculosis had been studied from a statistical standpoint for various cities scattered throughout the United States, and comparisons made with the city of Pittsburgh, which probably had the greatest number of smoky days in the year. In considering the influence of smoke on acute and chronic fatal lung infections, the question of age distribution; age of city; poverty on a basis of congestion; and topography of the city had been taken into account. The latter feature in such a city as Pittsburgh, with high walls and river valleys, allowed a partial segregation of the city into areas of varying smoke density. In other cities the contour did not allow such divisions. The chief tendency of the study seemed to indicate that smoke had a rather severe influence on pneumonia, with a much less influence on tuberculosis.

**The Rôle of Physical Exercise in the Open Air in the Prophylaxis of Tuberculosis.**—Dr. JAMES M. ANDERS, of Philadelphia, showed that there was a disposition on the part of the physician to overlook the importance of muscular exercise in the prophylactic treatment of pulmonary tuberculosis, since the general acceptance of the principle of rest in all cases of this disease in which fever was present. He did not attempt to underrate the great value of rest in the active stages of this disease, but rather to emphasize the importance of systematic muscular exercise as a means of minimizing the number of susceptible persons.

**The Two Most Important Factors in the Treatment of Tuberculosis.**—Dr. DELANCEY ROCHESTER, of Buffalo, stated that the mortality from tuberculosis had diminished to a considerable degree in those localities where a vigorous antituberculosis campaign had been waged and this showed that more cases had been recognized in a curable stage and, by proper methods of treatment, had been cured. There were, so far as could be learned, no reliable statistics as to the incidence of the disease, so that we did not know whether there had been a lessening in the morbidity of the disease or not. Personally he believed there had been no such lessening. Instruction in regard to the destruction of sputum and feces, in regard to precaution as to personal contact with others, and in regard to apartments recently occupied by the tuberculous, were all of value in checking the spread of the disease, but there should be some plan of compulsory reporting of cases, and compulsory removal of suitable patients into proper sanatoria; this would be much more efficacious than all the other procedures in wiping out the white plague.

#### COLLEGE OF PHYSICIANS OF PHILADELPHIA.

*Meeting held April 2, 1913.*

The President, Dr. JAMES C. WILSON, in the Chair.

**The Development of the Nasal Accessory Sinuses in Man.**—Dr. WARREN B. DAVIS gave a synopsis of a year's research work done in the laboratories of Friedrichshain Krankenhaus, Berlin, and in the Daniel Baugh Institute of Anatomy, Philadelphia. The material studied consisted of 145 specimens (200 lateral nasal areas) forming a series covering all stages of development from the

sixtieth day of embryonal life to maturity. Numerous lantern slide illustrations made from drawings of selected specimens had been used. Sixty day embryos showed presence of concha inferior, two ethmoidal conchæ, and beginning development of the processus uncinatus. The superior concha and processus uncinatus contained at this time no cartilaginous structure. Eighty-five day embryos showed the early development of the bulla ethmoidalis and beginning lateral pouching from the infundibulum ethmoidale which represented the primitive ostium maxillare. There was also in the sphenoeethmoidal recess an evagination of the mucosa in a posteroinferior and slightly lateral direction, representing the primitive sinus sphenoidalis. In a 137 day fetus this development had distinctly extended into the posterior portion of the cartilaginous nasal capsule. The portion of the capsule forming the anteroinferior wall of the primitive sinus became the concha sphenoidalis or ossiculum Bertini. Ethmoidal cells developed from the preformed ethmoidal furrows. During the fourth fetal month there appeared cylindrical extensions of epithelium into the lateral ethmoid masses which by the seventh or eighth fetal month became hollowed out and formed primitive ethmoidal cells. The usual number of ethmoidal conchæ in fetal and also in postnatal specimens was three; four were not uncommonly present, and in one fetus five were clearly demonstrable. The expansion of frontal cells, of the infundibulum or of the infundibular cells was distinctly seen in late fetal and term specimens, yet in the average case one could not say definitely which expansion represented the primitive frontal sinus until after the sixth month of postnatal life. In the second year the frontal sinus usually began its ascent into the vertical portion of the frontal bone, and in the third year its highest point averaged 3.8 mm. The diameters showed a gradual increase which by the sixteenth year usually reached the average adult size. The sinus maxillaris showed an increase in size which averaged approximately two mm. in both the vertical and lateral diameters and three mm. anteroposteriorly for each year up to the eighth year, after which the increase was less rapid. The floor of the average maxillary sinus after the eighth year was below the level of the nasal floor. The ostium maxillare had no embryological significance. The youngest specimen showing such an opening was four years and three months old. Accessory ostia were present in fifteen per cent. of all cases between four and twenty-five years of age. Accessory ostia were present in 37.5 per cent. of all cases in which tuberculosis was the cause of death, and in only 7.7 per cent. of cases in which death was from other causes. This suggested that the lowered vitality due to tuberculosis might be a predisposing factor in the development of the accessory ostia. In seventy-six per cent. of cases having accessory ostia there were mucous cysts varying from 0.5 mm. to ten mm. in diameter arising in the mucosa lining the medial wall of the sinus maxillaris. The development of the sinus sphenoidalis was found to be more rapid than was described in textbook. It developed in a posteroinferior and slightly lateral direction at first occupying a position anterolateral to the body of the sphenoid and

bounded anteriorly by the concha sphenoidalis or ossiculum Bertini. During the second year there was beginning extension into the body of the sphenoid and also a rapid increase in an inferolateral direction, thus bringing the wall of sinus early into close relation with the cranial nerves passing lateral to the body of the sphenoid. The resorption of bone extended medially and posteriorly, and by the sixth to the eighth year had extended beneath the anterior portion of the hypophysis, and the sphenoidal septum had been decreased to about one mm. thickness. Later recesses might extend in any direction, but were most frequently found in the pterygoid processes.

**Principles of Social Service and Their Application in Practice at the State Tuberculosis Dispensary, Philadelphia.**—Dr. ALBERT P. FRANCINE observed that the social service work was to-day an essential supplement to the medical service of hospitals which bid fair to become a factor quite as important as the hospital work itself. The Department of Health of Pennsylvania had set a standard of efficient and far reaching social service work in the operation of the State Dispensary for Tuberculosis. The system enabled them to follow for years the patients discharged from sanatoria and to carry the principles of prevention into the homes. The cooperation between the dispensary physician and the dispensary nurse could hardly be overemphasized in importance. The nurses were directed to consult personally with the district superintendents of the Society for Organizing Charity or other agencies about the needs of a patient. The cooperation of these charitable organizations was worthy of all praise, yet it was only just and right, since the medical care was given by the State. That a social worker should be also a trained nurse was advisable only in so far as all education and training tended to develop character and ability. The very first thing to do was to impress upon all social service workers, who were all trained nurses, was to adopt the point of view of the social worker and submerge that of the trained nurse. What the physician wanted was an intelligent account of the home conditions. Social service should be made a part of the training of nurses. The theory of social service was to help the patients to help themselves. It was a well recognized principle in their work to induce members of the patients' families to come to the dispensaries for examination, and the work of the nurse was never considered complete until this was accomplished. The fundamental principle of tuberculous dispensary work among the poor was first and foremost to get the patient away to a sanatorium.

### Letters to the Editor.

#### CARBON OXYGEN HYDROGEN GROUP PLUS NITROGEN, ETC.

708 WALDHEIM BUILDING,  
KANSAS CITY, MO., September 1, 1913.

#### To the Editor:

In the issue of the NEW YORK MEDICAL JOURNAL of August 23, 1913, there is an article by J. C. Densten, Ph.D., M.D., under the heading of "Carbon, Oxygen, Hydrogen Group, Plus Nitrogen or Nonnitrogenized and Nitrogenized Food," which contains certain statements that are at variance and in conflict with the teachings of modern physiology and pharmacology.

He says, among other things, that strychnine, morphine, atropine, hyoscyamine, and cocaine, when introduced into the body, become food, furnishing Liebig's "nitrogenized elements of nutrition."

A food is a substance which, when introduced into the organism, supplies material that renews some structure or maintains some vital process. It is distinguished from a drug in this respect, that the latter modifies some vital action, but does not supply the material which sustains such action. It is essential, therefore, to the idea of food that it support or increase vital action; while medicines usually increase, lessen, or otherwise modify some vital process. Strychnine, morphine, atropine, hyoscyamine, and cocaine are drugs and at the same time protoplasmic poisons and not foodstuffs. These alkaloids do not at all fulfill the requirements of foodstuffs qualitatively nor quantitatively. Besides, they are not, like the nutritious protein substances, on the principle of exchange of material, of income and expenditure, converted into the end-products of metabolism, such as, urea, uric acid, etc. When taken internally these alkaloids are again partly eliminated from the body as such, or are partly oxidized and destroyed in the process of tissue metabolism. From these corollaries it is apparent, that is, if things were different from what they are, it would be impossible for the toxicologist to detect these poisons, in cases of poisoning, in the body after death. The average of ten authors gives the following daily quantity of food required under different conditions: Proteids, 121.5 grammes; fats, 82.5 grammes, and carbohydrates, 406.7 grammes. Now, even if it were possible (which, however, is not the case) to utilize these toxic drugs as food the quantity administered would be so infinitesimal as to preclude their use at all and they would for this reason alone be of no value as food whatsoever.

No less an authority than Dr. A. M. Wilson aptly says: "It is a fallacious theory, based on ignorance of physiology, that vegetable medicinal agents are tissue builders, blood makers, or reparative agents. There is not a drug, of vegetable origin, that reconstructs or vitalizes. All real drugs that act in such a manner are either animal (e. g. pituitrin, adrenal, thyroidin, etc.) or mineral. The salts of lime, soda, iron, magnesia, and phosphorus, in an organized state of combination, are normal constituents of the body, and these and other mineral elements, together with a few from the animal kingdom, are the ones to depend upon as recuperatives in all forms of tissue degeneracy."

THEODORE W. SCHAEFER, M.D.

#### AMBLYOPIA DUE TO TOBACCO SMOKE.

216 W. CHESTNUT STREET,  
LOUISVILLE, Ky., September 4, 1913.

#### To the Editor:

I was interested and rather surprised in the report by Dr. M. L. Foster, and the discussion which followed it, in regard to amblyopia due to tobacco alone. I could certainly relate two, and I think more, cases from my record book of this disease; but instead of giving my own report I glanced at three of the recent textbooks on ophthalmology, taking them without selection just as they came to hand. DeSchweinitz says, in reference to tobacco and alcohol amblyopia: "The disease may be due to either of these substances or to their combined influence." May says: "The disease is due to tobacco or alcohol, or both combined. The condition results most frequently from overindulgence in tobacco whether in smoking or chewing; occasionally after snuff taking." Jackson says: "Tobacco may cause the disease in whatever way it gains entrance into the system." After giving about a page to tobacco amblyopia alone he considers alcohol amblyopia and goes on to say that in a very large proportion of cases, the disease is due to the joint action of these two poisons.

A careful perusal of the literature of this subject would, I think, show a case reported by the late Doctor Chisholm, of Baltimore, of a woman who had acquired pure tobacco amblyopia from its use, either as a snuff, or as I recall it, from the habit of "dipping" which once prevailed to some extent among the lower classes of the South.

Perhaps these brief references may be of interest to the readers of Doctor Foster's article and of your editorial in regard to it in the JOURNAL of August 30th.

Yours truly,

S. G. DABNEY, M.D.



## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

**The Tonsils and the Voice.** In Science, Surgery, Speech, and Song. A Comprehensive Monograph on the Structure, Utility, Derangements, and Treatment of the Tonsils, and of Their Relationship to Perfect Tone Production. A Research Study, with Original Contributions from the Highest Medical and Voice Authorities. By RICHARD B. FAULKNER, M.D., of Columbia University, New York. With an Introduction by Professor GEORGE M. SLEETH, of Pittsburgh, Pa., Instructor in Elocution, Western Theological Seminary. Pittsburgh, Pa.: The Presbyterian Book Store, 1913. Pp. xi-381.

The character of this book hardly warrants an extensive review. The author has collected the opinions of numerous authorities in regard to the relative status of the tonsils and the voice, but he has failed to give the references where quotations are made, thereby eliminating the possibility, if in doubt, of substantiating the accuracy of the quotations. The marked scarcity of original material is quite evident, and leads one to believe that the author depended almost entirely upon the opinions of others, as the entire book is practically made up of quotations. The publication of the author's picture in a medical book is quite unusual, and to many has the appearance of quackery. After carefully reading the volume under review, the reviewer cannot help but be impressed with the confusion of ideas, and the absence of any definite or satisfactory classification of conclusions.

**Diseases of Women. A Clinical Guide to Their Diagnosis and Treatment.** By GEORGE ERNEST HERMAN, M.B., F.R.C.P. (Lond.), F.R.C.S. (Eng.), of London, Consulting Obstetric Physician to the London Hospital, Consulting Physician Accoucheur to the Tower Hamlets Dispensary, etc. Enlarged Edition, Revised by the Author, Assisted by R. DRUMMOND MAXWELL, M.D. (Lond.), F.R.C.S. (Eng.), Assistant Obstetric Physician to the London Hospital and Physician to Queen Charlotte's Lying-in Hospital. With Eight Color Plates and 292 Figures in the Text. New York: Funk & Wagnalls Company, 1913. Pp. xiv-899. (Price, \$7.50.)

In the presentation of the fourth edition of this book, the author has been aided very materially in the preparation of such a work by an unusually large clinical experience. He has sought to make the book, strictly speaking, a clinical guide to the diagnosis and treatment of the diseases of women, by presenting the abnormal conditions as they occur primarily, and in their order of frequency in practice. The work constitutes an extensive, all inclusive, and thoroughly reliable clinical guide for both student and practitioner of medicine. In addition to several hundred illustrations, setting forth, very clearly, the various steps in the surgical technic, the book contains eight full page color plates, also a very general index in the back, rendering almost any information on the subject immediately accessible. Conciseness is a commendable feature of the book. While the most modern methods and technic are fully described and illustrated, not too much nor too little has been written upon any one subject.

## Meetings of Local Medical Societies.

**TUESDAY, September 23d.**—New York Dermatological Society; Metropolitan Medical Society of New York City; Buffalo Academy of Medicine (Section in Pathology); Washington Heights Medical Society; Alumni Association of Seney Hospital, Brooklyn; Rome, N. Y., Medical Society.

**WEDNESDAY, September 24th.**—Medical Union, Buffalo.

**THURSDAY, September 25th.**—New York Celtic Medical Society; Bronx Medical Association.

**FRIDAY, September 26th.**—New York Society of German Physicians; Manhattan Medical Society; Hospital Graduates' Club, Brooklyn; Italian Medical Society of New York.

**SATURDAY, September 27th.**—West End Medical Society; Lenox Medical and Surgical Society.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending September 3, 1913:*

**Anderson, J. F., Surgeon.** Detailed to represent the Service at the annual meeting of the American Public Health Association, held in Colorado Springs, September 8 to 13, 1913. **Baughman, D. S., Assistant Surgeon.** Granted seven days' leave of absence from August 24, 1913, under paragraph 195, Service Regulations. **Carrington, P. M., Surgeon.** Upon being relieved by Surgeon M. J. White, directed to proceed to San Diego, Cal., and assume charge of the medical care of seamen and the medical inspection of arriving aliens at that port. **Clark, T., Surgeon.** Granted ten days' leave of absence from August 28, 1913. **Cofer, L. E., Assistant Surgeon General.** Granted two months and twenty days' leave of absence from September 11, 1913, with permission to go beyond the sea. **Currie, B. F., Acting Assistant Surgeon.** Granted thirty days' leave of absence from August 26, 1913. **Fox, Carroll, Surgeon.** Granted twenty-one days' leave of absence from September 2, 1913. **Gerlach, R. F., Acting Assistant Surgeon.** Granted forty-two days' leave of absence, without pay, from August 28, 1913. **Glennan, A. H., Assistant Surgeon General.** Granted four days' leave of absence from September 2, 1913. **Goldberger, Joseph, Surgeon.** Granted one day's leave of absence, August 22, 1913, under paragraph 195, Service Regulations. **Grubbs, S. B., Surgeon.** Granted three days' leave of absence from September 1st and ten days' leave of absence from September 26, 1913. **Herring, R. A., Passed Assistant Surgeon.** Granted twenty-one days' leave of absence from September 8, 1913. **Horning, Henry, Acting Assistant Surgeon.** Granted seven days' leave of absence under paragraph 214, Service Regulations. **James, W. F., Acting Assistant Surgeon.** Granted seven days' leave of absence, from August 1, 1913, under paragraph 214, Service Regulations. **Magruder, G. M., Surgeon.** Granted seven days' leave of absence from September 1, 1913. **Markoe, W. W., Acting Assistant Surgeon.** Granted ninety days' leave of absence, without pay, from August 1, 1913. **Marsh, W. H., Acting Assistant Surgeon.** Granted fourteen days' leave of absence from September 12, 1913. **Mason, W. C., Acting Assistant Surgeon.** Granted six days' leave of absence, without pay, from September 14, 1913. **Nydegger, J. A., Surgeon.** Granted one month's leave of absence from September 1, 1913. **Scott, J. T., Acting Assistant Surgeon.** Granted thirty days' leave of absence from September 7, 1913. **Seidell, Atherton, Technical Assistant.** Detailed to attend the meeting of the American Chemical Society, held in Rochester, N. Y., September 9 to 13, 1913. **Storrs, Harry B., Acting Assistant Surgeon.** Granted thirty days' leave of absence from September 1, 1913. **White, M. J., Surgeon.** Relieved from duty at Detroit, Mich., and directed to proceed to St. Louis, Mo., and assume charge of the Service at that port.

### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Department of the United States Army for the week ending September 13, 1913:*

**Cade, W. T., Jr., First Lieutenant, Medical Corps.** Left Presidio of San Francisco on August 30th on one month's leave of absence. **Chamberlain, W. P., Major, Medical Corps.** Granted twenty-one days' leave of absence, to take effect about September 15th. **Eckels, L. S., First Lieutenant, Medical Corps.** Ordered from Fort McKinley to Fort Greble for temporary duty until

arrival of another medical officer. **Glennan**, James D., Lieutenant Colonel, Medical Corps. In addition to other duties, ordered to report to the Commandant, Army Medical School, for assignment to duty as professor of medical department administration. **Haines**, E. F., First Lieutenant, Medical Reserve Corps. Relieved from observation and treatment at the Walter Reed General Hospital. **Hardaway**, Robert M., First Lieutenant, Medical Corps. Upon being relieved from duty at Fort Lawton, Wash., will proceed to Texas City, Texas, and report in person to the commanding general, Second Division, for assignment to duty. **Hogan**, David D., First Lieutenant, Medical Reserve Corps. Upon arrival in the United States will proceed to Fort Yellowstone, Wyo., and report in person to the commanding officer of that post for duty, and by letter to the commanding general of the Western Department, relieving First Lieutenant Guy L. Qualls. **Lewis**, William F., Major, Medical Corps. Ordered to temporary duty on the *Buford*. **McCaw**, Walter D., Colonel, Medical Corps. Relieved from duty at the Army Medical School. **McCulloch**, Champe C., Jr., Lieutenant Colonel, Medical Corps. In addition to his other duties, will report to the commandant, Army Medical School, for assignment to duty as professor of military and tropical medicine. **Miltenberger**, Val E., First Lieutenant, Medical Reserve Corps. Upon arrival in the United States will proceed to Fort Omaha, Neb., and report in person to the commanding officer of that post for duty, and by letter to the commanding officer, Central Department, relieving First Lieutenant John H. Trinder. **Patterson**, E. W., First Lieutenant, Medical Reserve Corps. Left Fort Hunt on fourteen days' leave of absence on September 10, 1913. **Qualls**, Guy L., First Lieutenant, Medical Corps. Upon being relieved from duty at Fort Yellowstone, Wyo., will proceed to Texas City, Texas, and report in person to the commanding general, Second Division, for assignment to duty. **Reasoner**, M. A., Captain, Medical Corps. Relieved from duty at the Signal Corps Aviation School, San Diego, Cal., on September 5th. **Reynolds**, Charles R., Major, Medical Corps. Relieved from duty at the Army Medical School as professor of duties of medical officers, medical department administration, and customs of the service. **Roberts**, Ernest E., First Lieutenant, Medical Reserve Corps. Upon arrival in the United States will proceed to Fort Caswell, North Carolina, and report in person to the commanding officer of that post for duty, and by letter to the commanding general, Eastern Department. **Siler**, J. F., Captain, Medical Corps. Left Spartanburg, S. C., on September 10th for the West Indies to investigate pellagra. **Talbott**, Edward M., Captain, Medical Corps. In addition to his other duties, will report to the commandant, Army Medical School, for assignment to duty as assistant professor of ophthalmology. **Trinder**, John H., First Lieutenant, Medical Corps. Upon being relieved from duty at Fort Omaha, Neb., will proceed to Texas City, Texas, and report in person to the commanding general of the Second Division for assignment to duty. **Wall**, Francis M., First Lieutenant, Medical Reserve Corps. Upon his arrival in the United States will proceed to Fort Lawton, Wash., and report in person to the commanding officer of that post for duty, and by letter to the commanding general, Western Department, relieving First Lieutenant Robert M. Hardaway. **Walson**, Charles M., First Lieutenant, Medical Corps. Is relieved from duty at Fort Douglas, Utah, and will proceed to Texas City, Texas, and report in person to the commanding general, Second Division, for assignment to duty. **Whitcomb**, C. C., Major, Medical Corps. Will proceed from New York city to Trenton, N. J., on official business pertaining to the Medical Department, and on completion of this duty will return to his proper station. **Whitmore**, Eugene R., Major, Medical Corps. So much of paragraph 23, Special Orders No. 189, August 14, 1913, as related to Major Whitmore is amended so as to detail him as professor of bacteriology, pathology, and clinical diagnosis at the Army Medical School, instead of professor of military and tropical medicine.

The following named officers of the Medical Reserve Corps are relieved from duty at the stations designated, effective at such time as will enable them to comply with

the order and repair to the Army Medical School, Washington, D. C., for the required course of instruction, reporting on or about September 20, 1913: First Lieutenant John H. H. Scudder, Fort Howard, Md.; First Lieutenant Charles L. Gandy, Laboratory, Army Medical School; First Lieutenant, John M. Pratt, Fort Ethan Allen, Vt.; First Lieutenant, Robert H. Wilds, Fort Leavenworth, Kans.; First Lieutenant E. Frederick Thode, Fort Hamilton, N. Y.; First Lieutenant Coleridge L. Beaven, Fort Wadsworth, N. Y.; First Lieutenant John B. Anderson, Fort Monroe, Va.; First Lieutenant William W. Vaughan, Fort Myer, Va.

## Births, Marriages, and Deaths.

### Married.

**Comstock-Hynes**.—In New Haven, Conn., on Wednesday, September 3d, Dr. Frederick W. Comstock and Miss Evelyn Marion Hynes. **Holt-Munsey**.—In Dresden, Maine, on Friday, September 5th, Dr. Erastus Eugene Holt and Miss Adelaide Munsey. **La Pierre-Charter**.—In Hartford, Conn., on Monday, September 1st, Dr. Arnaud Julian La Pierre and Miss Charlotte May Charter. **Phillips-Scott**.—In Lexington, Mass., on Tuesday, September 10th, Dr. William David Phillips, of New Orleans, La., and Miss Mary G. Scott. **Pinto-Lazure**.—In St. Louis, Mo., on Friday, September 5th, Dr. Walter A. Pinto and Miss Rosemary Lazure.

### Died.

**Barr**.—In Eufaula, Ala., on Monday, September 8th, Dr. James M. Barr, aged eighty years. **Blaine**.—In Carnegie, Pa., on Sunday, August 31st, Dr. James Milton Blaine, aged fifty-eight years. **Broughton**.—In Greenville, Ala., on Friday, August 20th, Dr. John Thomas Broughton. **Brown**.—In Fort Valley, Ga., on Tuesday, September 2d, Dr. H. A. Brown. **Catts**.—In Alexander, Va., on Friday, August 29th, Dr. Samuel R. Catts, aged thirty-five years. **Cordell**.—In Baltimore, Md., on Wednesday, August 27th, Dr. Eugene F. Cordell, aged seventy years. **Corson**.—In Norristown, Pa., on Sunday, September 7th, Dr. Elwood Naulsby Corson, aged seventy-one years. **Coyne**.—In Sterling, Mass., on Monday, September 8th, Dr. James A. Coyne, of Newark, N. J., aged forty years. **Emerick**.—In Milton, Pa., on Sunday, August 31st, Dr. Henry M. Emerick, aged fifty-nine years. **Fegley**.—In Spangville, Pa., on Thursday, September 4th, Dr. Amandus H. Fegley, aged seventy years. **Fleming**.—In Mount Vernon, N. Y., on Tuesday, September 9th, Dr. Walter Millard Fleming, aged seventy-five years. **Frey**.—In Beaumont, Texas, on Saturday, September 6th, Dr. Thomas H. Frey, aged forty-eight years. **Harrison**.—In Memphis, Tenn., on Monday, September 8th, Dr. W. K. Harrison, aged seventy-two years. **Hetrick**.—In Wellsville, Pa., on Thursday, September 4th, Dr. Augustus Christian Hetrick, aged seventy-eight years. **Howard**.—In Worcester, Mass., on Monday, September 8th, Dr. Eugene Howard, aged seventy-two years. **Howard**.—In Lexington, Tenn., on Sunday, September 7th, Dr. John H. Howard, aged eighty-one years. **Laws**.—In Paulsboro, N. J., on Friday, September 5th, Dr. George C. Laws, aged sixty-seven years. **McFadden**.—In West Pittston, Pa., on Thursday, September 4th, Dr. Charles Joseph McFadden, aged forty-five years. **Mueller**.—In Chicago, on Sunday, September 7th, Dr. Leopold F. Mueller, aged forty-eight years. **Patton**.—In Montreal, Quebec, on Friday, September 5th, Dr. Hugh Matthewson Patton, aged forty-eight years. **Taplin**.—In Rochester, N. Y., on Tuesday, September 9th, Dr. Mortimer M. Taplin, aged forty-five years. **Truitt**.—In Parsonsburg, Md., on Thursday, September 4th, Dr. George W. Truitt, aged sixty-one years. **Van Santvoord**.—In New York, on Wednesday, September 10th, Dr. Richard Van Santvoord, aged fifty years. **Wagenseller**.—In Selinsgrove, Pa., on Thursday, September 4th, Dr. Frank J. Wagenseller, aged sixty years. **Webb**.—In Detroit, Mich., on Wednesday, September 3d, Dr. Lucien F. Webb, aged thirty-five years. **Whitten**.—In Nebraska City, Neb., on Friday, September 5th, Dr. Elisha M. Whitten, aged seventy-six years.

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### Original Communications.

#### PUBLIC EDUCATION IN CANCER.\*

By WILLY MEYER, M. D.,  
New York,

Attending Surgeon to the German and Postgraduate Hospitals.

In approaching the subject of public education in cancer from the surgical point of view three important questions present themselves, namely: 1. What is the cause of cancer? 2. Is cancer contagious or infectious? 3. Can cancer be cured by operation? These questions are almost invariably put to the doctor when consulted by patients suffering from cancer.

#### I.—WHAT IS THE CAUSE OF CANCER?

This is hardly the proper time nor perhaps the place to ventilate this all absorbing question, and yet it seems to me that it has quite some bearing on public education.

It is a fact that the views of pathologists and surgeons do not agree on this point; the former rather lean toward Ribbert's theory, viz., "that a cancerous tumor is incited by a disturbance of the physiology of the epithelium which is due to cellular changes in the supporting connective tissue (proliferation of subepithelial fibroblasts), the latter producing new tissue and disturbing the tension between epithelium and connective tissue."<sup>1</sup> whereas surgeons, as a rule, judging from clinical observation, feel convinced that the cause of carcinoma must be a living organism. Let us take, for instance, a tumor of the breast which does not show the clear signs of carcinoma. We shall usually find that the differential diagnosis rests between malignant tumor, tuberculosis, syphilis, or actinomycosis. Now, we know that tuberculosis is caused by the tubercle bacillus, syphilis by the spirochete, actinomycosis by the *Actinomyces bovis*. Does it not almost seem logical, then, to assume that a tumor which closely simulates that produced by any one of these diseases, the microbic or parasitic cause of which is known, should have a similar origin if found to be a malignant growth? Furthermore, how could we explain the interesting observation, made in some suburb of London in a damp tenement house, that quite a number of members of different families who moved into this house one after the other were stricken down with cancer? And these observations can be multiplied.

\*Read before the New York Academy of Medicine, May 15, 1913, being a part of a symposium on carcinoma.

<sup>1</sup>James Ewing, *Archives of Internal Medicine*, February, 1908.

Personally I decidedly lean toward the theory that a living organism is the cause of carcinoma.<sup>2</sup>

Permit me to just cite a few personal experiences bearing upon this point:

In the early nineties when there was much discussion regarding the question of injecting methyl violets in cases of inoperable carcinoma, according to the method of von Mosetig-Moorhof, of Vienna, I once injected a female patient with fuchsin solution for an inoperable regnary recurrence after a radical operation for cancer of the breast. It was done at my office in the usual way, the needle being pushed into the infiltrated area. She was to present herself three days later. But on the day following the injection she came back—it was in summer time—complaining of a peculiar itching sensation in the region of the injection. On exposing the field, I beheld a picture which absolutely resembled acute eczema. There were innumerable miliary elevations in the area where the injection had been made, clearly defined by an irregular border line. I explained to the patient that I thought we had to deal with an acute eczema, as it not infrequently occurs when dressings cover the skin in summer, and treated her accordingly. However, I was surprised to notice, in the course of further observation, that the symptoms which had so suddenly set in were not due to acute eczema, but to a localized miliary carcinosis: each of the small nodules developed into a distinct carcinomatous infiltration.

This observation can hardly be explained in any other way than to assume that by means of the injection a cancer nidus was invaded and that now, through one of the smaller arteries, embolisms were carried into the field, fed by this vessel. On the basis of comparison, especially with miliary tuberculosis, is it not plausible to assume that a supposed living organism, and not cells, produced these emboli and then the visible swelling within twenty-four hours? Is it possible that within one day these cells should have been multiplied to the extent of producing a visible tumor?

I would cite another instance: Not long ago I was called upon to operate upon a patient apparently suffering from peritoneal tuberculosis; all clinical signs were well developed. On opening the abdomen the usual picture was found, except that the

<sup>2</sup>This belief has become almost conviction, since I have seen, at the scientific exhibit of the American Medical Association in Minneapolis this summer, the wonderful specimens and photographs of plant cancer shown by Dr. Erwin F. Smith, of Washington, D. C. I am sure the majority of those who have been fortunate enough to view the tangible results of the labors of this persistent research worker will have gone away with the impression that since carcinoma has been experimentally produced in plants by injecting a cultivable microbe, the same very likely will be found to be the case in man. (Footnote made at time of correcting proof.)



nodules were a little more pronounced than generally seen in these cases. A piece of omentum was removed for microscopical examination which latter proved that we had to deal with miliary carcinosis. I am sure, had I made special attempts to palpate the abdominal organs, I should have found the primary seat of the trouble.

Now, if the tubercle bacillus produces a picture almost identical to that seen in miliary carcinosis, is it plausible that the latter should depend on an entirely different origin?<sup>23</sup>

However, it is not only the surgeons who are generally found to believe in the parasitic or microbic origin of cancer. I was greatly interested in the recent report of Professor Klemperer, director of the Moabit Hospital and of the Institut für Krebsforschung in Berlin, read last year before the meeting of the General Committee for the Study of Carcinoma in Germany, in which he stated his belief that carcinoma was most probably due to a living organism (*belebter Erreger*). He adds "Let us continue our search and we shall find it."

Now it might be asked, What has all this to do with the public education in cancer? Very much indeed. The public must understand that real progress in the treatment of carcinoma cannot be made until the true cause of the disease has been found. Just think of the immense progress that has been made in the treatment of syphilis since the spirochetes could be reproduced in cultures,—since animal experimentation could be added to help us solve the vexed problems. The same will occur with carcinoma.

But for this purpose money is needed, plenty of money, rich endowments for cancer research institutes and others working along these lines. Well was it said by Professor Czerny, when he exclaimed at a recent discussion: "If England and Germany could but make up their mind to build *one* dreadnought less in a single year and the ten million dollars thereby made available in each country were given to science to be used for research work in cancer, what an amount of good could be accomplished!" Let us hope that the "Schaudinn" for finding the cause of carcinoma has been born, nay, that he is already a grown man and scientist among us, who may come forward any moment to demonstrate his discovery!

## 2.—IS CANCER CONTAGIOUS?

The public asks this question right along, and we can conscientiously answer the question in the negative. Never has it been observed that a faithful wife, assisting the nurse in attending a sick husband for months and years, has become infected with the same trouble; never has it been reported that a surgeon pricking himself in the course of an operation for carcinoma was attacked with the disease. And yet this has occurred following an injury received during an operation for tuberculosis. Evidently transmission must go on in carcinoma in a different way from individual to individual. Personally, I have made but one observation which might be said to have some bearing on this question.

<sup>23</sup>Of course, I am well aware that this kind of reasoning is rather unscientific. However, in the course of our clinical observations and teaching one sometimes cannot help viewing these important questions from a somewhat less strictly scientific standpoint.

Years ago I removed from a male patient a papiloma of the bladder almost as large as an apple; its base was pedunculated; traces of carcinoma were found in its base. In the course of the following years, multiple tumors appeared which were evidently carcinomata, clearly discernible with the cystoscope, and located within his bladder and on the surface of the prostate. The bladder was reopened and the tumors removed. He lived for nearly two years more, and then died of a recurrent, inoperable, vesical carcinoma. In the course of the last year of his life I was called to examine his wife, who then showed unmistakable symptoms of a cancer of the cervix uteri. Whether this was interdependent or coincident, I should not venture to decide. I also cannot state whether the same microscopic type of carcinoma was found in both patients.

## 3.—CAN CANCER BE CURED BY OPERATION?

This question we can answer with a decided "yes," provided the patients come to us in the early stage of the disease. We must distinguish three stages of development in cancer: 1. Localized disease; 2, plus involvement of the regionary lymphatic glands; and 3, the same, with metastases. Experience has shown that the first two stages are amenable to cure by operation. Observations throughout the world confirm this as regards cancer of the breast, uterus, gastrointestinal tract, kidney, etc. Everywhere it has been proved that from thirty to fifty per cent. of patients, subjected to a radical operation for carcinoma of the breast, even with involvement of the glands in the axilla and along the subclavian vein, have passed the three or five year limit. Wertheim, of Vienna, has shown by his excellent statistics covering 500 cases of cancer of the uterus, operated in by his radical method, that fully forty-two per cent. have been cured. Kocher proved that twenty per cent. of his patients treated by resection of the stomach remained permanently free from recurrence. Kraske, of Freiburg, reports similarly good results from operation in cases of cancer of the rectum, etc. And just think in what an advanced stage these patients, not infrequently, reach the surgeon. How many more could have been saved, had they come to operation at an earlier period. Hence, the watchword is, and always will be: Early operation! But early operation depends on early diagnosis. To make both possible, I think special courses should be given in our colleges on the early symptoms of cancer. It is necessary, first, to educate the profession itself on this most important question, although it is undoubtedly true that in many instances the family physician is not to blame if his patients reach the surgeon at a late period of the disease. It is the patients themselves who often do not consult their physician, until a malignant stricture of the esophagus, colon, or rectum has become fully developed and the glands are so extensively involved, that even with the most radical operation it is impossible to guarantee that every vestige of the disease has been excised.

But, if they do come to the family physician in time, he should be able to recognize at once whether there is any suspicion of carcinoma.

One of the principal symptoms of cancer in the genitourinary system as well as in the gastrointestinal tract is blood in the vaginal discharge, in the urine, or in the stool. Gradually it has been recognized by the profession that blood in the urine is a most important clinical symptom, and that it is the physician's duty to find the cause of the hemorrhage. Special emphasis has to be laid on the importance of the so called symptomless hematuria. We know that the cases of cancer of the kidney, in which hemorrhage occurs and diffusely colored urine is discharged, *without pain* to the patient, are the ones in which delay so frequently means certain death. The same holds good in connection with cancer of the rectum. Patients are only too ready to explain the bloody discharge from the rectum as being due to the presence of hemorrhoids; but how often does the busy physician give the same answer and never think of the necessity of introducing the finger into the rectum, or of insisting upon a thorough rectoscopy. The same is true of blood discharges from the vagina, especially after the menopause has set in.

To-day the electric lamp has literally carried a bright light into these hitherto dark fields of surgery. We are able to view the bladder and can have the patient come during the time of the hematuria for visual examination. We are able to push the sigmoidoscope up into the intestine for many inches and are able to see and perhaps trace the source of the bleeding. We have the esophagoscope to examine the tube from the pharynx down to the cardia, if the patient complains of difficulty in swallowing.

The latter class of patients usually come to the doctor early, as they become frightened in view of the daily recurrence of the same trouble. They present themselves stating that without any warning or cause known to them, they noticed that the food would not descend to the stomach in the usual way. This is the time that the physician should insist upon a most careful examination. Examining with special esophageal sounds, fluoroscopy, radiography in a special way, and esophagoscopy will, in most cases, enable us to make an early diagnosis. And if doubt still remains, we have learned that exploratory thoracotomy nowadays is as safe as exploratory laparotomy. If, on opening the chest, the findings would verify the suspicion, the surgeon should be prepared to do radical work. Let us remember that cancer of the esophagus is the most benign of all malignant growths in the gastrointestinal tract! Let the physician further bear in mind that it has been proved that in eighty per cent. of the cases with slowly increasing difficulty in deglutition, cancer is at the bottom of the trouble.

And now as to the public. There is no question that it is in need of education along these lines. Our female patients have to know that a tumor of the breast, though it be of but slow growth and never occasions any pain, is nevertheless most dangerous. How many times do we hear the statement from our patients, "Well, it did not hurt me, so I waited, because I thought that the tumor was of no importance." The public must be taught the clinical truth; they must learn

that every tumor is a surgical disease. The public must be taught that in the event of a rather rapid onset of so called indigestion which remains unrelieved, despite everything the physician may have tried, and in the absence of tenderness over gall-bladder and appendicular region, the possibility of the presence of a cancer of the stomach must be considered. They themselves should be educated to the point of insisting upon an examination under anesthesia, or, if that, too, should still leave doubt, on an exploratory laparotomy. This certainly is no *pium desideratum*. Think what they have learned in regard to appendicitis. How they come to us to-day with the statement: "Doctor, I had a pain in the right side of my abdomen; it also hurt me on pressure. I hear from my friends that this is a sign of appendicitis. Please examine me and, if necessary, remove the appendix." This is the goal we have been working for as regards this treacherous disease for many years. How many lives are saved nowadays by the proper recognition of the dangers of appendicitis by the public at large.

At this moment it is scarcely necessary to discuss the question of *how* the public should be instructed. The ball, fortunately, has been started. We all know of the general publicity campaign that has been taken up by the Cancer Campaign Committee of the Congress of Surgeons of North America. We know that the New York Committee was formed with the support of wealthy people who have made it their business to promulgate among the public the truth regarding malignant disease. The way along which they have advanced is the correct one. Articles should appear in our weekly or monthly journals, and from these they should be copied in the daily press. It certainly was of greatest interest to me the other day at Washington at the Congress of American Physicians and Surgeons, to listen to the remarks of Dr. Thomas S. Cullen, of Baltimore, regarding the education of the people as to what can be done in early cases of cancer. He showed by letters received from various patients and physicians, how the excellent article lately written in the May issue of *McClure's Magazine* by Mr. Samuel Hopkins Adams had brought a tremendous amount of good in its wake. Quite a number of patients who had been hesitating about submitting to operation were induced by the husband, or the husband by the wife, to consult a surgeon and be guided by his advice. That is the way to advance. According to our laws of medical ethics, it would be improper for a physician to write an article himself for publication in the magazines or daily papers. Laymen have to address the laity. They know much better how to put the matter in proper shape to be understood by the masses, and there seems to be no man better fitted for this purpose than Mr. Adams.

Let us hope, then, that this public education, which has just commenced, will go on. Let us hope that public education in questions of carcinoma will bear the same good fruit, as that resulting from enlightening the public concerning questions of tuberculosis, and more recently also of syphilis, in order that many lives otherwise utterly and sadly lost will be saved.

700 MADISON AVENUE.

## PULMONARY SYPHILIS.

*With Report of a Case Promptly Responding to Specific Treatment.\**

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Pulmonary syphilis, excepting the congenital form in children, is a rare disease and it is worthy of attention that, since the recognition of tuberculosis as a cause of phthisis, few cases have been reported and with the now accurate tests for syphilis the cases will be still fewer and the diagnosis accurate.

Carlier, in 1882, collected seventy-five cases with fifty autopsies. Hiller, in 1884, reported eighty-seven cases, eighty-four of these with autopsies (twenty had been previously reported by Carlier).

Fowler, after an examination of the museums of the London hospitals and the Royal College of Surgeons, found twelve specimens which illustrate syphilitic lesions of the lungs (not congenital).

Conner, in an analysis of 129 cases of syphilitic stenosis of the bronchi, etc., reports the autopsies in fifty-six cases. In ten cases (18 per cent.) lesions believed to be characteristic of syphilis of the lungs were found. In all these excepting one there existed chronic interstitial pneumonia of greater or less extent. In two cases distinct gumma was found. Evidence of tuberculosis in three cases. In nineteen cases pneumonia, more or less extensive, in seven lobar pneumonia, and in twelve either lobular pneumonia or bronchopneumonia.

Bronchial catarrh may occur as a manifestation of the secondary stage of syphilis and be alleviated or cured by specific treatment. In the late secondary or tertiary stage gummatous infiltration of the submucous tissue of the trachea and bronchi is not infrequent, with resulting stenosis of the parts. Pulmonary lesions of acquired syphilis belong chiefly to the tertiary stage (two to twenty years).<sup>1</sup>

Gumma may occur singly or in numbers in size from a hempseed to a goose egg, and are more commonly found in the interior of the lung and more often in the lower lobes than the upper, thus differing from the seat of election of tubercle.

According to Councilman, who reports two cases with autopsies, the essential process in the production of a gumma in the lung is a pneumonia with fibrinous exudation, accompanied by fibrous changes on the alveolar wall, the whole subsequently undergoing caseation. Hewop reports a case, with a description of the anatomical changes and a plate. In his case there were numerous gummata in both lungs from the size of a beet to that of a goose egg without any breaking down of tissue.

*Lobular Pneumonia or Bronchopneumonia.*—There is but little doubt that many of the cases of this type reported in the past, before the tubercle

bacillus was recognized, were probably tuberculosis, but Fowler describes a specimen in St. George Hospital where such a possibility can be excluded, and the more recent reports of Conner already quoted and others prove its occurrence.

*Fibroid Induration.*—The following are the more important changes of this nature which have been attributed to syphilis: Thickening extending from the hilus around the bronchi and vessels; isolated masses of fibroid tissue in various parts of the lung; diffuse changes occupying the whole or the greater part of the lung.

*A Progressive Destructive Disease—the so Called Syphilitic Phthisis.*—Pancritius (Berlin, 1881) (quoted by Councilman) makes the astounding statement of syphilitic phthisis, as one of the most frequent diseases—one that decimates the flower of the land. Fowler, from whom I quote extensively, reports five cases, one of whom improved, and four autopsies. He makes the following qualifications:

First, the case must be complete, that is the symptoms observed during life must be considered in connection with the lesions discovered at post mortem examination;

Second, the evidence of syphilitic infection must be undoubted;

Third, repeated examination of the sputum must have been made and tubercle bacilli have been invariably absent;

Fourth, syphilitic lesions about the nature of which there can be no doubt must be found in other organs;

He draws attention to the chief points of difference between the pulmonary lesion of tuberculosis and of syphilis.

First, tubercle usually affects the apex of the lung, subsequently the apex of the lower lobe. The lesion of syphilis is often about the root and central portion of the lung and follows no definite line of march;

Second, both tubercle and gumma may undergo either necrosis and caseation or fibrous transformation, but with caseous tubercle the tendency toward softening and cavity formation is the rule, whereas a caseous gumma rarely breaks down;

Third, cavities are common in tuberculosis and are rare in syphilis, excepting secondary to stenosis of the main bronchi;

Fourth, stenosis of the tracheæ and main bronchi are common in the advanced stages of syphilis, rare in tuberculosis;

Fifth, cavities in pulmonary syphilis are generally but not invariably bronchiectasis, and in tuberculosis they are due to destruction of the lung tissue;

Sixth, the tendency to the formation of pulmonary aneurysms, which is so marked a feature in tuberculosis, is rarely observed in pulmonary syphilis;

Seventh, pulmonary lesions in tuberculosis are very common, whereas in syphilis they are extremely rare.

Howard Hospital. Case 9463. Admitted January 31, 1913. Discharged as cured April 1, 1913. Female, colored, single. Aged twenty-four years, normal weight 135 pounds, now 115 pounds. Family history was good with a total absence of tuberculosis. Subsequently (six weeks later), in the personal history, we ascertained that five years ago there was a distinct history of syphilitic infection

\*Read before the American Therapeutic Society at Washington, D. C., May 6, 1913.

It is interesting to note that tertiary lesions may occur much earlier. The author reported a case of gummatous ulceration of the hard palate, ten weeks after the appearance of the chancre. A Case of Malignant Syphilis Resulting in Death, *Medical News*, Vol. 2, 1893.



and sequela, and no less than five miscarriages. The previous medical history was otherwise negative. Chills, fever, sweats, cough, expectoration, marked loss twenty pounds in weight. About six weeks before admission to the hospital the patient complained of chilly feeling, fever, sweats, cough, expectoration, and loss of weight. Three weeks later she was hit on the head in right parietal region with a brick. The wound was treated and looked healthy on admission. Since that time all these symptoms became more marked—severe chills followed by fever and drenching sweats. The fever for weeks reached  $106^{\circ}$  F. and over, and on occasions, in the course of several hours, would reach as low as  $96.2^{\circ}$  F. The sweating was very profuse, so much so that the night dress and sheets were saturated. The cough was more or less constant and the expectoration not abundant but mucopurulent, offensive, and on one occasion slightly tinged with blood. The patient did not complain of pain of any character, but some dyspnea. The appetite was poor, the bowels were constipated, there has never been any diarrhea nor abdominal tenderness. There were no symptoms referable to the genitourinary system. The urine was scanty, concentrated, and on several occasions showed a slight ring of albumin, otherwise normal; no tubercle bacilli; diazo reaction negative. On examination of the patient there was found an incised, contused wound of the scalp, about one and one half inches in length, in the right parietal region. After cleansing the wound it was found to extend down to the bone, and a few drops of seropus were expressed.

Dr. Edward Martin examined the wound and pronounced it of no importance, and not connected with the symptoms.

Reflexes.—Pupils reacted sluggishly to light and accommodation. The patellar reflex was also sluggish. There was an absence of the Babinski reflex, the ankle-clonus, Kernig's sign, and the *tache cérébrale*.

Eyes.—Examination, by Dr. William C. Posey, showed nothing abnormal, no chorioid tubercle.

Lungs.—The expansion on both sides was about equal but of lessened degree. The breathing was hurried. There was no retraction of the ribs; no undue depression nor prominences. Percussion showed scattered but distinct areas of dullness over both sides particularly at right base, but it was noted at the time, and subsequently throughout the case, that the apices (both sides) were overresonant, free from râles, and the seat of supplementary or puerile breathing.

Over the dull areas previously mentioned the breathing was bronchovesicular and bronchial in character, the vocal resonance was increased in amount and numerous groups of subcrepitant and occasional crepitant râles were heard. These signs continued with but slight variation until the temperature declined, and at a late examination, May 3d, nothing abnormal could be detected in the chest. The von Pirquet test was applied twice, both times with negative results. The sputum was examined about one dozen times and was invariably free from tubercle bacilli, pneumococci, streptococci, and elastic fibres.

Mouth.—The tongue had a medium white coating. The teeth were in good condition. The tonsils and throat were negative. The ears and the mastoid were negative.

Heart.—The action was rapid but regular, at times 170 to 180 a minute and varying in tension; systolic pressure was from 110 to 130 millimetres Hg. The cardiac dullness extended from the midsternum to one half inch within midclavicular line. The base was at the bottom of the third costal cartilage. The apex was in the fifth interspace. No murmurs nor friction sounds heard, muscular tone was impaired.

Abdomen.—Scaphoid; no localized pain nor tenderness was present. No rigidity; no abdominal mass palpable. The liver dullness extended slightly below the costal margin, but there was no pain nor tenderness over the liver or gallbladder. The patient has never been jaundiced. The spleen was rather distinctly palpable. No pain nor tenderness was present over the appendix. Peristalsis was normal; no rose spots could be detected.

Pelvic Examination.—(By Dr. Barton C. Hirst). Slight leucorrhœa was present, but no tuboovarian mass. The uterus was in a good position and was freely movable.

Laboratory Examination.—The blood examination showed the number of leucocytes to be 18,000, 20,000, 30,000, 32,000 at different times. The differential count was small lymphocytes, 26 per cent.; large lymphocytes, 20 per cent.;

polymorphonuclear, 53 per cent.; large mononuclear, 1 per cent. The red cells numbered 3,750,000, and the amount of hemoglobin was 70 per cent.

The Vidal reaction was negative. Malarial parasites were absent on repeated examinations both in the unstained and stained specimens. The blood culture was negative. The Wassermann test was positive plus one, after the use of seventy drachms of unguentum hydrargyri by inunction, and large doses of iodide of potassium internally. It is necessary to state that this last would have been used in the early part of the case had the laboratory facilities for this particular test been in order.

When the patient was first admitted to the Howard Hospital, the possibility of general infection from the small wound in the scalp was entertained, but the general appearance of the same, the history of the symptoms having commenced, although probably in a milder form, for about three weeks before it occurred, the marked pulmonary symptoms, and the physical signs made us set this aside. Malaria was scarcely to be thought of, the negative blood findings were of course conclusive, and, incidentally, it may be stated that large doses of quinine had absolutely no effect upon the temperature. The same was true of sodium salicylate. The most probable diagnosis to my mind was that of acute miliary tuberculosis of the pulmonary type, although it will be remembered that each and every test in this connection was negative.

The condition of the patient during the most of the first six weeks seemed most critical, and death was expected at any moment. It will be remembered that the patient on admission had strenuously denied the possibility of venereal disease, and had also concealed the fact of her numerous miscarriages, but on March 16th there developed what proved to be a gumma on the fourth rib of the right side, and at the same time a synovitis of the extensor tendons of the wrist. Dr. Edward Martin saw her at this time and, having concurred in the diagnosis of the above mentioned conditions, she was immediately placed on inunctions of two drachms of mercurial ointment, and given sixty to eighty grains of iodide potassium daily. The results were most satisfactory, indeed striking, not only the fever and symptoms, but also the physical signs referable to the chest, commenced immediately, rapidly, and continuously to improve, and she was discharged as cured from the hospital on April 1st.

At the last examination, May 2d, the patient weighed 141 pounds. The physical examination of the chest showed nothing abnormal. The resonance was good. The respiratory sounds were perhaps less pronounced at the right base as compared with the left. There was absolutely not a single adventitious sound and no cough nor expectoration. The patient felt better than she had for years and considered herself entirely well. The mixed treatment was continued.

Not only is the disease in question very rare, but cases of recovery are still more uncommon. Yet such cases are on record, and if, as I take it, the pulmonary lesion was due to distributed gummata before secondary changes occurred, I can see no reason that they should not be absorbed in this situation by specific treatment, any more than the external gumma which in this case melted and disappeared before our eyes.

In conclusion I will quote from Fowler's summary on the subject.

*Cough* is one of the earliest and most prominent symptoms at first, laryngeal, tracheal, or bronchial; later due to changes within the lung itself; *dyspnea* is most marked in the cases which have stenosis of the bronchi. Although not mentioned it would seem to me that in these instances it would be of the inspiratory type; *hemoptysis* is not common but may occur; *expectoration* may be profuse, purulent, and offensive but free from tubercle bacilli; *pain* is not prominent; *emaciation* is not as extreme as in tuberculosis, but with advanced lesions there is not much difference; *night sweats* are present in some cases;

pyrexia is present when there are extensive lesions; this may be considerable and of the hectic type. *Diagnosis*, look for lesions of the calvarium, sternum, and ribs.

The prognosis is grave, but cases are on record of improvement and cure. Areas of pneumonia consolidation may be overlooked because of the absence of bronchial breathing where stricture of the bronchi exist; gummata and ulcers in most cases readily respond to antisyphilitic treatment. At the present day we will add to the diagnostic signs the Wassermann reaction, and if possible, the finding of *Treponema pallidum*.

Thanks are due to the particular care and interest exhibited in the case by Dr. John L. Groh, my interne at the Howard Hospital.

2108 PINE STREET.

## EUGENICS AND THE PUBLIC HEALTH.

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The science of eugenics being comparatively new, and information of its relations to the public health not being easily obtainable, an effort has been made here to give a brief outline of the subject, with a statement of the measures proposed to meet the conditions they are intended to correct.

The rapid increase in the number of feeble-minded and otherwise defective in this country has now reached such proportions, as to attract the earnest consideration of thoughtful people who have the welfare of the nation at heart. Grave as the situation is, even with our present knowledge of it, all the facts are not fully known. The inadequacy of records on the subject, and in many parts of the country their total absence, makes it impossible to do more than form an approximate idea of the number of feeble-minded, diseased, and otherwise defective in the United States. There are vast sections of the country, especially the rural districts, of which we have practically no statistical information as to the prevalence of disease, or feeble-mindedness or the social and industrial conditions under which the people live. The facts presented here have been gathered from many scattered sources, and it has not been possible to give credit for them in all cases, though an effort has been made to do so. Attention is invited to the bibliography attached, to which the reader is referred for more detailed information on the subjects.

Eugenics is defined by Sir Francis Galton, who suggested the term in 1883, as "the study of the agencies under social control that may improve or impair the racial qualities of future generations, either mentally or physically." It has also been called race hygiene. The word "eugenics" is derived from the Greek *eugenes*, "good birth." President David Starr Jordan, of Leland Stanford, Jr., University, in his *Heredity of Richard Roe* (1911) calls it "the science and art of being born well." Though the science of eugenics is comparatively new, the idea itself is very old. As far back as history reaches the general principles of eugenics have been known, and the mating of selected

animals in order to improve the strain has long been practised. The value of "good blood" in man has long been recognized, and much importance is attached to the strain from which an individual comes. "Blood will tell" is a common phrase that recognizes the fact that inheritance plays a most important rôle in determining the characters of an individual.

In 1860-65, Gregor Johann Mendel, an Augustinian monk, who was a teacher of natural sciences in the monastic school at Brunn, Moravia, in Austria, experimented in raising garden peas in the yard of the monastery. He noted certain characters of the peas that he raised, such as their shape and color; the color of the leaves; the shape of the seedpod; the nature of the flowering; length of the stem, etc. He also experimented in crossing peas having different characters, and learned some very interesting facts that have important bearing on the science of eugenics. He found in every case that the offspring of the cross exhibited the character of one of the parents. Intermediate forms, not evidently leaning to one parent or the other, were not found. These traits are considered *unit* characters, inherited without division or blending. In each pair of contrasted characters one prevails in each individual of the progeny. The trait that thus prevails was called by Mendel the "dominant" character, the other being called the "recessive" character.

By allowing the crossbred peas to fertilize themselves, Mendel reared another generation in which there were individuals which showed the dominant character, but also individuals which presented the recessive character. This fact has been noted before, but Mendel noticed that in this generation the numerical proportion of dominants to recessives is almost constant, being as three to one. In the first generation raised from the crossbreds there were seventy-five per cent. dominants and twenty-five per cent. recessives. These plants were again self fertilized, and the offspring of each plant separately sown. It next appeared that the *offspring of the recessives remained pure recessives*, and in subsequent generations never produced the dominant again. When the seeds obtained by self fertilizing the dominants were examined and sown, it was found the dominants were not all alike, but consisted of two classes, viz.: 1. Those that gave rise to pure dominants. 2. Others which gave a mixed offspring composed partly of recessives and partly of dominants. Here also it was found that the average numerical proportions were constant, those with pure dominant offspring being to those of mixed offspring as one to two. The process of breaking up into the parent forms is thus continued in each successive generation, the same numerical law being followed so far as observed.

Mendel published his paper in 1865, but it was not until 1900, when several observers rediscovered the same facts, that due recognition was given to their importance in the study of heredity. Since that time much work has been done upon the subject confirmatory of the Mendelian law. The discovery of this law gives an explanation of many characteristics of inheritance that had been observed but were not understood. It makes clear how atavism,

or reversion to type, may occur, in which the characters of a remote or collateral ancestor may appear in an offspring after skipping one or more generations. It appears that each individual is supplied with certain germ cells derived from the parents, who in turn received them from their parents, etc. These represent the characters of the individual, and variations may be explained by the Mendelian law.

C. B. Davenport, who has made special studies of the inheritance of blue and brown eyes in man, found that when two brown eyed people mate only brown eyed offspring result. When one parent is brown eyed and one blue eyed, one half the offspring will be blue eyed, and of their children one in every four will be blue eyed. This law holds good for many other physical characteristics.

Speaking of this subject, H. E. Jordan, of the University of Virginia, in his paper *Eugenics; The Rearing of the Human Thoroughbred*, says: "There prevails a justifiable presumption that the same principle governs also the transmission of physical and pathological characters. The point is that what is in the germ cell will come out at some time, and in a certain definite proportion, according to the type of the mating. If we want sound men, strong men, intelligent men, temperate men, chaste men, wise men, they must be bred from their type." That this is true is proved by numerous instances in which the histories of certain families have been traced through several generations. It has been conclusively shown that good stock brings forth good offspring, and degenerate stock brings forth defective offspring. It has also been shown in the mating of a normal person with a defective, that the degenerate influence persists through several generations.

In this connection the history of Martin Kallikak is most interesting. The name Kallikak is fictitious, as might be supposed, but the history is true. Dr. Henry Herbert Goddard, director of the Research Laboratory of the Training School for Feeble-minded Boys and Girls at Vineland, New Jersey, in tracing the family history of one of the inmates of that institution whom he calls Debora Kallikak, worked out this history. During the American Revolution Martin Kallikak, a young man of good family, joined a militia company, and while stopping at an inn frequented by the military, he became the father of a feeble-minded son by a feeble-minded girl employed at the inn. From the line thus started there came 480 descendants; 143 of these have been feeble-minded; only forty-six have been normal; thirteen were illegitimate; thirty-three were sexually immoral, mostly prostitutes; twenty-four were confirmed alcoholics; three were epileptics; eighty-two died in infancy; three were criminals; eight kept houses of illfame; and the rest are unknown or doubtful. These people have married into other families, generally of the same type, so that there are now on record and charted 1,146 individuals of whom 262 are feeble-minded; 197 considered normal; and 581 still undetermined.

On leaving the revolutionary army Martin Kallikak married a respectable girl of good family, and through that union has come a line of descendants

of radically different character. These number 496, all of them normal people. Three men only have been found among them who were somewhat degenerate, but not defective. All of the children of Martin Kallikak of this line married into the best families of the State, and have been good citizens. There have been no feeble-minded among them; no illegitimate children; no epileptics or criminals; no immoral women. Only fifteen children have died in infancy. The contrast between the two lines of descendants is most strongly marked. From the feeble-minded mother came a long line of feeble-minded, degenerates, and criminals, while with the same father and a normal mother there is a line of good citizens who have taken high places in society, and contributed to the welfare of the state.

The Juke family, reported by Dugdale, consisted of five daughters of a lazy irresponsible fisherman, born in 1720. In five generations the family increased to about 1,200. The histories of about 1,000 are known; there were among them 310 professional paupers in almshouses for a total of 2,300 years; 440 were syphilitics; more than half of the women were prostitutes; 130 were convicted criminals; sixty were habitual thieves; seven were murderers. This family has cost the State over a million and a quarter dollars.

Poellman gives the history of a family established by the two daughters of a woman drunkard who in six generations produced 834 descendants. The histories of 709 are known: 107 were of illegitimate birth; sixty-four were inmates of almshouses; 162 were professional beggars; 164 were prostitutes, and seventeen were procurers; seventy-six had prison sentences that aggregate 116 years; seven were murderers. This family has cost the State more than a million dollars and is still prolific.

In contrast with the foregoing, the history of the Edwards family shows that a good tree brings forth good fruit. Jonathan Edwards, of Connecticut, had 1,900 descendants, the histories of 1,394 being known. Among them there have been: Thirteen college presidents; sixty-five college professors; 295 college graduates; sixty physicians; 100 clergymen of renown; seventy-five officers of the army and navy; sixty prominent authors; 100 lawyers; thirty judges; eighty who held public offices; three United States Senators; fifteen prominent in railroad work, banks, insurance companies, and business.

These facts have an important bearing upon the public health. It is well known that an individual with an enfeebled physique from any cause is more liable to contract disease than one who is strong and healthy. It has also been repeatedly shown that parents who are not healthy do not have strong and healthy children. It is also probable that a tendency to certain diseases is inherited. This is evidenced by the fact that cancer, tuberculosis, diseases of the heart, kidney, etc., frequently make their appearance in succeeding generations of the same family. We know that certain physical peculiarities, such as extra fingers or toes, a peculiar birthmark, or strong family resemblance may be transmitted from parent to offspring through several generations. It is as though Nature had contracted a habit of reproducing these characters. If physical characteristics such as these can be



transmitted, there seems to be no reason why resistance to certain diseases, or the lack of it, should not also be inherited. This accords with experience along these lines, for it is not infrequently found that children are markedly susceptible to the same diseases to which one or both parents have shown susceptibility. This is also true of immunity to certain diseases.

The inheritance of mental and moral characteristics is so well known that the common expression "a chip from the old block" is used to convey the idea that the child is a replica of the parent. Neurologists tell us that the cure for that most distressing malady known as "sick headache" must commence with our great grand parents. That sufferers from this malady have inherited, through several generations, the nervous tendency that now finds expression in "sick headache." No doubt this is true of many other ailments, and as our knowledge increases, it is possible that we will find that inheritance plays an important rôle in many diseases not now suspected.

The mental and moral characteristics of an individual are quite as important from a public health standpoint, as physical weakness or strength. The quality of the mind is often the factor that determines an individual's position in life, and exercises a marked influence upon his health and well being. Upon that attribute of the mind known as judgment—the power to estimate facts at their true values—largely depends success or failure. It is the lack of this faculty, as much as any one thing, that is responsible for much of the poverty and sickness that exist. The deficiency of mind that leads to poverty also plays an important rôle in disease. The incapacity to appreciate the necessity for preventive measures in the preservation of health, as well as the inability to carry out such measures, is a factor whose importance in public health work has not been sufficiently appreciated in the past. While it is well known that poverty and disease frequently go hand in hand, it has not been fully appreciated that mental deficiency is often a common factor in both. It is not meant to say that poverty is necessarily a sign of lack of intelligence, for such a statement would be absurd, or that wealth means mental power, which would be equally absurd, but it is unquestionably true that unintelligence and poverty are often associated, and it is the lack of capacity due to inheritance that is often responsible for these conditions.

It is not alone in those who are classed as feeble-minded that the degenerate influence is manifest. The fact is, we note those whose deficiencies are most marked, just as we recognize those with exceptional brain power, but between these two extremes is the great mass of the population whose mental capabilities are as varied as the individuals who possess them. No two are alike, and in their gradations they extend from brilliancy and power on the one hand to feeble-mindedness and idiocy on the other, and the differences are those of degree rather than of kind. The point it is sought to bring out is this: There are vast numbers of so called normal people whose brain capacity is so low that they are capable of but a limited degree of mental development; that much poverty and ill health are

results of this incapacity, and such incapacity may often be traced to degenerate influence in heredity. Just how far this degenerate influence may extend is not known, but it is evident that it does not stop with those who are classed as feeble-minded, but must extend in a greater or less degree to all of the progeny. The histories of the Kallikak, Juke, and other families, show that the degenerate influence persists through generations. These are but isolated instances of what must be going on to a greater or lesser extent in many families, and its influence on the mentality of the nation must be profound. Like decay in a tree, commencing at or near its roots, and extending through the trunk and limbs, it finally affects the higher branches and the tree dies. In like manner the degenerate influence is spreading through the nation, blighting mind and body, and leaving in its trail poverty, disease, suffering, and death. Unless checked, it must ultimately lower the mental and physical standard of the nation. It is stated that the feeble-minded are increasing at twice the rate of the rest of the population. If this ratio were to continue it would be only a question of time when there would be more feeble-minded than normal people in the country.

It is not proposed to discuss here the relative influence of heredity and environment upon the human race. Let it suffice to say that *heredity determines the quality of the clay, while environment often shapes the vessel*. We seem to be composites of our ancestors, plus environment and training.

Edwin Markham in his poem, *The Man with the Hoe*, which was inspired by Millet's painting of that name, says:

"Bowed by the weight of centuries he leans  
Upon his hoe and gazes on the ground,  
The emptiness of ages in his face  
And on his back the burden of the world.  
Who made him dead to rapture and despair,  
A thing that grieves not and that never hopes,  
Stolid and stunned, a brother to the Ox?  
Who loosened and let down this brutal jaw?  
Who was the hand that slanted back this brow?  
Whose breath blew out the light within this brain?"

Markham attributes the condition typified by the hoeman to industrial oppression, and considers him a degenerate through hopeless drudgery and barren environment. Is it not more probable that the hoeman's condition is primarily due to the fact that he inherited a brain incapable of higher development, and that his condition is due to incapacity rather than industrial oppression and lack of opportunity? May it not have been some degenerate, syphilitic, or alcoholic ancestor who is responsible for his being "stolid and stunned, a brother to the Ox?" Had this man inherited capabilities for higher things would he not have risen above his hopeless drudgery and barren environment? It has been said, "If oppression comes it is because the opportunity is offered. It is not the strength of the strong but the weakness of the weak that engenders exploitation and tyranny." However, whatever the cause of his condition, heredity or environment, the hoeman is with us by tens, and by hundreds of thousands, with his inability to combat with the circumstances in which he is placed.

It is he who fills our asylums, jails, and almshouses; who offers a fertile field for the propagation and dissemination of disease from which he is unable, mentally or financially, to protect himself. He is also with us with his ability to multiply himself by the propagation of children, and thus perpetuate the malign influence which blighted his life. That he will do this is more than probable, for the lower the grade of the mind, the more strong the animal instincts appear to become.

It is in connection with such facts as these that the question of heredity touches and becomes amalgamated with the public health, and it is herein that eugenics, in its efforts to correct these conditions, becomes a part of public health work. We are beginning to realize that the scope of public health work is broader than we thought. While sanitation, control of disease, and preventive medicine have lost none of their importance, and in these fields there are vast territories that are as yet but little explored, we now know that there are many other important factors that are embraced in the term "public health." To check the progress of disease in its full flood, is like attempting to sweep back the sea with a broom. It is necessary to check the flow at its source, to purify the fountain, in order to stop the flood of disease, degeneracy, and death. The public health official is therefore broadening his outlook, and is seeking for all the causes that influence, for good or evil, the health of the people. He realizes that it is necessary to be a sociologist, eugenicist, etc., as well as a sanitarian, hygienist, and epidemiologist; that he must study the social, industrial, and hereditary conditions that affect mankind, if he would make the greatest progress in uplifting the public health.

*The Aims of Eugenics.*—What is sought to be accomplished by eugenics may be broadly stated as the improvement of the race by checking the propagation of defectives, and encouraging the mating of the most fit. There seems to be some misconception as to the aims of eugenics. Eugenists do not desire to eliminate sentiment, nor expect that the mating of human beings will be in accordance with a scientific formula, wherein the unit characters of one of the partners will supply the deficiencies of the other. Such an arrangement would without doubt produce an improved human animal as it improves the lower animals, but the eugenists do not expect to place human mating upon such a plane. Their object is to check the breeding of human defectives, and thereby increase the ratio of normal people.

The necessity for such action has already been pointed out. It has been shown that the defectives are rapidly increasing in this country, and it has been estimated that they already cost the country 100 millions of dollars annually. Aside from this enormous expenditure of money that would go far toward the uplift of humanity, if it could be utilized for that purpose, there is the long black trail of mental darkness, ill health, poverty, and crime that follows the blight of mental defectiveness. A large proportion of criminals, paupers, prostitutes, drunkards, and ne'er do wells are mentally defective. The Chicago Vice Commission states that eighty per cent. of all women between twenty and

twenty-five years of age, from houses of illfame, who were examined, exhibited a mental capacity of children from twelve to fifteen years of age. It has been found that at least twenty-five per cent. of criminals are feeble-minded. Of 100 children committed to the Detention Home in New York by the Juvenile Court, sixty-seven per cent. were found to be feeble-minded. Such facts as these have caused thoughtful people to pause and consider where such conditions will lead if they remain unchecked. Of the measures proposed to meet these conditions the following are chiefly advocated: 1. Segregation; 2. sterilization; 3. control of marriage; and, 4. general education of the public as to existing conditions, and the measures proposed to meet them.

*Segregation.*—In many respects the segregation of defectives into colonies where they can receive care and attention, and be given such education and training as they can take, is a measure that appeals most strongly to the humanitarian instincts, because it provides for the happiness and well being of these unfortunates under the best obtainable conditions. Goddard, however, in his pamphlet *Sterilization and Segregation*, points out some of the difficulties in making segregation effective. The first of these is the enormous cost of properly caring for the existing defectives, and their increasing numbers. He states that the Royal Commission of England, after an investigation that lasted four years, found that the feeble-minded were increasing at twice the rate of the general public. He points out that there are at least 1,500 feeble-minded children in New York city alone, by which it is presumed he means children whose feeble-mindedness is evident, and does not include children whose defects are not sufficiently apparent to warrant their assignment to this class. If New York city has this number of feeble-minded children—and it is probable that the numbers are under rather than over estimated—it may be safely assumed that the ratio is equally great in other sections of the country. The burden of cost for the care of defectives has grown so great that its limits are rapidly approaching, and the time is not far off when some radical measures must be taken to reduce these expenditures.

Another obstacle in making segregation effective is the difficulty of getting feeble-minded children into colonies. Unless a child is an idiot, it is frequently difficult to convince the parents that it is defective, and even when that is done, it is not always easy to obtain their consent to take the child to an institution. There are also many high grade defectives whose defects do not show until they have reached adult age, and parents object to placing such children in an institution. It is impossible to have laws passed requiring that such persons shall be sent to an institution, and even if such laws were passed they could not be made effective. The indignation that would follow an attempt to send a high grade defective child to an institution, in opposition to the wishes of its parents, would probably produce riots. It is doubtful if such a law would be constitutional, and if it were, it is questionable whether it would not do more harm than good. There is also the difficulty of determining

what constitutes defectiveness to a sufficient degree to make commitment to an institution necessary. Until a standard of normality can be adopted it would be difficult to draw the line on high-grade defectives, and this would require a board of experts, which would not always be available, and whose findings would not always be accepted. It is evident, therefore, that there seems to be no prospect for the adoption of such laws within the near future, and without some measures whereby the greater proportion of defectives can be placed in institutions, segregation alone can not be made effective.

Even with those who are placed in institutions it is not possible in the present state of the law in many States, to prevent such persons from being legally married, and having children, or having children without being married, which it is impossible to prevent in all cases unless these persons are absolutely segregated and never allowed any liberty, a condition that it is not possible to enforce in all cases. In view of these facts it seems evident that segregation alone cannot be relied on, to furnish the necessary relief for existing conditions. The benefit of institutional training to defectives is great; many have been greatly helped, and their lives made happier by it, but its capabilities as a broad economic measure for decreasing the number of defectives are limited.

*Sterilization.*—Those who have given the closest study to the subject are the strongest advocates of sterilization for defectives. It offers the most effective method for stopping procreation without otherwise interfering with the sexual functions, nor does it injure the health. It consists of vasectomy in the male, and removal of the ovaries, or section of the Fallopian tubes, in the female. The operation in the male is exceedingly simple. With the female the operation is less simple, as it involves opening the abdominal cavity and removing the ovaries, or ligating and severing the Fallopian tubes. However, abdominal section under modern aseptic methods is an operation attended with but little danger, and is being daily performed. There seem to be no ill effects to the patient from the operation; on the contrary, the operation is often followed by marked physical and mental improvement. Dr. Charles V. Carrington, lately surgeon to the Virginia Penitentiary, states, in his paper, *Hereditary Criminals*, that he has performed the operation upon several inmates of that institution, with marked benefit in each case.

It is generally conceded by students of the subject that sterilization of the markedly feeble-minded, the chronic insane, and habitual criminals is not only a most desirable measure but one that is necessary.

Eight States have passed laws to this effect, but in none of them are they being executed at present. Only one State has applied the law, and there the operation has been abandoned at the suggestion of the Governor on the ground that the law as it stands is probably unconstitutional. Goddard says: "The strong argument against the constitutionality of the law is that it is 'cruel and unusual punishment.'" The idea of punishment comes into the question because criminals are included in it." He

thinks if the term "criminal" were left out of the law, which should be made to apply only to the feeble-minded (which in many cases would include habitual criminals), the idea of punishment would disappear. He believes that segregation in conjunction with sterilization will give the best results. It is believed that opposition to sterilization will decrease as the idea grows more familiar. At present there is some stigma attached to it, but if the operation is adopted as a measure for the benefit of the individual, and it becomes a common practice for the improvement of the mental and physical condition of the patient, much of the prejudice against it will disappear.

The patients themselves do not as a rule desire to have children, and if they are convinced that their sexual functions will not be otherwise interfered with, and that they will be improved mentally and physically, it is believed that many of them, at least, will readily consent to the operation. Dr. Carrington says that he has been requested by patients to perform the operation on them. If physicians will appreciate the benefits to feeble-minded patients, as well as to society at large, following the operation for sterilization, much good can be accomplished. It has been suggested that freedom from the possibilities of having children would lead to increased immorality of those who have been sterilized. Goddard says that it is the opinion of the social workers and others who come in contact most largely with this class of people, that the fear of having children does not act as a deterrent to immorality to any appreciable extent, and it is believed that the possibilities for increased immorality are far outweighed by the advantages to be gained in preventing the further production of degenerates.

*Regulation of Marriage.*—One of the most promising measures for limiting the reproduction of defectives is the regulation of marriage. In many States there is at present no bar to the legal marriage of paupers, diseased, or defective persons, consequently we have inmates in almshouses, who are being supported by the State, marrying and producing children, many of whom are defective, to add to the already heavy burden of the State.

Dr. H. W. Dew, in a paper read before the South Piedmont Medical Society, Lynchburg, Virginia, November, 1912, states that in one almshouse fifteen feeble-minded women had given birth to illegitimate children, within a period of six weeks. This is not only an injustice to the State but also to these children, who are brought into the world under the most unfavorable conditions, both of heredity and environment, and whose chances of becoming useful citizens are most remote. It is difficult to understand the process of reasoning, if reasoning it is, that will permit paupers and defectives, who do not support themselves, to reproduce their kind to be also supported by the State. It is establishing an endless chain of degenerates, that multiply in ever increasing numbers with the passing years.

We have laws to prevent damage to property and to individuals, and there is every reason why these laws should be extended to protect individuals in the aggregate, viz., the State. One of the



most urgent reasons for the enactment of laws regulating marriage, in addition to restraining the increase of the feeble-minded, is to prevent the marriage of persons suffering from transmissible disease. It is estimated that seventy-five per cent. of all special surgical operations on women are made necessary by reason of gonococcus infection. It is stated that from sixty to seventy-five per cent. of all adult males have been infected with gonorrhea at some time. It is estimated that twenty-five per cent. of congenital blindness is caused by gonococcus infection received at birth. Ten per cent. of the population of the United States is said to be syphilitic. Syphilis is a disease that is transmitted from parents to offspring in full virulence, often killing the child outright, or blighting normal development.

Dr. Prince A. Morrow estimated that when the father alone is infected with syphilis the mortality among children is about thirty-eight per cent. When both parents are infected the mortality averages from sixty per cent. to eighty per cent. Fully thirty-three per cent. or one third of all infected children die within the first six months. Those who do not die within this period, continue to live as mental or physical defectives. It is stated upon what seems to be good authority that one out of every four cases of hereditary insanity is due to syphilis. Thirty-eight per cent. of children with tuberculous hip disease are said to be congenital syphilitics; in tuberculous meningitis the proportion is said to be sixty per cent., or more than half.

Syphilitic children have "poor constitutions," that is, they have but little resisting power to disease, and die when a normal child would recover under like conditions. Dr. H. E. Jordan, in his paper, *The Eugenic Aspect of Venereal Disease*, quoting Dr. Morrow, says: "The chances of a syphilitic child dying under the age of fifteen are said to be seven times as great as those of a child free from syphilis. As evidence of how hereditary syphilis lessens resistance, a careful analysis of all infectious diseases in children shows that, exclusive of widespread epidemics, the chances of a syphilitic getting typhoid fever are two and one half times as great as for a nonsyphilitic; for scarlet fever, three times; for measles, three and one half times; and for diphtheria, seven times." An equally careful analysis for other diseases would probably show that hereditary syphilitics are also more susceptible to them. Syphilis blights all that it touches, and leaves in its trail enfeebled and deformed bodies, darkened and perverted minds.

It not infrequently occurs that a pure and innocent girl is infected by her husband with gonorrhea or syphilis. Within a few years she becomes a physical wreck, and thereafter drags out a miserable existence of pain and suffering, finally dying an untimely death, a victim of the system that permits the mating of the diseased and unfit. Aside from the sentimental aspects of such cases, however deeply that may appeal to us, the economic loss to the State by this destruction of some of its reproductive agents is serious. But for this blight such women could have contributed to the welfare of the State and nation, by bearing strong and

healthy children, without which no nation can long survive.

To meet these conditions efforts have been made in several States to have laws adopted prohibiting the marriage of the diseased, feeble-minded, or otherwise unfit. The laws proposed vary somewhat in detail, but contain the essential provision that no marriage license shall be issued until a medical certificate is presented, showing that the persons applying for a license to marry are not feeble-minded, insane, or suffering from certain transmissible diseases, and providing punishment for violation of the law. Rules for the conduct of these examinations are to be prepared by the State boards of health, which shall have supervision of them. Provision is also made for the punishment of physicians who issue false certificates.

It seems desirable that these laws should be extended in their scope to include a declaration that all marriages contracted in violation of the law should be null and void, as otherwise there might be some question on the subject. It also seems desirable that some provision should be made to determine the qualifications of physicians who may issue such certificates, and provide for the free examination of persons desiring to marry.

In order that laws regulating marriage may be effective it is necessary that some thoroughly practical plan be adopted, otherwise the laws will not be enforced, and the objects sought to be attained will be retarded rather than advanced. Just what this plan should be will require careful consideration and that every aspect of the subject be scrutinized, but it seems that the plan must involve co-operation between the State boards of health and the physicians throughout the States. There are but few practising physicians equipped with the necessary facilities or experience to make the examination to determine if a given individual is suffering from latent syphilis or gonorrhea. The examination of the blood and discharges would have to be made in a laboratory. It is possible that a plan might be evolved whereby a report of each physical examination, made by physicians, should be forwarded to the State board of health, which would issue the necessary certificate, based upon the report of the physician, and supplemented by such laboratory examinations as the board might consider necessary. For the present, at least, it seems wiser that any law for the regulation of marriage should restrict the medical certificate to a statement that the candidate for matrimony is not feeble-minded, insane, or an habitual criminal, and is not suffering from active tuberculosis, syphilis, or gonorrhea.

If some such plan can be put into execution it is believed that it would be a step in the right direction, and changes could be made from time to time, when experience had demonstrated their necessity. It can not be hoped that such a plan would be perfect, or that it would reach all cases, but it would be directed to the greatest good to the greatest number. The question has been taken up by various local churches in different parts of the country, and the ministers of those churches refuse to perform the marriage ceremony unless a medical

certificate is presented. The widespread discussion of these subjects may lead persons contemplating marriage, or those interested in them, to demand that a careful mental and physical examination be made of such persons in order that latent disease or degeneracy may be detected if it exists. Common prudence would dictate such a course for those who desire that their children shall be saved from the horrors of defective inheritance.

**Education.**—It is a well known maxim that the support of the people is necessary to make any law effective. In order to obtain that support the reasons for the adoption of the law, and the object sought to be attained by it must be understood. It is, therefore, necessary that the facts in regard to the effects of heredity, disease, and environment upon the mental, moral, and physical condition of an individual or a nation should be made clear. The process of education is not easy or rapid, and must develop slowly, but every advance is so much gained, and in time public sentiment will be sufficiently enlightened to bring about the measures sought.

Education of the public in regard to the subjects mentioned herein is progressing, and much interest is being manifested. The work of many earnest men and women in bringing to the notice of the public conditions that are detrimental to mankind is bearing fruit. The study of various phases of sociological work is becoming widespread, and throughout the country there are springing up societies for the study and improvement of these conditions. The benefits to be derived are incalculable, not only in the actual relief accomplished, but what is of greater importance, is the knowledge of the conditions that is obtained, and the search for the factors that produce them. An understanding of the conditions and their causes is the surest guarantee that effective steps will be taken for their amelioration.

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## CONCERNING THE ETIOLOGY OF HYPERTROPIC PULMONARY OSTEOARTHRITIS.

*With a Report of Five Additional Cases.\**

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The general characteristics of this disease picture are now quite commonly known, so that failure to recognize it can no longer be held accountable for the relatively few cases reported in the literature of medicine. Neither can the small number of instances recorded be solely explained from the excessive rarity of the condition, for sporadic cases, particularly of the minor types, occur not uncommonly in almost every clinic. For example, in many cases of chronic empyema lesions of this character appear in mild but unmistakable form, to disappear when the pleural abscess is evacuated. The infrequency with which the condition is reported must, then, be accounted for by the fact that clinicians take very little interest in the process, since it is universally believed to be secondary in nature and to represent but a relatively unimportant phase of a general process.

Although I am myself also of this opinion, my interest has been kindled in the etiology of the syndrome, not only in an attempt to explain its origin, but also because I have long wondered why it was not present in conditions in which it would be naturally expected to develop. This case analysis and study is designed to clear up these phases of the subject. The chief interest must now centre in an explanation of why the characteristic deformities appear. From a cursory review of the literature of the subject the point of greatest perplexity would seem to be the widely different conditions in which it occurs, and the reason why it does not develop more frequently in apparently analogous circumstances, if, as Marie originally postulated, the picture is entirely secondary in nature.

The most constant and essential anatomical alteration appears to be an osteoperiostitis ossificans affecting chiefly those parts of the long bones which are distally located; rather about, than of, the articulations. In young persons particularly, how-

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FIG. 1.—Pulmonary osteoarthropathy. Case I.

ever, the bones entering directly into the articulations appear to be chiefly involved, apparently more because it is in these locations that hyperplastic processes, as it were, are more naturally or easily incited than from any inherent peculiarity of the articulations themselves. Hence it would seem that the condition is unfortunately termed an arthropathy, for it appears to be chiefly the peripheral nature of the bones, rather than anything else, which determines the process at these points.

As to the precise histological type of the

bony changes, considerable natural variation exists, as is also the case in most other forms of hyperplastic and retrogressive bony processes. As for the changes in the soft parts, little discrepancy exists when the anatomical facts are simmered down to their essentials, and are divested of the natural variations which occur in practically all pathological manifestations. The clubbing of the digits is thus shown to be chiefly due to changes in the soft tissues, perhaps mostly in the areolar connective tissue. Whether fat production is the chief change, as stated by Thoborn, or the connective tissue elements of the true skin, as asserted by Hirschfeld, is relatively unimportant. Sternberg found round cell infiltration and thickened blood-vessels, in the pads which occur almost constantly in the clubbed fingers. Is it not, however, to be expected that such alterations and variations should develop in digits in which the capillary circulation is always found to be so markedly slowed and changed? Although it is admitted that the enlargement of the ends of the fingers and toes is chiefly due to changes in the soft parts, x ray and post mortem studies demonstrate that occasionally an osteophytic formation is found associated with the alterations in the areolar tissues. The lack of association with other trophic alterations, and the almost absolute disassociation of this syndrome from all neuropathic diseases, indicates the absolute separation of the condition from the neuropathic arthropathies, and thus far microscopic studies of the diseased tissues also exclude lesions of this character.

The more recent histological studies of the disease, especially the careful work of Franchini (*Revista critica di clinica medica*, xi, p. 745, 1910), corroborate the constancy of the above outlined lesions. The studies of Ball and Alamartine (*Revue de chirurgie*, Paris, 1908, xxxviii, p. 472; *Gazette des hôpitaux*, Paris, lxxxv, 1912, p. 1587) and Lienaux (*Bulletin de l'Académie royale de médecine de Belgique, Bruxelles*, 4, s. xxiii,

1909, p. 108) on the lower animals in apparently similar disease pictures completely identify the changes occurring in these animals as similar to those in man, at least in their essential substance. It is, then, to the study of the etiological relationship of the primary disease changes to the characteristic deformities that I particularly desire to draw attention, and for this purpose I have attempted to carefully analyze the cases reported since 1903, at which time Janeway (*American Journal of the Medical Sciences*, NS. cxxvi, 1903, p. 563) brought the subject up to date in so far as case analysis is concerned.

I have chosen to limit my analysis to the instances thus recently reported because there is no doubt both that pulmonary osteoarthropathy is itself better understood now, and particularly that acromegalia and the numerous arthropathies are now more certainly differentiated. To this list I wish to add the case reports of five new instances of this condition; which brings the total number of cases which I have personally studied and reported up to nine.

Notwithstanding the fact that the profession is now generally correctly informed in regard to pulmonary osteoarthropathy, one still finds in the literature a certain number of cases reported which cannot be considered as true pulmonary osteoarthropathy. Such is the instance recorded by Mercy and Guillemot (*Bulletin et mémoires de la Société médicale des hôpitaux de Paris*, 3s. xx, 1903, p. 328), in which the description of lesions and symptoms seems to indicate that the case was one of rheumatic arthritis complicating rachitis. Case five of Symes-Thompson (*Medico-Chirurgical Transactions*, London, lxxxvii, 1904, p. 85) is also in the doubtful class because of the fact that the description of the lesions, taken together with the history



FIG. 2.—Pulmonary osteoarthropathy. Case II.



of congenital syphilis, suggests strongly the possibility of a luetic arthritis, by no means a rare condition, although aside from undiscovered possibilities, since the etiological factor was lues, no pulmonary or cardiac explanation of the bony changes is given. None the less, in recognition of the acknowledged familiarity and learning of the author in regard to this disease, this case can certainly not be excluded, and must be considered in our analysis. Symons (*Indian Medical Gazette*, xxxix, 1904, p. 16) records also a doubtful case which, if one relied solely on the author's description, would apparently more completely fit into the picture of an arthritis deformans, perhaps, or that of an incompletely developed acromegalia; but, as with the instance just mentioned, this one also cannot be definitely excluded. Somewhat similar to this case is that of Koll (*Deutsche medizinische Wochenschrift*, xxxii, 1906, p. 527), in which the marked changes noted in the lower jaw and in the tongue suggest acromegalia, particularly as no etiological factor is presented except the history of a long standing intestinal toxemia. The history and course would further suggest the likelihood of an acromegalia. Shaw and Cooper (*Transactions of the Clinical Society of London*, xl, 1907, p. 259) describe under this heading a case which is definitely one of simple clubbed extremities due to heart disease of congenital origin—there is no ground whatever in so far as the meagre report of this case goes why it should be included for a moment as one of pulmonary osteoarthropathy. Chrysospathes (*Zeitschrift für orthopädische Chirurgie*, Stuttgart, xx, 1908, p. 406) records a case in which multiple arthritis, partly of a suppurative character, was present. Although the urine showed a diminished excretion of phosphorus, the radiographic examination showed osteoporosis and thickening, and we cannot but agree with the author that the case was not one of pulmonary osteoarthropathy. Because of the present inaccessibility of the journals in which the reports were printed, in the appended bibliography is included a list of eight articles which could not be reviewed in time for the meeting of this society.

With these possible exceptions, considered as among the questionable cases, all of the other instances reported are apparently true examples of this condition. Of the total of fifty-seven cases thus collected it is very significant that forty-four instances showed definite pulmonary or pleural lesions which were supposed to be of sole or chief etiological import. To this list should also be added the instance recorded by Thiraloix and Jacob (*Bulletin et mémoires de la Société médicale des hôpitaux de Paris*, 3 s. xxix, 1910, p. 51), which is undoubtedly a typical instance of the disease, and in which the history states that the patient was a chronic sufferer from asthma. At six years of age he had a fracture of the thorax, he had bronchial catarrh and emphysema, and yet the authors record the pulmonary condition as "normal," and further state that the etiological factor was not apparent. For obvious reasons I include this case with my list of those showing lesions of the pleuropulmonary tract; thus bringing the total list of cases of this type up to forty-five. It is also quite probable that

case five of my newly recorded instances is one of pulmonary origin, but inasmuch as the history is not clear on this point, and as we were unable to definitely locate either pulmonary or other primary lesions, this case is held in the doubtful list as regards etiology.

As to the precise character of the pulmonary lesions, twenty-eight cases showed either pulmonary fibrosis, chronic bronchitis, or bronchiectasis; six cases showed neoplasm of the lungs; one, atelectasis of long standing; four, empyema; and six, pulmonary tuberculosis. It should be noted that in all these instances deficiencies in the pulmonary parenchyma with presumably deficient pulmonary oxidation and extensive capillary compression were manifest. Seven cases are recorded in which mediastinal neoplasm appeared as the most likely etiological factor. In every instance of this group either clinical signs or autopsy findings showed invasion of the pulmonary tissue, as well as that of the mediastinum. Two of these instances were cancer, with apparently secondary invasion of the mediastinum and lung. Two instances were sarcoma; one, endothelioma; and two, growths of unknown nature. One of these, case three of Symes-Thompson (*Medico-Chirurgical Transactions*, London, lxxxvii, 1904, p. 85), had been previously reported as free from pulmonary lesions, but later study developed the finding here recorded. Two cases remain in which no apparent etiological factor is present, the case of Wolfsohn (*Berliner klinische Wochenschrift*, xlvii, 1911, p. 1031), in which lues was most likely the etiological factor, and case five of my own newly recorded group. The remaining five cases are that of Mercy and Guillemot, discussed and excluded above, in which the probable etiological factors are stated to be rachitis and rheumatism, case five of Symes-Thompson, the very questionable case of Symons, that of Koll, and one of my own. It would thus appear that of the total number of fifty-seven cases, all except five showed invasion of the lung tissue either primarily or secondarily. Of these five cases, two only are certainly examples of pulmonary osteoarthropathy and the remaining three, while included in the group, are doubtful instances.

From this group it then appears that those of mediastinal neoplasm may, to all intents and purposes, be included with those in which the process appears primarily in the lung parenchyma or pleura. Inasmuch as the effects on the peripheral circulation and on the blood are substantially the same in mediastinal neoplasm with pulmonary involvement as in primary obliterative pulmonary disease, it would seem just that these two factors be considered as essentially identical.

Basing, then, our consideration of the etiology on the prevailing factors present in the recently reported cases, it would seem that the end results in practically all undisputed instances are peripheral venous stasis, due to mediastinal or pulmonary compression with limitation of pulmonary action and capillary circulation.

Circulatory lesions exclusive of mediastinal neoplasms were reported as present in but seven of the cases analyzed, and of these, four instances were such relatively unimportant (etiological) al-

terations, found at post mortem as brown atrophy of the heart (two instances) and fatty heart (two instances, one with a coronary sclerosis). In one case a clinical diagnosis of "possible myocarditis" was made, and in but a single instance was the circulatory lesion judged by the reporter to be etiological. This was the certainly incorrectly diagnosed case of Shaw and Cooper (*Transactions of the Clinical Society of London*, xl, 1937, p. 251), in which a congenital defect in the intraventricular septum was found. Inasmuch as this case differed in no respect from the usual case of clubbed extremities universally seen in congenital heart defects, it cannot be classed as one of hypertrophic pulmonary osteoarthropathy and may therefore be safely discarded, as before mentioned.

Since the anatomical characteristics of this symptom complex are essentially those of proliferation of the periosteum at the distal ends of the long bones, not truly an arthropathy, and proliferation of the soft tissues in the peripheral portions of the body associated with local congestive conditions, it becomes important, in an attempt to explain the etiology of those lesions, to consider the age at which these changes usually develop. In forty-three instances, the probable age of onset could be determined with a fair degree of accuracy. It was found that the average age of onset was at 17.55 years. A review of the statistics collected in Janeway's article, as in that of others who have also compiled the literature in regard to this condition, showed the notable fact that the neoplastic instances as a rule occur in those of a more mature age. In this series this same feature is also apparent, and it is found that the average age at onset in cases of probable neoplastic origin is 40.5 years. That a hyperplastic process should spring up in the tissues of the body in adult life in cases of new growth is, of course, quite in consonance with our present conception of the relationship of new growth formation to tissue hyperplasia. The similar tendency toward general tissue hyperplasia in tuberculosis is also well established, and it need therefore cause no surprise when it occurs at any age. The average age of onset in cases due to tuberculous disease of the lungs is 29.6 years. When cases of neoplastic and tuberculous origin are excluded from our analysis it is found that the average age of onset of pulmonary osteoarthropathy is but 12.67+ years, which would then place the disease as definitely of juvenile origin, except in tuberculous and neoplastic instances. That in youth hyperplasia should be easily excited in the periosteum of the distal portions of the long bones and in the peripheral soft tissues of the body, where chronic passive congestion of these parts is associated with deficient oxygenation and capillary stasis, is, then, but a condition or result to be entirely expected.

It is a well established fact in pathological anatomy that cyanosis, especially that due to pulmonary lesions or to mediastinal compressions, causes the most marked stagnation in the periphery of the circulatory tree, namely in the fingers, toes, and face. Recognizing the universality of clubbed fingers and toes in this symptomatic complex, it should then be expected that like changes should appear in the

face, just as they so appear in most analogous conditions. It would therefore seem that the signs of globular nose tip and malar puffiness should be present in this disease. Such was the case in the four instances originally reported by me (*New York Medical Journal*, December 16, 1911), and in four of the new instances reported in this paper. In so far as one may depend upon illustrations and text descriptions, these signs were present in several other instances recorded in this analysis. In case three of the Symes-Thompson group the patient noticed that the nose was notably large at the tip. The questionable case of Symons shows also this feature, but this is probably not an instance of true pulmonary osteoarthropathy. The plates exhibited with the cases reported by Wynn (*Birmingham Medical Review*, lv, 1904, p. 212) show an apparent malar prominence and globular nose tip. The author, however, reports the face as normal, and one must recall in the study of all photographs, especially those not skillfully posed, that there is a tendency toward the production of an apparent larger nose tip through foreshortening. The photograph of the case of Cagnetto (*Rivista veneta di scienze mediche*, Venezia, xlv, 1906, p. 15) shows an apparent prognathism and prominent globular nose tip. The questionable case of Koll, already mentioned as probably one of acromegalia, shows this change quite typically. Kruger (*Virchow's Archiv*, clxxxi, 1906, p. 43) mentions changes in the bones of the skull of a character probably similar to the changes to which I call attention. In the article of Ball and Alamartine (*Revue de chirurgie de Paris*, xxxviii, 1908, p. 472) these observers show, from their studies of a similar disease in the dog, that any part of the skeleton, including the bones of the face, may be involved. The case report of Mouisset and Orsat (*Lyon médical*, cxvii, 1911, p. 337), presents a plate in which a large globular nose is apparently present. Wolfsohn (*Berliner klinische Wochenschrift*, xlviii, 1911, p. 103) reports that the nose became broader and plumper, and that the inferior maxilla became more prominent; features which the plate published with the papers shows in an apparently definite way. Thus, of the fifty-seven cases included in this analysis, fifteen probably show in greater or lesser degree this entirely to be expected facial alteration, which has apparently escaped the observation of most students of the disease thus far. In reviewing, for my own satisfaction, the literature of this disorder published before the period at which I chose to begin the present analysis, I find also not infrequent plates indicating this peculiarity.

Of direct bearing on the question of the etiology of pulmonary osteoarthropathy is the fact that the instances in which improvement followed treatment were all those in which pulmonary lesions were apparently the etiological factor. When these lesions were of such a character as to permit of successful treatment or amelioration, improvement in the bone and soft tissue deformities are reported. Acting on this suggestion in a case of my own (Case IV, *New York Medical Journal*, December 16, 1911) vigorous and persistent treatment designed to relieve the pulmonary lesions was continued over two

years' time. In addition to affording great relief from the conditions of fetid bronchitis and bronchiectasis, complete disappearance of the bone pains has followed, together with a considerable decrease in the size of the fingers, toes, and distal portions of the arm and leg bones. Similar results are recorded by Sevestre, Symes-Thompson, Wynn, Puyhaubert, Alexander, Robinovich and Barot, and Pic. Since all these instances were those of supposed pulmonary etiology, and since the improvement of the bony and soft tissue deformities appeared coincident with the betterment of the thoracic (pulmonary and pleural) disease, it would seem beyond doubt that a causal relationship existed between the primary and the secondary lesions.

It is unnecessary in this place to go fully into the discussion of all the various theories, advanced to explain the almost invariable association of pulmonary, pleural, or mediastinal lesions in their relationship to the development of the characteristic osseous and soft tissue changes of pulmonary osteoarthropathy. The original theory of Marie must, however, be mentioned, since it was the first to be founded on a study of the pathological anatomy of the condition, and also the first which recognized the dependence of these lesions on mediastinal, lung, or pleural changes. Marie believed that the deformities were due to the absorption of some toxic substance from the lungs and pleura, which were the seat of an inflammatory process. This theory received a certain amount of corroboration from those numerous instances of empyema and bronchiectasis in which the absorption of a septic poison was quite justly assumed to take place. That the absorption of septic materials alone is insufficient to cause the deformities is clear from their absence in such conditions as hepatic abscess, chronic sepsis, osteomyelitis, and so on. This theory has, it is true, received support from some reported cases; none such, however, appear in the recent literature—since the differential recognition of the various arthritic processes has become sufficiently certain. This theory has been discredited also by frequent examples of pulmonary osteoarthropathy in pulmonary fibrosis or atelectasis, where neither bronchitis or bronchiectasis, or other septic absorption can be assumed to take place, and also by the frequent cases of mediastinal tumor which are also devoid of this possibility. It is obvious, then, that some other explanation must be advanced to clarify this association of lesions, especially because analysis of the most recently, and probably most accurately, observed cases indicates the practically invariable association of mediastinal, pulmonary, or pleural processes in the disease.

Apparently the true key to the association of this syndrome with mediastinal and pulmonary defects is furnished in Zeigler's discussion of the dependence of passive hyperemia on pulmonary defects. Briefly, he states that in consequence of disease of the lungs, and also of the pleura in that it displaces the lung, the respiratory movements of the chest are hindered, and thereby a withdrawal of an efficient aid to the circulation occurs. In addition, and of even more definite influence, are those diseases which, as in pulmonary fibrosis or pulmonary compression from empyema, cause an impermeability of a more

or less great area of lung capillaries. Exactly similar conditions are produced, as Zeigler pointed out in his memorable lectures on hyperemia, by aneurysm of the aorta or by tumors situated at or about the root of the lung, and which thereby compressed the pulmonary arteries. A hyperemia so produced naturally is most marked or longest present in the peripheral portions of the body where, owing to simple mechanical reasons, it becomes most manifest in the hands and wrists, the feet and ankles, and, to a lesser degree, in the face. The effects of a long standing passive hyperemia on bone or on areolar connective tissues is to induce hyperplasia of those parts of the bone or soft tissues which are most susceptible to hyperplasia, that is in the periosteum and the areolar connective tissue. Hyperplasia in these structures is the natural outgrowth of a passive hyperemia. This result is manifestly more likely to be carried on to a marked degree in young tissues, those which are physiologically most inclined to hyperplastic growth. Hence it is that the changes are the more pronounced in youth, and less so or absent in adult or old age. This would apparently account for the almost strict limitation of pronounced cases of the deformities characteristic of pulmonary osteoarthropathy to those instances in which the process originated during youth. It also accounts for the failure of these changes to develop to such a degree, or so frequently, when the pulmonary obstruction occurs after youth. When the impediments to pulmonary circulation and respiratory movements are removed as after treatment the deformities should be checked or retrogress, as instances in the recent literature have shown them to do in pulmonary osteoarthropathy. The reason why the mediastinal growths produce changes precisely similar to those of direct pulmonary impairment is apparent and needs no further explanation.

That defective oxygenation of the blood may also play a rôle in this tissue hyperplasia is possible, since it is well known that suboxygenated blood or a passive congestion invites abnormal tissue hyperplasia, as witness, for example, the interstitial hyperplasia in chronic congestive diseases of the liver and spleen. Septic absorption may perhaps play a similar rôle in some instances, but that it is in any way an essential in the evolution of these deformities would appear to be negative by the evidence adduced from the analysis of these recently reported cases of pulmonary osteoarthropathy.

In conclusion, then, it would seem that a quite sufficient explanation of the lesions of pulmonary osteoarthropathy, and their dependence on pulmonary functional limitation or on such mediastinal growths as impede pulmonary circulation, is furnished by the resultant passive hyperemia which these conditions produce in the distal portions of the body. The lesions are most marked and most likely to appear in those instances where the process begins in early youth, because all tissue hyperplasia is most easily excited during this period. They appear in lesser degree, or not at all, when, as in most cases of pulmonary tuberculosis, the pulmonary and circulatory impediment develops at a period of life when hyperplasia of the periosteum and areolar connective tissue is less readily excited.



## CASE REPORTS.

CASE I.—Montefiore Home, J. P., male, aged nineteen years. Born in Russia, single, occupation, tailor.

*Family History:* Mother and father alive and in good health. One brother and one sister alive and well. Two sisters and one brother died in childhood. No history of tuberculosis, or syphilis, or of chronic metabolic or nervous affections in family. No consanguinity.

*Previous History:* Patient was the fifth child, healthy from infancy up to about the age of ten. Habits: Appetite always good, bowels regular, used to sleep well. Drank tea and coffee moderately. Moderate in the use of beer and whiskey. Never smoked or chewed. Denied all sexual relations, venereal diseases, or masturbation. Worked as a tailor in dust laden air and under very poor hygienic surroundings. Said that in shop where he was employed a tuberculous patient was working.

*Previous Diseases:* As a child he had measles and whooping cough; at the age of nine had pneumonia on left side; at the age of twelve, and again at fourteen, had other attacks on the same side.

*Present History:* Dated back about five years. At that time, while recovering from pneumonia, he began to cough and expectorate moderately. These symptoms became aggravated at times and continued until about two years ago, when he began also to feel quite weak. About three years ago he suffered from a burning sensation in the back; also noted slight bulging of back on the left side. This gradually increased, so that a deformity resulted which made him walk about in a stoopshouldered manner. He had a left sided inguinal hernia of about four years standing, which appeared as a result of the constant coughing. About a year and a half ago noted that his sputum was blood streaked. This persisted for about one week, then ceased, but again reappeared in June, 1912. The sputum was very copious, greenish yellow in color, fetid, and had a sweetish, nauseating taste. At examination he chiefly complained of burning pain in back and legs, so severe that he could not walk; felt very weak generally. During his coughing attacks he felt dizzy and had a sensation of seeing stars. He had occasional night sweats. Slept well at night, but was obliged to get up to urinate about twice every night; passed large quantities of urine each time. During the day he urinated about every half hour. On two occasions the abdomen became distended considerably at three day intervals. For the last three months he had become very dyspneic on slight exertion. He was very tired and weak, and complained of palpitation. One month ago edema appeared in both lower extremities below the level of knee joints; this disappeared in two weeks after external applications. There were no symptoms relating to the alimentary tract. Chief complaints: (1) Bulging of entire left chest; (2) marked cough and copious, fetid, sweetish tasting sputum, occasionally blood streaked; (3) polyuria; (4) dyspnea and palpitation on slight exertion; (5) asthma; (6) pain and tenderness in wrists and ankles.

*Physical Examination:* Young adult, of medium stature, poorly nourished. Musculature flabby; skin, cool, dry, and pallid. The expression is that of anxiety and suffering. Head, normal shape, no scars, depressions, nor elevations; except that malar bones are very prominent and the end of nose is globular. Eyes show normal pupils; no ocular palsies or nystagmus. There is very marked clubbing of fingers and toes, and the distal extremities of long bones of ankles and legs are enlarged and tender. X ray examination shows the clubbed fingers and toes to be chiefly due to hyperplasia of the connective tissue, but the distal extremities of the long bones show very marked proliferative periostitis. Marked bulging of entire left chest; seemingly this half of thorax is displaced to the left, and there is marked scoliosis in the dorsal region, the convexity directed to the left. Lungs: Vocal fremitus markedly diminished over left chest anteriorly, from about level of fourth rib, and posteriorly from level of spine of scapula. Increased resonance and percussion over entire right lung. Over left lung, increased resonance anteriorly, on left side above level of fourth rib, and from level of fourth rib in upper half of left axilla a tympanic note is given. Posteriorly on the left side there is a tympanic note about the level of the spine of scapula, below and up to about the fifth dorsal vertebra; diminished resonance to flatness from fifth dorsal vertebra down to base. Respiratory murmur

exaggerated over entire right lung; expiration is about equal in duration to inspiration. Respiratory murmur is diminished all over left lung, and markedly so below level of fourth rib anteriorly, in the axilla (left) and posteriorly from level of fifth; no râles heard. Heart: Apex beat located in fifth space nipple line. Cardiac dullness above begins at lower border of fourth rib and extends on the left three quarters of an inch beyond nipple line and on the right to the midaxillary line only. First sound is of fair muscular quality, best heard in fifth space in nipple line; no murmurs or abnormal sounds present. The peripheral arteries show signs of thickening; radials are equal, showing moderate tension; are compressible, regular; rate 100 a minute. Abdomen: Soft, flat; no areas of tenderness nor rigidity; no palpable masses; panniculus adiposus scant. Liver dullness begins in fifth space and flatness extends about two inches below costal margin; the inferior border of liver is smooth and firm. Spleen and kidneys are not palpable. The neurological examination gave negative findings.

## URINE EXAMINATION.

Color, amber, clear.	Urea, ten grammes.
Reaction, acid.	Sugar, none.
Albumin, 10 per cent. (volume).	Indican, no excess.
Specific gravity, 1.015.	Bile, absent.
Many finely and coarsely granular, hyaline and epithelial casts.	Acetone and diacetic acid, absent.
	Sediment.

Sputum purulent, contains much pus; occasional epithelial cells; no elastic fibrils; blood cells present; bacteria very abundant, mostly pyogenic organisms; no tubercle bacilli found. Chemical tests show much albumin present.

*Diagnosis:* Chronic bronchitis with bronchiectasis, pulmonary fibrosis and chronic adhesive pleurisy, chronic parenchymatous nephritis, and possibly spinal caries, hypertrophic pulmonary osteoarthropathy.

*Course:* The patient was confined to bed because shortly after entering the hospital marked edema, ascites, and defective fluid excretion developed. Under hot packs, reduced fluid intake, saline purgation, and salt free diet, these symptoms became much relieved, and coincidentally the sputum became much reduced in quantity. The odor diminished, and the patient's general status was much improved. Especially notable was a decrease in the tenderness and pain in the wrists and ankles and an apparent decrease in the clubbing of fingers and toes. He was still confined to bed, and would probably remain there for a considerable time. Physical and x ray examination of the chest showed no apparent morphological changes, but the general picture had much improved.

CASE II.—Montefiore Home, Application No. 14125, Mrs. T. W., aged thirty, occupation, cook; born in Russia; in United States eight years.

*Family History:* Father died at the age of eighty; mother alive and healthy. One cousin on father's side died from consumption. No rheumatic, malignant, or syphilitic history.

*Personal History:* First child, naturally born, and breast fed. Had smallpox at the age of eight; malaria at age of ten. First menstruated at seventeen; regular twenty-eight day type, five days' duration. Married at the age of eighteen; husband twenty-eight. Had had two children, both of whom died in infancy from intestinal disturbances.

*Habits:* Tea in moderation; no alcohol. Lived under good sanitary conditions.

*Present Illness:* Was comparatively healthy until five years ago, when she was taken sick with pneumonia; had chill, pain in chest, hemoptysis, and high fever. Was very ill for six or seven days, when conditions improved somewhat, but the cough persisted, and expectoration became very abundant and was associated with slight daily rise in temperature. About two months before entering the hospital the patient had a severe pulmonary hemorrhage, which left her in a very weakened condition. After this the cough became less severe and she improved slowly, but was obliged to remain in bed for one year and a half after this attack. The cough had since become continuous and the expectoration was very abundant and often blood tinged. She had lost a great deal of strength and flesh. Vomited frequently; had occasional diarrhea; suffered from night sweats and continued pain in the chest.

*Physical Examination (on admission):* Nutrition fair; not very emaciated or anemic. Panniculus adiposus mod-

erate; weight 120 pounds. Skin, dark and dry; pupils equal and react to light and accommodation; no apparent oral or nasal disturbance. The face as a whole is cyanotic and the malar prominences and the nose are noticeable, the latter being of a definitely globular form. Teeth in fair condition, but many of the upper ones are missing; tongue clear and moist; fine fibrillary twitching; pharynx clear, not congested; neck shows a few palpable lymph nodes, some also found in axilla. Thorax symmetrical, no depressions nor protrusions; respiratory movements labored, sixty per minute. Heart: Apex beat not seen or felt; right border lies at the midsternal line; left border three inches to left of median line; no murmurs or other abnormal sounds heard. Lungs: Chest expansion equal on both sides, but is slight and accessory muscles are called into play; tactile fremitus very feeble on both sides; right apex is overresonant on percussion, and left apex even more markedly so; numerous mucous, sibilant, and sonorous râles heard all over the lungs; breath sounds are exaggerated and expiration prolonged. The fingers and toes are markedly clubbed and very cyanotic; distal extremities of radius, ulna, tibia, and fibula enlarged, tender, and painful. The extremities are cold; their capillary circulation is stagnant, but there is no edema. The neurological examination was negative except that a diagnosis of a complicating hysteria was made. During the nine years which the patient has remained in the hospital numerous examinations of the urine were made. These were almost always negative except that when she had complicating surgical conditions albumin was occasionally present. The sputum was almost continually very abundant and of a markedly purulent character; tubercle bacilli have never been discovered, and the predominating organisms appear to be members of the pyogenic group. Examination of the blood, feces, and gastric and duodenal secretions gave fluctuating conditions apparently independent of the condition for which the case is now reported. Frequent x ray examinations confirmed the diagnosis of pulmonary fibrosis, emphysema, bronchiectasis, chronic bronchitis, and hypertrophic pulmonary osteoarthropathy. Soon after admission typical attacks of bronchial asthma developed; temporarily relieved by the usual treatment, but the attack became progressively more frequent.

In March, 1910, the patient was successfully operated upon for an acute appendicitis, and at the same time a ventrosuspension of the uterus was done. Recovery was uneventful. She had been treated variously; among the more unusual methods may be mentioned exposure of the chest to the x ray, deep intramuscular injections of crotalin, by radium emanations, injections of epinephrin, etc. Only temporary relief was attained by any of the methods employed. In January, 1912, she was successfully operated upon for gallstones. Rapid convalescence took place in spite of the persistent cough, expectoration, and asthmatic seizures. Meanwhile the signs of pulmonary osteoarthropathy slowly progressed, and the pulmonary signs and symptoms increased. In April, 1912, the patient was operated upon by Dr. Goodman, in an attempt to relieve the emphysema. The details of this operation are herewith indicated. April 16, 1912. Operation. Incision parallel to right border of sternum. Exposed second, third, and fourth costal cartilages. The anterior layer of the perichondrium was reflected outward as far as the costochondral junction. The posterior perichondrium was then separated, and about one and one fourth inches of the intervening cartilage removed. The resections were made with a scalpel, with the exception of the fourth, where the bone cutting forceps were used in removing a small portion of the rib with the cartilage. The anterior layer of the perichondrium was separated from the parietal pleura, and then reflected over the sternal end of the resected cartilage, where it was fastened with two or three fine chromic sutures. The overlapping ends of perichondrium were excised. After bleeding was controlled the pectoral muscles were united by chromic and plain gut, interrupted sutures; the skin with silk and catgut. No drainage. The same procedure was repeated on the left side. The second and third costal cartilages were excised. The cartilages on the left side were found considerably enlarged and thickened. A simple dressing and bandage applied. As each cartilage was removed the underlying pleura was seen to retract markedly with each expiration. The patient seemed to breathe easier and took the anesthetic more

smoothly. The cyanotic appearance of the mucous membrane changed to a pink color. Since this last operation great improvement in the breathing and in the severity of the asthmatic attacks had taken place. The respiratory movements were more free, but the patient still presented a typical picture of this syndrome. Under hospital discipline the hysterical manifestations had greatly decreased.

(To be concluded.)

## THE SURGICAL TREATMENT OF MONARTICULAR RHEUMATOID ARTHRITIS OF THE HIP.\*

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One of the most serious affections of the hip joint is that which is known as osteoarthritis, hypertrophic rheumatoid arthritis, morbus coxae senilis, or monarticular rheumatoid arthritis. This is a rapidly deforming disease, and during the progress of the deformity which is due to it the patient is continually subjected to pain, especially on movement. The proper treatment of this disease has been a subject of debate since the early days of the history of medicine. There are many who still hold the view that nothing can be done to relieve this affection. This view is held not only by physicians and general practitioners, but a prominent surgeon recently expressed the same view.

One of the earliest suggestions of modern surgeons was to excise the femoral head. This procedure fell into disrepute for two reasons; first, excision of the femoral head is supposed to be accompanied by great shock; second, after excision the neck of the femur was supposed to slip up over the acetabulum onto the ilium and an unstable and painful joint was said to have resulted, in very much the same way as an unreduced congenital dislocation at this joint is said to be accompanied by increasing pain, as the weight of the patient increases after the advent of puberty.

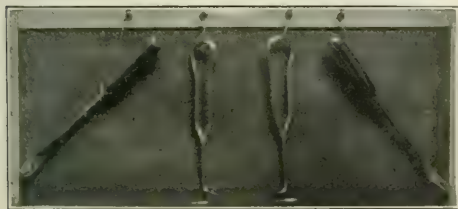
A group of American surgeons then suggested *brisement forcé* in order to secure movement, or increased movement, at an ankylosed or rapidly ankylosing joint. This treatment did not succeed. Forced manipulations of an already inflamed or diseased joint caused increased inflammation and increased outpouring of bone.

An arthrodesis at this joint was then suggested. This operation was improved and popularized by Albee, of New York, and up to recent years, this operation was considered with greater favor than any other by the most eminent surgeons who had interested themselves in the affections of bones and joints, but to-day it is fair to ask whether it has not been superseded by the procedure about to be considered.

I think that it was two or three years ago that Baer, of Baltimore, began once again to excise the head of the femur for this affection. Synchronously with his work the same procedure was being advocated in the Montreal General Hospital. Dur-

\*Read at the meeting of the Canadian Medical Association, June, 1913.

ing these years this procedure has been under discussion and I, personally, have had the honor of discussing it with some of the most famous surgeons in this and the old country. The same objections have now been brought up against it that caused this operation to fall into disuse some years ago, but experience has proved that these objections are without foundation. The statement that the neck of the femur will slip up onto the ilium has been proved to be untrue, if the operative procedure has been performed with sufficient care. It is not necessary to take the head and the greater part of the neck away. The anatomical head itself is all that is necessary to remove; it is best to leave as much of the neck as possible. Then the neck should be replaced into the acetabulum and the patient kept with the lower extremity in a position of extreme abduction for at least six weeks in an endeavor to form a new fibrous head over the incised neck. The objection to the seriousness of the operation, because of the fact that great shock is experienced at the minute of the evulsion of the head from the acetabulum, can be guarded against. With increased experience this operation can be performed with very little hemorrhage. Hemorrhage, if not the cause of shock, is certainly often



Forbes's evulsors used in operation of arthritis of the hip

the forerunner of shock. It is perfectly true that manipulations about the head of the femur are often accompanied by undesirable symptoms, but these can be guarded against by care and precaution. Baer, of Baltimore, presented recently a series of cases in which this operation had been performed. These patients were shown to the members of the Interurban Orthopedic Club. The results were seen to be so good that not one member suggested the use of an Albee immobilization operation in preference to the excision advocated by Doctor Baer. The operation as I perform it may now be described:

The incisions used are those recommended by Doctor Brackett, of Boston. The first extends from the anterior superior spine posteriorly to the superior extremity of the great trochanter. The second runs down over the external surface of the femur for about three inches. At the junction of the first incision and the second incision a third incision is made running in a direction posteriorly for about two or three inches. The flaps formed by these incisions are then dissected away from the deep fascia. This exposes the great trochanter covered by the vastus externus muscle. With a chisel about the width of the great trochanter this prominence with the attached muscles is detached from the shaft of the femur, after the method first

suggested by Mr. Robert Jones, of Liverpool. The soft parts, including the muscles, are elevated by blunt dissection both anteriorly and posteriorly from the neck of the femur to the acetabulum. Between these soft parts and the periosteum both anteriorly and posteriorly as well as superiorly are inserted the evulsors, which have been recently prepared for me by my friend Dr. Rupert Derome, until the capsule is perforated anteriorly, posteriorly, and superiorly. These evulsors are carried around the internal surface of the acetabulum detaching the capsule in all parts from the acetabular rim. The instruments used in this stage of the operation are very similar in shape to an ordinary tack lifter, i. e. from a handle runs a straight shank curved at the end and terminating in a spoonlike extremity. They are blunt and strongly made of carefully prepared and nonbrittle steel. By means of manipulations of the lower extremity in the hands of an assistant and by a prying action with the evulsors, already described, the head is thrown out from the acetabulum by the leverage action of these instruments whose fulcrum, of course, is the acetabular rim. When the head has been removed from the acetabular cavity the aneurysmlike needle—a modification of that originally suggested by McEwen and used for this purpose by Mr. Robert Jones—is inserted around the neck of the femur, and a Gigli saw carried about the anatomical neck as near as possible to the head. The head is then removed by means of this saw. The acetabular rim is then examined and all osteophytes removed from it. The acetabular cavity will often be found to be extraordinarily deep. All hemorrhage being controlled, the neck of the femur is then manipulated into the acetabulum, the great trochanter is replaced in its normal position and fastened there by means of a wire nail. The deep muscles are sutured as tightly as possible about the bone in order to maintain the neck, from which the head has been sawn, in the position once held by the head. The lower extremity is strongly abducted, thus jamming the neck into the acetabulum and assuring this position, and the extremity is encased in a plaster of Paris spica bandage. The extremity is maintained in this position for at least six weeks before either active or passive motion is permitted.

485 GUY STREET.

## ROUTINE SCHOOL DISINFECTION.

By J. T. AINSLIE WALKER,

New York.

Fellow of the Royal Society of Medicine, Fellow of the Chemical Society, etc.

As the writer was compelled at the last moment to forego the pleasure of hearing and participating in the discussion on Dr. Charles V. Chapin's paper on School Disinfection, read before the recent School Hygiene Congress at Buffalo, he welcomes this opportunity of commenting on the following characteristic utterances of Doctor Chapin in the paper in question:

1. It is, however, clearly shown by figures derived from various cities that there is no real correlation between these diseases (measles and scarlet fever) and school attend-



ance, but rather between them and the seasonal temperature. Detailed study of cases also shows that very few cases of scarlet fever and diphtheria are contracted in school.

2. The danger of infection by breathing in floating diphtheria germs derived from saliva deposited on the floors and woodwork is certainly nil.

3. Careful observation shows that persistent fomites infection is of little moment in dwellings and hospitals, and that terminal disinfection after scarlet fever and diphtheria may be safely omitted.

4. There is no massive infection in schools.

Doctor Chapin would probably find it difficult to quote authorities in support of any of the foregoing statements, but there is no lack of authorities against them. Murphy, in 1894, and Goldsmith, in 1907, published figures which clearly showed that there is a very real connection between school attendance and the spread of scarlet fever (*Lancet*, June 29, 1907), and the *Bulletin of the Chicago School of Sanitary Instruction* for August 30th contains the following:

ACTIVE CASES OF CONTAGIOUS DISEASE.

EXISTING.	When schools closed June 28, 1913.	When schools opened September 2, 1913.	Per cent. immunity.
Diphtheria .....	520	222	57
Scarlet fever .....	1,113	278	75
Measles .....	458	23	95

From this it will be noted that there was a quite startling reduction in both measles and scarlet fever during the holiday period between June 28th and September 2d, which is at least very strong presumptive evidence against Doctor Chapin's contention. Kingsford, of Liverpool, says: "Inquiries made during the years 1909 and 1910 elicited the somewhat surprising information that in only 1.5 per cent. of the school cases was there a history of a recent previous case in the house. Consequently, where there is a susceptible school child in the family, it is found in practically every instance that this child is the first to contract the disease and is the one chiefly responsible for handing it on to the younger members of the family who do not attend school. . . . The investigation into the cases of whooping cough occurring during 1910 showed that previous cases at the homes were discovered in only twenty-seven instances, or 0.8 per cent. of all cases, so that in this disease also, home infection is of little account with respect to the infection of school children." (*Medical Officer*, May 25, 1912.)

As regards the second statement, until Doctor Chapin can prove that *Bacillus diphtheria* is not the causal agent of the disease, his assertion that the germs may be inhaled with impunity when they have been "deposited on floors and woodwork" is not likely to appeal strongly to medical men.

The first part of the third statement can be, and repeatedly has been refuted both by observation and actual experiment. Shackleton relates that on one of his polar expeditions some articles of clothing were taken from a chest which had not been opened from the start of the expedition three months before (and which consequently had no opportunity of becoming infected during the latter period), and distributed among six members of the party, in four of whom within thirty-six hours septic sore throats developed. Having regard to the fact that the

party had been living in the frozen regions for the greater part of the period mentioned—i. e., away from all other possible sources of infection—and were at the time in robust health, this incident in itself proves conclusively that infection can readily be transmitted by means of fomites. The writer has never heard or read of any experiment having been carried out to prove Doctor Chapin's argument. The second part of this statement has been dealt with elsewhere.<sup>1</sup>

The fourth statement may be answered by another, by Newsholme, medical officer to the English Local Government Board: "Infectious diseases are caught in the streets only with great difficulty, and this may be described as retail infection, as against the wholesale infection of the schools." (*Report of Consultative Committee upon School Attendance*.)

As regards the whole question of school infection, it would be easy to quote an overwhelming mass of evidence in opposition to Doctor Chapin's contention that school attendance plays an unimportant part in the spread of infection: "We invite, may we require that children shall attend the schools. Shall we then insist upon their spending most of their waking hours in a disease laden atmosphere?" (Dr. Frank Allport, *Interstate Medical Journal*, July, 1913.) "Dust of previous days, stirred up and kept in circulation on subsequent days by the movements of the scholars, is capable of conveying disease in many forms." Dr. Henry Kenwood, Chadwick professor of hygiene, University of London, *The School World*, September, 1908.) "The school child undoubtedly contracts many of its infections in the schoolroom. . . . An unventilated, overheated schoolroom is an incubator for disease germs and a destroyer of physical and mental efficiency." (*Bulletin of the Chicago School of Sanitary Instruction*, March 29, 1913.) "The organic contents of school dust show that it may be a source of specific disease." (Dr. James Kerr, school medical officer, London County Council, *Public Health*, November, 1909.) Professor C. E. A. Winslow, in a series of interesting experiments, obtained 22,700 acid forming streptococci to the gramme from an average of nineteen samples of dust taken from New York schoolrooms. (*American Journal of Public Health*, September, 1912.) Sir Shirley Murphy, medical officer to the London County Council, in a paper communicated to the Second International Congress on School Hygiene, points out that "School attendance concerns the general health, for it means an increase of infectious disease." (*Lancet*, August 10, 1907.) Professor Winslow, in his *Health of the Worker*, says: "The worst kind of filth that can get about in a room is spit. Spit may contain the germs of consumption, diphtheria, tonsillitis, and many other diseases, and careless spitting is one of the best ways of spreading them from one person to another."

In regard to the need for disinfection, the following authorities may be quoted:

"The entire building should be kept thoroughly cleansed by frequent disinfection." (Dr. Frank Allport, *Interstate Medical Journal*, July, 1913.) "No one who is conversant with all the facts will dispute the contention that the periodical disinfection

of school premises is an important branch of school hygiene which is often culpably neglected." (Dr. Henry Kenwood, Chadwick professor of hygiene, University of London, *The School World*, September, 1908.) "The use of a good disinfectant will destroy all infectious material." (Dr. J. Halley Meikle, medical officer to the Edinburgh School Board, *Medical Officer*, January 22, 1910.) "It appears certain that isolation and disinfection as practised in the smaller communities of Michigan reduce the cause of contagious disease in round numbers from forty-five to ninety-five per cent." (Doctor Chapin, of Providence, R. I., *Bulletin of the North Carolina State Board of Health*, August 1913.) N. B. The diseases referred to are typhoid fever, diphtheria, scarlet fever, measles, and smallpox. "To cleanse a schoolroom properly, it is necessary to destroy the germ life as well as to remove the visible dirt. This is why periodic disinfection is necessary even when no known infectious disease has been present." (Memorandum of Scotch Local Government Board.)

Doctor Chapin's views, as expressed above, are in keeping with his earlier and still more startling assertion that disinfection after tuberculosis is unnecessary. That any health officer, and particularly one of the standing of Doctor Chapin, should be willing to commit himself publicly to such a view is to be regretted. It is quite difficult enough as it is to induce the public to take adequate precautions against the spread of communicable disease, and if they have, or even believe they have, authority for ignoring an essential precaution against the most deadly disease with which they are menaced, the eradication of that disease must be rendered appreciably more difficult of attainment. Is it not high time that some authoritative ruling should be issued not only as to the need for disinfection after communicable disease—and particularly after consumption—but also as to the most approved method of carrying it out?

WHITEHALL BUILDING.

## EPITHELIOMA OF THE LOWER LIP IN A WOMAN.

*With the Report of a Case.*

By FRED WISE, M. D.,

New York,

Chief of the Dermatological Clinic, Beth Israel Hospital; Assistant Physician in Dermatology, Vanderbilt Clinic (Medical Department, Columbia University).

In the female sex, epithelioma of the mucous surface of the lower lip is a rare occurrence; very few instances have been reported in this country. Ericksen (1), of London, a surgeon who has had many years' experience and a wealth of clinical material at his disposal, writes: "I have never met with a case of epithelioma affecting the lower lip of a woman." Mazeau (2), in an essay on epithelioma of the lower lip, says: "The male sex alone pays tribute to epithelioma (of the lower lip); women, even those using tobacco, remain unpunished." Bulkley and Janeway (3) reported 400 cases of epithelioma of the skin and lips in both sexes; of these, thirty-two affected the lower lip, all in males. No mention is made of the disease in the lower lip



FIG. 1.—Epithelioma of the lower lip in a female.

of females. In Dugué's (4) essay on this subject occurs this passage: "We have always noted the extreme rarity of epithelioma of the lower lip in women. Ericksen stated that he had never seen one. A certain number of such cases are, however, on record. In 1892, the *British Medical Journal* published a series of cases, the diagnosis having been confirmed by microscopical examinations. In a case published by Herbert Barclay, a woman who was in the habit of smoking a pipe, was afflicted with the disease in the lower lip." Dugué mentions Fricke's figures—one epithelioma of the lower lip

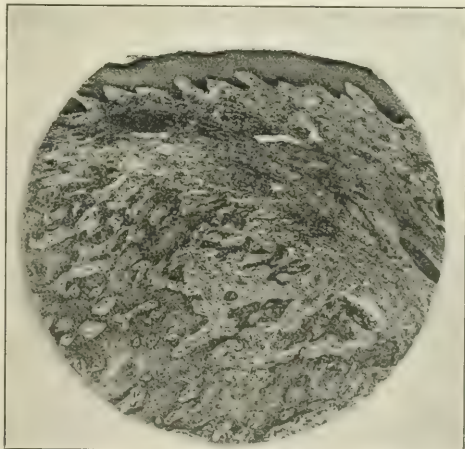


FIG. 2.—Superficial squamous celled epithelioma. (Low power.)

in women, to thirteen in men— and says that, although many authors state that women are immune to the diseases in this locality, such is not really the case. As to why the lower lip is rarely affected in the female, Dugué believes that the relative absence of irritative agents, such as tobacco, alcohol, trauma, etc., may be the negative etiological factor.

W. Roger Williams (5), a British surgeon, reported upon 352 neoplasms of the lips, of which number 340 started from the lower lip; of these 340 cases, 329 were epitheliomata; of the latter, 326 occurred in the male, only three in the female (that is, less than one per cent.). Theodor Fricke (6), from the Göttingen clinic, has published some very interesting figures on the subject. He collected statistics from five cities in Germany, including therein the records of 1,338 cases of epithelioma of the lips in both sexes. He found that the disease occurred nineteen times more frequently on the lower than on the upper lip, reckoning both sexes together. Of 1,264 cases of epithelioma of the lower lip, 1,174 were in men; ninety (7.2 per cent.) were in women. Of these 1,338 cases, Fricke found that 1,219 (91.1 per cent.) were in males; 119 (8.9 per cent.) in females; while Wörner (7) in 866 cases, found 782 (90.4 per cent.) in males; eighty-four (9.6 per cent.) in females. Fricke calls attention to the remarkable relatively high percentage of epithelioma of the upper lip in women, compared to men; of 782 men with lip cancers, in only seventeen (2.2 per cent.) was the upper lip affected; whereas of eighty-four women, twelve (14.3 per cent.) had the disease in the upper lip.

Loos's (8) statistics are based upon 565 cases of lip cancer in both sexes; 534 of these were on the lower lip, thirty-one on the upper; a ratio of seventeen to one. Of these 534 lower lip cases, 467 were in males, sixty-seven in females (12.5 per cent.). Loos remarks that this percentage in females is considerably higher than the figures given by other authors; that the relative increase of the disease on the lower lip of women, in Bruns's clinic, dates back since 1885 and that he is at a loss to account for this comparative increase in its occurrence.

Hermann Ebel's (9) statistics deal with 199 cases of the disease in the lower lip. Of these, 185 (92.9 per cent.) occurred in men; 14 (7.1 per cent.) in women. This ratio of 13 to 1 agrees with that given by Fricke.

TABLE SHOWING RELATIVE PERCENTAGES OF EPITHELIOMA LABII INFERIORIS IN THE FEMALE SEX

Authors.	Number of cases.	Per. centage in females.
Bulkeley and Janeway .....	32	...
Williams .....	350	...
Fricke .....	1264	7.2
Wörner .....	289	8.7
Loos .....	534	12.6
Trendelenburg (10) .....	241	1.7
Wischniewsky (11) .....	56	9
Winiwarter (12) .....	62	1.6
Bruns (13) .....	55	7.2
Thiersch (14) .....	48	4.1
Ebel .....	199	7.1

Much stress has been laid on the use of tobacco as an etiological factor in the causation of epithelioma of the lower lip. Loos points out, how-

ever, that of 225 patients with the disease in this locality, 119 did not use tobacco in any form,—that is, more than fifty per cent. were abstainers. It is difficult to explain, says Ebel, why, if it be conceded that smoking is a causative or exciting factor, not more than one out of ten thousand habitual smokers become afflicted with malignant disease of the lower lip; on the other hand, many patients having the disease in this locality are abstainers. Of 199 cases in Ebel's clinic, 22 (11 per cent.) had never used tobacco, and this number of nonsmokers does not include the female cases. Wörner, Fricke, Maiweg (15), Regulski (16), and other authors do not consider the use of tobacco of etiological moment in the causation of cancer in the lower lip.

In discussing the etiology, nearly all authors come to the following conclusions: Women are much less prone to epithelioma of the lower lip, because they are less exposed to injury and irritation due to smoking, shaving, cuts, and blows, etc., and because they are more careful than men, as to the hygiene of the mouth. In this connection, Ebel points out that the disease in women is no more common in the Orient than it is in countries where women do not habitually smoke; furthermore, he says that the hygiene of the mouth, in his opinion, plays no rôle in the etiology, for in the class of women afflicted with the disease, the sanitary measures bestowed upon the mouth are about on a par with that of the men.

#### CASE REPORT.

Mrs. B. K., aged seventy years, born in Russia, applied for treatment at the dermatological clinic of Beth Israel Hospital, early in May, 1913. Her parents and three brothers and two sisters died of unknown causes. The patient was married at the age of twenty-two years and had had ten children, two of whom are living and well. The cause of death in the other children could not be ascertained. The family history as regards cancer and syphilis was negative.

The personal previous history was negative, the patient stating that she had always enjoyed good health. She had never used tobacco in any form.

The present illness dates back four months, when the patient first noticed a small papule on the lower lip, to the right of the median line. She soon acquired the habit of picking at it with her fingers. Two months after its appearance, she consulted a physician, who applied "electricity" (?) to the growth, with the result (according to her statement) that it rapidly increased in size, until it had attained its present dimensions, that of a small hazel nut.

The clinical appearance of the growth was that of a typical epithelioma, so frequently seen in the lower lip of men. It had the characteristic induration, the rolled, pearly border, and the discharge and crust formation due to ulceration of its surface. There was no palpable glandular enlargement in the neck or elsewhere. The patient's general health was good and there had been no loss of weight.

The tumor was ablated by Doctor Lewisohn at the Beth Israel Hospital. Microscopical examination revealed a superficial, squamous celled epithelioma.

Through the kindness of Doctor MacKee, the patient was presented before the New York Dermatological Society, at the May, 1913, meeting.

Although I not infrequently encounter cases of diffused and circumscribed keratoses and warty excrescences on the lower lips of women, the case herewith reported is the first of its kind coming under my observation during ten years' work in the various dermatological clinics of this city and in private practice.



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828 LEXINGTON AVENUE.

## THE TREATMENT OF THE CACHEXIA OF MALNUTRITION.

By Metagastric (Duodenojejunal) Administration of Artificially Prepared Endproducts of Digestion (Aromatic Amino Acids and Maltose).

### A Preliminary Report.

By FRANK SMITHIES, M. D.,  
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There appears to be a class of individuals which, clinically, exhibits weakness, languor, pallor, with or without actual anemia, blotchy muddy skin, anorexia, dyspepsia, often associated with vomiting and prolonged constipation. In these patients the deviation from the normal can be attributed to no actually demonstrable cause, even after the most careful clinical scrutiny. The cachexia in this type of case is often extreme and may progress to the death of the individual. It is usually ascribed vaguely to "autointoxication," due to constipation, without apparent regard to what may be the initial factor in the production of such constipation. This group of individuals is difficult to successfully treat, whether by surgical procedure for relief from "toxic" substances said to be absorbed from the large bowel, or by purely medicinal or hygienic measures.

On December 18, 1912, there came to the Mayo Clinic an individual like this, in the hope of securing relief from a surgical operation of the "short circuiting" type.

The patient was a Russian Jewess, aged twenty-six, whose height was 5 feet  $1\frac{1}{2}$  inches, and who, fully clothed, weighed 60½ pounds. She had previously had an appendicectomy performed elsewhere, with a second operation for the relief of adhesions, but without relief of constipation, sour dyspepsia, and cramplike, general abdominal pains. During the year preceding her coming under observation, she had lost in weight more than thirty pounds, was extremely weak, and had gradually become bedridden. Hemoglobin was seventy per cent., urine negative, stomach examination showed normal acidity, without retention, with moderate vis-

cerptosis, as shown by air inflation of stomach and bowel, and by radiogram.

Perhaps on account of the patient's extreme emaciation, operative interference was not deemed advisable. The patient was referred for medical treatment. In view of the work of Lusk and his associates (1) upon animal calorimetry, and especially that work on the metabolism of dogs following the ingestion of amino acids, it was decided to observe the effects of similar measures in the human. Fortunately there was at this time a man in the clinic who was about to be operated upon for the relief of a "vicious circle" following gastrojejunostomy for duodenal ulcer. From him we were able to obtain gastric extracts of a golden color, which had total acidity of 68, hydrochloric acid 60, and exhibited tryptic and amylolytic activity of more than 10,000 units by the Gross-Fuld and the Wohlgemuth quantitative estimations. More than 650 c. c. of gastric extract were secured from this patient, filtered through fine sterile sand, and several times through double, hydrochloric acid washed filter papers to free from microorganisms, and then preserved in a sterile flask under toluene (Merck). It was our purpose to avail ourselves of the ferment activity of this gastroduodenal juice, in the preparation of endproducts of digestion upon which to feed our patient.

It will be recalled, that in the digestion of protein by the gastric juice, it is successively converted through the stages of soluble globulin, acid metaprotein, proteose (propeptone) to peptone. Pancreatic ferments further split this derived peptone to polypeptides, which are then broken up into soluble amino acids, hexone bases, aromatic amino acids (tyrosine, tryptophane) and ammonium compounds. The pancreatic juice may, of itself, bring about all stages of protein cleavage. Upon carbohydrates, the pancreatic juice acts completely from the stage of soluble starch through to maltose. The villi of the small bowel, and perhaps the duodenum, take up these soluble products, and from them synthesize the tissue and body fluid protein.

We decided to feed our patient on a mixture of split peptone and maltose. In order to make the procedure as physiological as possible, we ventured to feed her this mixture by a duodenal tube, metagastrically, *e. g.*, where in the process of digestion such ingredients are normally produced and absorbed. To a saturated solution of Witte's peptone (about five per cent. by weight) in distilled water, was added one per cent. by weight of soluble starch (Lintner). To one litre of this mixture were added twenty-five c. c. of the filtered gastroduodenal extract. This was incubated under toluene at 37° C. for twenty-four hours. A specimen of the mixture acidulated with three per cent. acetic acid, and then tested for free tryptophan, gave the typical rose pink color reaction. The split peptone mixture, tested independently after incubation, had a formal index (method of Sorenson-Schiff) of 259. A duodenal tube was passed upon the patient in the usual manner. Through it, twice daily, were injected in the early progress of the case 100 c. c. and later, increasing amounts up to 1,500 c. c. of the split peptone starch solution. No ill effects were observed. The patient was permitted to eat the same sort of diet on which she had been

previously subsisting, and was not put to bed. The bowels were relieved by an occasional dose of castor oil.

The results of the treatment outlined were so encouraging as to warrant its continuance. There were a steady gain in weight and strength, an increased mental activity, a clearing up of the blotchy skin, an improvement in hemoglobin, and an amelioration of the distress associated with constipation. At the end of three months the patient weighed 99½ pounds (a gain of thirty pounds,) and was engaged, after nearly two years' idleness, in her trade of hair dressing. At the end of 4½ months she weighed 114½ pounds (a gain for forty-seven pounds) and was so well physically, that she ceased keeping her appointments for treatment, and had established herself in a little business. She was still constipated. Her hemoglobin had risen to ninety-five per cent., her complexion was rosy, her eyes bright, and her strength so good, that a satchel carrying more than ten pounds was easily carried, as the patient walked between the houses of her customers. Treatment had been discontinued over two months, and the patient remained apparently normal.

The results in this case were so encouraging as to justify further trial with other patients. Digestion of the peptone was later carried on with trypsin instead of the gastrojejunal juice. To the split peptone solution was added maltose in the proportion of five per cent. by weight. This mixture was given metagastrially. It appeared to act very well and caused no disagreeable effects. We have used the procedure on two other patients, both women, with cachexia of the type above described. The details of the cases are reserved for a future report. The patients have progressed in a very satisfactory manner.

#### CONCLUSIONS.

From the results of our work we feel warranted in suggesting this therapeutic procedure to others for the treatment of cachexia, where surgical relief is not available; where nonobstructing vomiting has become more or less pernicious; where stricture of the esophagus or cardia prevents ingestion of sufficient food to support life; where functional estimations show low pancreatic activity; where grave anemia exists, and in the asthenia following extensive surgical operations. Split peptonemaltose solutions are well borne in the stomach, and there may exist cases where their ingestion through the stomach tubes may prove valuable.

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### PROPHYLAXIS OF INSANITY.\*

BY H. C. PODALL, M. D.,  
Norristown, Pa.

The prophylaxis of insanity is of particular importance to the medical profession, on account of the large number of insane and feeble-minded in the institutions of Pennsylvania. In the United States

in 1912 there were 250,000 insane; more than eight times the population of Norristown. Hospital statistics show that the insane population in institutions is increasing at the rate of 6,000 patients a year, and about 30,000 new cases of mental disease enter our public and private hospitals for the insane each year.

Heredity and environment play an important part in our life; the influence of heredity begins generations before the child is born, while environment only awaits its entrance into the world to assert its influence. We all know that members of some families have great resistance or vitality, who may have had severe physical illness, trauma, or indulged in excesses without mental symptoms, while other families lack this resistance and show a temporary or permanent mental aberration after a less severe illness. Some rebound from financial, domestic, or other difficulties, their only apparent effect being to spur them on to greater efforts, while to others these difficulties result in depression, suicide, or a flight into an acute psychosis where their wishes are realized in the fancies of the abnormal mental state. Heredity in some mental diseases is more marked than others. The study of the families of those suffering from epilepsy, dementia præcox, and manic depression reveals the fact that they belong to strains with mental weakness, individuals whose nervous system cannot stand great stress, and as a result, we have a breakdown.

The great problem before us to-day is not so much to cure the mental disease already developed, as we know that only one fourth of these cases are curable—the other three fourths are the chronic insane that fill our institutions—as it is to recognize the unstable child and adult in whom the psychosis is apt to develop and direct them so that the disease may be prevented.

The world wide movement in the fight against tuberculosis has accomplished much, the percentage of deaths is yearly being lessened, and the campaign against mental disease must be along the same line. The public must be educated by the medical profession: it is only with the full cooperation of the public that results can be best accomplished. In order to achieve success it will be necessary to inform the public regarding the nature and causes of mental diseases, so that it may be acceptable as a disease, and not as a crime or a family disgrace, and receive intelligent treatment.

The family physician in caring for the patient during the onset and early stages of mental disease, should in many cases advise hospital treatment. The recognition of the earliest manifestations of the disease, and its treatment, will determine to a great extent the course and prognosis of the case.

The earliest admission to a hospital is of greatest importance; hospital records show that of those in whom the duration before admission is short the patient's chances of recovery are best. In this country one third of the patients admitted to hospitals for the insane have had their disease more than eleven months. In England, in 1900, eighty-five per cent. of patients were admitted to hospitals for the insane during their first attack. This was

\*Read before the Montgomery County Medical Society, June 25, 1913.

directly due to improved standards of care for the insane.

Some of the efforts to prevent mental disease have been along the lines of eugenics, for which sterilization, regulations of marriage contracts, and the improvement of the public health have been advocated. At present eight States have laws for sterilization: Indiana, California, Washington, Connecticut, Nevada, New Jersey, Iowa, and New York. Of these, only two States have put the laws into effect. Other States have advocated similar laws. The State of Pennsylvania has a bill before the legislature for a similar law. Some advocate a certificate of health before contracting marriage. The public is not yet ready to accept the responsibility for such drastic measures. Only occasionally do we hear of ministers refusing to marry isolated cases where known ill health exists. The main issue to-day is to collect and study facts regarding the unfit, and teach the people the importance of these facts.

In every general hospital and in the practice of the general practitioner will be seen an occasional case of pneumonia, typhoid fever, cardiac, or renal disease in which the patient will develop mental symptoms, either temporary or for a longer period, requiring attention. The question will arise, Should these patients be cared for at home or sent to a hospital for the insane, as in most cases they cannot be cared for in the wards of a general hospital?

In some cities psychopathic wards are attached to general hospitals and patients are accepted for observation and treatment, until it is determined whether or not a hospital for the insane is their proper place. They afford treatment for acute mental diseases in the early and most curable stages, thus assuring a larger percentage of recoveries. They provide facilities for research and the scientific investigation and prevention of mental disease, and thus lessen the accumulation of the chronic insane.

It has been shown that a large number of cases of dementia præcox result from improper training in early life, especially in the years of character formation. In children particularly we find many examples of psychopathic characters. It has been shown that uncontrollable anger may become a mania, and fear and suspicion increase to delusions; these may be temporary, not necessarily ending in insanity. The establishment of special schools for feeble-minded and backward children under proper medical supervision would withdraw the constitutionally inferior from competition with the normal child, and give them an opportunity to develop along the lines of physical rather than of mental training.

We should not spoil a good laborer by trying to make him a poor professional man, by forcing him beyond his mental capacity. Let me illustrate this point by a few cases from our experience at this hospital.

CASE I. R. W. K. (8076). A young man from a family in which mental disease was present, had an attack of typhoid, following which he had hallucinations for several weeks, and convalescence was delayed. His brother also had the same condition following the same disease. Both

apparently recovered. It is evident this was an indication of an unstable nervous system. This young man persisted in taking up a long course in one of our universities, and in his junior year a psychosis developed which necessitated hospital treatment with little encouragement for recovery.

CASE II. E. A. L. (7088). From the family history we find the father used alcohol to excess. The mother had a neurotic temperament. The patient had never been of a sociable disposition, always seclusive, never associating with other boys and not inclined to any amusements. He took up the study of law and after a good deal of difficulty with his studies passed his examinations. About one year later began to show symptoms of a psychosis, and is at present a patient at this hospital.

CASE III. M. J. (7769). Maternal grandfather and uncle were insane. Patient graduated from high school at seventeen years of age; then entered one of the medical schools at Philadelphia. At the end of the first term he failed at the examinations in one half of his studies. In the fall term he went to Baltimore, Md., and entered a medical school. While there he wrote to his father, stating that he had the prodromal symptoms of some mental disease. He continued his studies, however, until the end of the term. He failed to pass in all of the examinations, and shortly after was committed a patient to this institution with a hopeless prognosis.

Alcohol and other excesses contribute largely to the causes of insanity. We realize that all persons do not react the same way to alcoholic indulgence. Some people go through a long, useful life with a daily use of alcohol and show no mental symptoms, while in others indulging to a less extent an alcoholic psychosis develops. We know that alcoholic indulgence in some produces epilepsy, in some hallucinations, and in others delusions of a paranoid type, showing the different effects of the same cause.

Paresis, which causes the commitment of about eight per cent. of male and two to four per cent. of female patients to insane institutions in the United States, is due to infection with syphilis.

In some European cities (Berlin and Munich) the paretics average thirty-five to forty-five per cent. of male admissions. The proportion of male and female paretics is about one to six. The disease is more prevalent in large cities and manufacturing centres, and less so in farming communities. For many years past it was thought to be a parasymphilitic disease of the brain resembling locomotor ataxia, which affects the spinal cord; that is, in a small proportion of persons infected with syphilis, paresis would develop in ten or twenty years following infection.

The recent work of Noguchi and Moore has demonstrated the presence of *Treponema pallidum* in the tissues of the brain, which shows that it is only a late manifestation of syphilis.

In women the effects of childbirth, especially when the births follow closely upon each other, the infection that may occur during the puerperal period, and the exhaustion of tuberculosis and other acute or chronic diseases, and surgical operations often precipitate a mental breakdown which might have been avoided if the physical health had been more carefully preserved.

In a small proportion of imbeciles we find an acquired type whose mental enfeeblement follows an infectious disease like scarlet fever or diphtheria, which was probably due to encephalitis or meningitis though they were mentally normal be-



fore the onset of the acute disease. These cases may be classed as examples of arrested development rather than imbecility. This sequela may or may not be the result of improper treatment, but it is a possibility that we should bear in mind.

About five per cent. of the cases develop after an exhausting physical disease. They have been classed as exhaustive, or infective exhaustive, psychoses, for example: the clerk, stenographer, or seamstress, attempting to do more work than is possible, may resort to stimulants to spur the lagging energy. The presence of tuberculosis or other disease precipitates physical failure, and with it a fairly characteristic train of mental symptoms, which fortunately disappears in most cases as physical health is restored by careful treatment or nursing.

There is another type of cases which is of sufficient interest to mention in this connection. The reports of the German, English, and American armies show that a uniform average of the recruits do not make soldiers because they cannot stand the rigid discipline that is necessary for this calling. They become insubordinate, break the rules of the army, and would be subject to punishment if it was not realized that their conduct was only the result of their mental deficiency.

We also receive patients from the penitentiary and other similar institutions in whom, after a few weeks or months of imprisonment, a psychosis develops closely allied to hysteria with apprehension, irritability, hallucinations, and ideas of persecutory nature; these patients as a rule recover promptly, when placed in hospital environment, and are often accused of malingery, but they are only of that class of mentally deficient who react to their environment by being attacked with an acute mental disease.

#### CONCLUSIONS.

To summarize, let me say that defective heredity is an important factor in the causation of mental disease, being found in about eighty-five per cent. of all cases.

Alcohol and drug addictions furnishes twenty to thirty per cent. of the cases. In Vienna among the male insane thirty per cent. were found to be alcoholics, and among women only four per cent. were alcoholics. Male alcoholics greatly predominate.

Paresis which is due to syphilis is found in all classes and professions. It occurs more frequently in male and is to a great extent preventable.

Dementia præcox furnishes fourteen to thirty per cent. of all admissions to insane institutions. The recognition of the earliest symptoms of the disease and proper treatment is essential.

Manic depressive insanity, one of the most important forms of mental disease, comprises twelve to twenty per cent. of admissions to insane hospitals.

Exhaustive childbearing, infectious diseases, and the strong competition in the struggle for existence, are important factors in mental breakdown, and any means that would tend to eliminate any of these causes would go far to prevent mental disease.

## OBSTETRICAL EXPERIENCES OF A COUNTRY DOCTOR.

By C. L. SIGLER, M. D.,

Pinekey, Mich.

There is perhaps no phase of a general practitioner's work that calls for more quickness of thought and action than his obstetrical cases, and in illustration I wish to briefly describe three that fell to my lot in one day not many months ago.

The first one was in answer to a hurry call some nine miles in the country, and I had no knowledge of the patient until I was at her bedside and found her in a terrific convulsion. I ascertained that she was between three and four months' pregnant with her first child, and had been seized with a similar attack some forty minutes before, when they called me. Fortunately I had my obstetrical kit with me, and I gave her a few inhalations of chloroform, which had the effect of relieving the spasm, but left her unconscious. An examination revealed no dilatation of the cervix, and a pulse of 160. I immediately gave her thirty drops of tincture of veratrum viride, and repeated the same dose in fifteen minutes; which had the effect of bringing the pulse to 120. In the meantime I had telephoned for Doctor Wylie, of Dexter, and upon his arrival we forcibly dilated with our fingers and removed the fetus and membranes. The patient had one mild convulsion during this operation, which necessitated a small amount of chloroform, and at its completion we gave another twenty-five drops of veratrum viride. In less than one hour after this, consciousness was returning, and the pulse was well under 100, and of good quality. As no urine was being secreted, the patient was placed in a hot pack until in a profuse perspiration. The urine was very scanty the next day, and completely solidified upon boiling, but after a few days on milk diet, and with one grain of sodium nitrite every three hours and one two hundredths of a grain of nitroglycerin at the same interval, the albumin became merely a trace, while the blood pressure, which had been around 150 mm. Hg., fell within a few weeks to 115-120 mm. Hg.

I wish to say just here that in the case of eclampsia, no matter what the stage of pregnancy is, I never feel safe until the uterus is empty, and have never been sorry that I emptied it at any period. In one case I left it until the seventh month, so as to get a live child. This was successfully accomplished, but the mother never got over the injury to her kidneys, and died of chronic Bright's disease inside of four years. In all cases where I have emptied the uterus immediately upon the appearance of convulsions, or very grave signs of kidney involvement, the mothers are alive, and in more than one instance have gone through labor successfully since.

Upon my return home from this case I was called to see Mrs. W. K., a primipara, aged twenty-four years, who had had a ventrofixation some two years before. The fundus was firmly fixed about midway between the pubes and the umbilicus, and the cervix could be barely reached with the tip of the finger, and was pointing upward and backward toward the lumbar region. Under chloroform the whole hand was introduced into the vagina, and an effort made to partially replace the uterus, so that delivery might be accomplished; but this proved to be totally out of the question. Doctor Wylie was again summoned, and we had the nurse prepare our instruments and patient, and with the able assistance of my father, H. F. Sigler, we operated as follows: An incision was made from about one half inch above the umbilicus to the pubes, and after severing the adhesions made by the previous operation, a trial was made to replace the uterus, but its size rendering this impossible, an incision was made longitudinally in the posterior wall of the uterus. The child was then grasped by the leg and quickly removed, and the uterus seized between hot packs, which caused a prompt contrac-

tion, and the placenta was removed by the same incision. There was but very little hemorrhage, and the uterine incision was quickly closed by two rows of twenty day chromic gut, and the abdominal incision closed in the usual manner.

Fate not considering two enough for one day gave me another in the case of a primipara at full term in which the head refused to engage. The patient had been having some pains for twenty-four hours, but as they had not been very hard, had waited for me until about four o'clock in the afternoon. At this time the cervix was fully dilated, pains strong and coming every five minutes, presentation left occipitoanterior. After waiting an hour I quieted the patient with a sedative hypodermic tablet, and left instructions to call me when the pains again became hard. This occurred about 7 o'clock, and at this time I found the conditions practically unchanged. The pains were hard and forcible, but the patient was becoming exhausted, and all were anxious that I should "do something." After waiting an hour more, and finding absolutely no progress, I had to choose between high application of the forceps and version. Feeling that the former was the least to be dreaded, I easily applied my Elliott forceps, and in one half hour delivered a lusty thirteen pound boy. The forceps were removed as soon as the head was well down on the perineum, and one or two good pains finished the delivery, with only a slight perineal tear, which was immediately repaired with chromic gut.

All these patients made good recoveries, the first being kept on a semiliquid diet for several weeks, and the bowels kept well open with salines. At the present time she is apparently normal, with normal urine and a blood pressure of 115 mm. Hg. The ease with which Cæsarean section is performed should cause it to take the place of many obstetrical procedures sometimes used, and would many times be the means of saving both mother and child. In one case of placenta prævia in which I lost both mother and child (the only mother lost, by the way, in some 500 cases) I believe both would have lived had I delivered in this manner. In one case of acephalic monster the placenta was removed before the birth of the child and without an ounce of hemorrhage during the whole delivery. In one case of hydrocephalus the cranial vault was absent, and the skin stretched so thin that it was taken for a hydramnios, and was easily ruptured with a probe and an immense amount of water evacuated. The fetus had apparently been dead for some time, being macerated and fetid. Another patient was delivered of a live child at full term, and in the same sac there was a dead three months' fetus, the mother giving a history of having had symptoms of threatened miscarriage at three months. In over 500 cases there has been but one pair of twins, one case of meningocele, one of talipes (cured by manipulations begun on the second day and continued for two years), several of umbilical hernia, all cured by buttons placed in pockets in the abdominal bands, one acephalic monster, and one face presentation (chin anterior, delivered with forceps). There were several breech presentations, one child being lost by slow delivery of aftercoming head. One case of precipitate labor, the child, placenta, and membranes being shot out in a single pain to below the patient's knees. There were only one case of cleft palate, two of harelip, and one extra-uterine pregnancy in the entire series. This was not diagnosed until after rupture had taken place, but the patient recovered without operation, although an immense hematocoele formed and she

nearly died from the hemorrhage. Operation was refused, and now, after six years, there are still remains of the hematocoele. Two Cæsarean sections have been necessary, one for contracted pelvis and the other as related above, both resulting in living mothers and children.

There has been no complete laceration of the perineum. Perineal tears are immediately repaired, under chloroform, with twenty or thirty day chromic gut. Ergot is never used until after the birth of the child, and sometimes not until after the removal of the placenta. In the latter case it is my usual custom to use aseptic ergot hypodermically. Chloroform is almost always used, and is discontinued upon the delivery of the head. The placenta is never extracted until good contractions are produced, and then by the modified Credé method. Forceps are not often used, and I have been more often sorry for using them than for not. Pituitrin has been used in a few cases, and seems to be useful. Gloves are not worn in ordinary cases. At the first bath the child's eyes are washed with boric solution, and in all suspected cases silver instillations are made.

These methods are by no means given to guide others who may have had greater experience or better results, but that others may profit by my mistakes, as well as from what few good things I have accomplished in this soul trying and poorly paid branch of the country doctor's work.

### **Therapeutic Notes.**

**Primary Suture of the Bladder.**—H. A. Moore, in the *Urologic and Cutaneous Review* for March, 1913, asserts that the methods of closure of the bladder commonly employed after suprapubic cystotomy are, in reality, relics of the darker ages, and strongly emphasizes the advisability of effecting immediate closure in cases of suprapubic prostatectomy where the cystitis is not too great, in many cases of suprapubic lithotomy, in suprapubic cystotomy for retrograde catheterization of impassable urethral stricture, and after the removal of benign and many malignant growths, in cases where hemorrhage is not excessive.

Air distention of the bladder should be practised, both to keep any existing infection at a minimum, and to force the peritoneum out of the space of Retzius. A longitudinal incision of medium length is best, the peritoneum being rolled up from the anterior bladder wall when the prevesical fat is reached.

After the intravesical work is complete and hemorrhage controlled, the bladder neck should be divulsed and a slight incision made at the meatus if this orifice is too small to admit the large catheter—No. 30 French—necessary for drainage. Such a catheter is large enough to permit the removal of clots by aspiration. It should protrude into the bladder about half an inch and be anchored to the penis.

The bladder wall should be closed with chromic catgut in two layers, the first of these with interrupted stitches (not penetrating the mucosa) and the second with a continuous suture. The muscles

and fascia are closed in layers with catgut, or with silkworm gut where the bladder is foul, and the skin with silkworm gut.

In some cases the bladder should be carefully irrigated daily with boric acid solution, three or four ounces being used at each irrigation and repeated until a quart or more has been employed. Ordinarily, however, it is preferable simply to give large quantities of water internally. Where an infection is feared drainage from the space of Retzius may be maintained for from twenty-four to thirty-six hours. Usually the patient can sit up in a chair after four days, and the drainage is discontinued in a week.

**Treatment of Constipation in Infants.**—G. Schreiber, in *Paris médical* for May 10, 1913, states that constipation in the nursing is generally related to feeding that is defective, either in quality or quantity.

In the breastfed infant the treatment should include regulation of the intervals of feeding, and an increase in the amount given at each feeding, if necessary. Pastry, sweet dishes, spices and stimulating beverages should be forbidden to the nursing mother or wet nurse, and the meats reduced. Green vegetables, cooked salads and cooked fruits should be ordered, and if there is persistent constipation, castor oil or magnesia prescribed.

In the bottle fed infant cane sugar should be replaced by pure lactose and if constipation is not thereby overcome, the sterilized milk should be diluted with one third its volume of boiled water, or replaced by boiled milk or certified raw milk.

In the weaned child, barley flour should be used for the preparation of porridge, cocoa, and all foods containing it prohibited, abuse of milk guarded against, and, at the age of eighteen to twenty months, strained green vegetables, cooked fruits, and compôtes ordered in plenty; a quarter of an orange may also be given.

The medicinal treatment of constipation in infants may consist in the use of the following suppository:

R Gelatini, .....gr. xii (0.75 gramme);  
Glycerini, ..... } .....âa mxxvi (1 gramme).  
Aque, ..... }

M. Sig.: Introduce in the evening.

Twice weekly an enema of from three to six ounces (100 to 200 grammes) of a two per cent. infusion of marshmallow, or one containing 15 grains (1 gramme) of boric acid, should be given.

To each bottle of milk may be added a teaspoonful of:

R Sodii citrat. ....gr. xxx (2 grammes);  
Aque destillatæ, .....5iv (120 grammes)  
Misce.

Or of a solution of sodium sulphate in similar ratio.

Laxatives should be used with great caution in the first year of life. If their use becomes necessary, a teaspoonful of the following may be given in the morning on an empty stomach:

R Olei olivæ (puril), .....3iiss (100 grammes);  
Olei menthæ piperitæ, .....gtt. i.  
Misce.

Or, castor oil may be given in doses of forty minims (2.5 grammes) for each year of age, preceded

and followed by the juice of an orange. Calomel may be administered, as advised by Marfan:

R Hydrargyri chloridi mitis, ...gr. ¼ (0.05 gramme);  
Sacchari lactis, .....gr. xv (1 gramme).  
M. et pone in chartulas No. x.  
Sig.: Two powders a day on five days in each month.

**Treatment of Wounds and Denuded Skin Surfaces.**—Delanglade, at a recent meeting of the Marseille Surgical Society (*Revue de chirurgie*, May, 1913), pointed out the disadvantages of the dressings commonly used, moist as well as dry, in wounds covering a wide area of skin—especially burns—and discharging freely. In order both to secure efficient drainage, and not interfere with epithelial proliferation and healing, the author uses silk protective with numerous openings, which, after sterilization by boiling, is applied directly to the open surface, and then covered with an ordinary absorbent gauze dressing. The silk material does not become adherent and can therefore be very easily removed without causing hemorrhage or pain.

Poncet, at the same meeting, recommended a continuous oxygen bath in the treatment of grayish open surfaces with poor tissue vitality, such as are met with, for example, in diabetics. Two oxygen containers are used, one full and the other empty. In the latter an opening is made large enough to admit the limb or stump on which the open area is situated. Oxygen is then admitted around the part, and changed every twelve hours. The treatment is continued for several days and generally gives perfect and very prompt results.

**A Formula for Combined Stomachic and Laxative Effects.**—Bardel, in *Paris médical* for April 12, 1913, is credited with the following combination for these purposes:

R Fluidextracti rhamni purshianæ, ...5v (20 grammes);  
Tincturæ nucis vomicæ, .....3ss (2 grammes);  
Aque laurocerasi, .....âa 3ss (15 grammes);  
Syrupi, ..... } .....3iiss (100 grammes).  
Aque destillatæ, ..... }

M. Sig.: Three or four teaspoonfuls daily.

**Treatment of Amenorrhea.**—*Paris médical* for May 3, 1913, suggests the following prescription for amenorrhea, where rheumatic disturbance of the uterus is believed responsible:

R Potassii iodidi, .....3ii (8 grammes);  
Vini colchici seminis, .....3i (4 grammes);  
Syrupi sacchariparillæ  
compositi, ..... } .....âa q. s. ad 3iiss (50 grammes).  
Aque destillatæ, ..... }

M. Sig.: Three teaspoonfuls a day.

**Preservation of Surgical Instruments in the Tropics.**—J. Ganon, in *Archiv für Schiffs- und Tropen-Hygiene* for March, 1913, describes a simple and inexpensive method of keeping instruments in good condition in tropical climates. After the instruments have been thoroughly dried they are immersed in a solution of petrolatum dissolved in gasoline or benzine. The volatile constituent in this solution soon evaporates off, leaving a thin protective stratum of the petrolatum adhering to the instruments.



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## THE CAUSES OF INFANT MORTALITY.

At the opening meeting of the English speaking conference on infant mortality held, on August 4th and 5th, in London, the address of Mr. John Burns, president of the British local government board, was so replete with sound common sense excellently expressed, that although a great deal of the subject matter necessarily treated the question from the British standpoint, yet much of what he said might be applied to infant life and mortality in all lands, and thus cannot fail to be of interest to everyone concerned in the campaign now being waged for the saving of children's lives and for the conserving of their health.

Referring to the influence of city life on childhood, he said that, apart from money, from the means of commanding physical comforts, the modern conditions of city life were inimical to childhood, housing, atmosphere, aggregation, food, noise, the stress of city life, even education when undertaken too early. It was also pointed out that a fruitful cause of infant mortality in Great Britain is the fact that mothers work away from home too much, a state of affairs which prevails also to a considerable extent in some of the industrial centres of America. As conclusive proof that this is so, it was shown that in those parts of Great

Britain in which mothers worked in factories most largely, the infant mortality was more than twice greater than where mothers lived at home. Referring to the diseases of maternity and paternity, the speaker said that these diseases should be considered more seriously. We ought to learn why twenty-three per cent. of the deaths from cancer among women occurred in the genital organs. Sexual diseases should be looked into more closely, in regard to which society showed a prurient delicacy which was dangerous, but he was glad to be able to state that the local government board had in preparation a report which he hoped might be of assistance to medical men in their investigations. However, he deprecated a stampede on the matter.

Mr. Burns announced himself no believer in the theory that the survival of the fittest was best for the race, or as he put it, he did not belong to the "better dead" school, but was solidly convinced that the lives saved by lower death rates meant healthier lives for the survivors generally. The government regarded the health of the people as the supreme law, and however much their trade, commerce, and wealth might increase, however much their material supremacy in the world might grow, all these things were as nothing unless they had clean and happy homes in which mothers could live decent lives.

The speaker laid special emphasis on the truth that the life of the infant is now measured in city communities perhaps more by its prenatal condition than by its postnatal environment after it has been healthily born. Indeed, all those who read papers at the conference were as one in insisting upon the point that it is of vital importance that the mother should be well nourished and cared for during some months before her confinement.

## THE RELATION OF THE PITUITARY TO GROWTH.

While Pierre Marie first called attention to the relation between acromegaly and the pituitary, and Sternberg found that forty per cent. of the pathological giants had enlargement of this organ, there is still considerable difference of opinion as to the manner in which the overgrowth is produced. The anterior lobe may be found edematous or hypertrophic; according to Lewis the organ is the seat of an adenoma in the majority of cases. As to the manner in which the pituitary causes excessive physical development, there is still considerable difference of opinion. It may be due to stimulation of the thyroid or adrenals through problematic fibres arising from the pituitary, or to an excess of the

problematic secretion of the anterior lobe. The latter view is the preponderating one at the present time.

Metabolism experiments in animals after the administration of pituitary gland, as exemplified by the researches of Thompson and Johnson, Malcomb, Franchini, and Benedict and Homans have shown sufficient variation to annul the value of the findings. Feeding experiments with gain of weight as standard have also furnished but little reliable information, although those of Shaefer have seemed to indicate some degree of influence, though they were too few to eliminate all elements of error, so common in experiments of this class.

The recent researches of Lewis and Miller (*Archives of Medicine*, August 15, 1913) seem, however, to have afforded results which warrant definite conclusions, their experiments having been conducted in such a way as to exclude all serious causes of error. The experiments were numerous enough; the amounts of gland administered were sufficient to give results, since they were equivalent, relative weight being taken into account, to 230 grammes given daily to an average man. On the other hand, the amounts were not sufficiently large to awaken deleterious effects. While it is possible that the digestive fluids may destroy the active substances, and feeding preparations by the mouth cannot be deemed analogous to the effects of a secretion supplied normally by one or more ductless glands, the fact remains that the tests showed that "neither anterior nor posterior lobes had any effect on the weight or growth of the animal."

#### YOUNG CHINA AND LEPROSY.

Dr. J. J. Matignon, a well known French army surgeon, former attaché of the Legation at Peking, in *Archives de l'anthropologie criminelle et des sciences pénales*, Paris, 1913, xxviii, pp. 372-375, gives some interesting details of the methods adopted to eradicate leprosy in the city of Nanking, capital of Kiangsu, on the frontier of Tonkin, on the 14th of December, 1912. For some years there had been on the outskirts of this town, a harmless quarantine, or colony, of lepers who subsisted by means of the sale of straw sandals and false hair, begging, and contributions received from the French missionaries. The latter had even proposed to build a small hospital for their assistance, and this project had been favorably regarded by a number of the well to do inhabitants and, as it seemed, by the governor of the province himself. Nevertheless, the young China element immediately set about to defeat this idea, demanding that the Catholic mission would do better to come to the aid of the govern-

ment than to build a leprosarium. The missionaries became uneasy, but were reassured by the governor, who, in the meantime ordered that a ditch, two or three metres deep, be dug on the field of manoeuvres. What follows is taken from a letter from the Catholic mission, published in the *Bulletin de l'Asie française*, of March 11, 1913:

We were still full of confidence, when this morning, December 14, 1912, we were overwhelmed by the news that the village of lepers was surrounded by soldiers, at day-break, and all of them were massacred. We immediately sent for information and here is the horrible result! More than a hundred soldiers encircled the village so that no leper could escape. Like a herd driven to the slaughter house, they were forced to the manoeuvre field toward the ditch prepared for them, the bottom of which was filled with wood with a ladder arranged for descending into it. One by one, the lepers, their wives and their children were forced to descend the fatal ladder and seat themselves upon the funeral pile. As the word "cha!" (kill!) rang out, the muskets were discharged point blank. Petroleum was poured out in abundance, and a bonfire announced to the city the victory of the liberal party.

It appears that the governor of Nanking, far from disclaiming responsibility in the matter, expressed himself as highly satisfied with the zeal of his subordinates and, in a public proclamation, denounced the lepers "for molesting the villages, ravishing their women, and stealing their money," with the result that rewards of from five to ten piastres were offered about the town for anyone who would locate a leper so that he might be shot. Doctor Matignon compares these atrocities with the doings of the Boxers in 1900 and concludes that the "civilization" of Young China is, at best, only a varnish or veneer. Certainly the Middle Ages even succeeded in stamping out leprosy by methods which were not only more efficient but infinitely more humane.

#### THE LIMITATION OF BUILDING HEIGHTS.

There can be no question that, from the health standpoint, as well as from various others, the height of buildings in cities should be regulated by law, and the constitutionality of such legal limitation appears to be well established. The deprivation of light and air certainly comes under the head of a sanitary condition, and in building to unlimited heights there is a great menace, as this is an active cause of congestion of population. Conditions around "skyscraper" buildings on windy days constitute a practical nuisance, and cases are not infrequent where accident or death has resulted from the strong wind currents in the neighborhood of such buildings. Then, there is the terrible danger from fire.

Many of the cities of Europe, including all the

great capitals, have long had height restrictions, and this is also found to be now the case in at least twenty-eight important American cities. New York is far behind other cities and countries, and, indeed, has been culpably negligent in regard to this matter. Many years ago the subject was taken up in the Academy of Medicine, and the opinion expressed that the height of buildings ought to be regulated by law in accordance with the width of the streets on which they stand. As a result of the agitation of the matter at that time a law was enacted in 1885 which prescribed that the height of tenement and apartment houses should be limited to seventy feet on streets not wider than sixty feet, and to eighty feet on streets wider than this. Since then various changes in the law have been made, and under the present Tenement House Laws tenement and housekeeping apartment houses are limited to one and a half times the width of the widest street on which they stand.

This is all there is of limitation by legal enactment of the height of buildings in this city, but, better late than never, the municipal authorities have recently interested themselves in a more general regulation of building heights, and have taken measures to secure expert advice as to what requirements would be satisfactory and practicable. Under Section 407 of the Charter of the Greater City of New York, the Board of Aldermen and the Board of Estimate are vested with power to limit heights, and it is to be hoped that before long a suitable method of restriction will be determined upon. In a statement made by the Fifth Avenue Association to the New York City Commission on the height, size, and arrangement of buildings, at a conference held this summer, it was mentioned that in the various cities in this country and Europe with height restrictions they have, with but very few exceptions, a maximum flat height limit either as the sole or the fundamental method. In some the so called "zone system" is employed, and this is the one favored by Mr. De Forest, president of the New York City Municipal Art Commission, who was the first head of the Tenement House Department in New York, in a letter he has written to the city commission referred to.

The Heights of Buildings Committee of the Board of Estimate and Apportionment, which is composed of the presidents of the boroughs of Manhattan, Brooklyn, and the Bronx, and its advisory committee, of which Mr. Edward M. Bassett is chairman, have invited the various medical societies of the city to send representatives to two general hearings on matters pertaining to the regulation of the height, size, and arrangement of buildings in the five boroughs of New York which are to be held respectively on October 10th and October 16th.

#### CHOLERA IN EUROPE.

That Asiatic cholera was again due in Europe was stated by many observers two years ago, and the Balkan war has added considerably to the progress of the disease. While it was admitted that the Turkish troops, mostly collected from Asia, suffered from a severe attack of cholera, the Christian allies were said to be in a better condition. For political reasons thorough statistics were not given out by these powers, but the records which now appear in the medical journals of Europe demonstrated how very severe the condition was. Serbia, for example, had on its own frontier, three successive lines of inspection against cholera, a prophylaxis, which according to European medical observers, was splendidly carried out, as the quarantine might not have been carried out better if peace had reigned in the Balkans. But notwithstanding all the precautions, the threatened invasion of cholera has become a fact; not only has the disease gained a foothold on the Balkan itself, but it has crossed the Danube and reports come from its appearance in Rumania, in Hungary, and in Austria. At the same time Italy has its own troubles with the invasion from its new African possessions. There seems to be doubt whether the disease has really been stamped out in Italy, while the reports from Russia state that nine districts are severely infected. Thus it is plainly demonstrated that again cholera threatens to sweep over Europe.

#### TYPHOID FEVER IN NEW YORK CITY.

Through the daily newspapers and personal observations, we have come to the conclusion that there seems to be such an increase in cases of typhoid fever in certain quarters, that the decision may be reached that New York City is at present threatened with an epidemic of the disease. That the attack is well controlled by our Health Department goes without saying—for we have full confidence in the department, which has proved its value in many threatened epidemic attacks. Undoubtedly, those in authority are correct if they do not give out information which may lead to wrong conclusion, or result in an unnecessary public scare. But this is not the question. A thorough investigation should be made to discover the source of such an increase in typhoid fever cases. Usually infected milk supply or unclean water are given as the starting points in the daily press; or again the return of many people from unhealthy summer resorts. The quarters where at present the increase of the malady is reported is one of the most thickly populated of the city, where undoubtedly people live in unsanitary conditions. Not only the milk and water supply should be inspected, but as well



the meats and vegetables used. Whether this can be done we do not know, but it stands open to reason that with our present knowledge of typhoid fever, vegetables as well as meats can become dangerous carriers of the bacillus. As to meats we only have to watch the long incoming trains arriving at Hoboken or Jersey City, carrying carloads of chickens which reach the terminals in rather a poor condition. The conditions of transportation, the close packing, and the impossibility of giving water and food to the chickens result in many deaths before the poultry reaches the consumer and makes the fowls unfit for food, which then may, possibly, become a source of a dangerous epidemic.

### STATE LAWS AND MARRIAGE.

The Eugenics Record Office has lately published its ninth bulletin, which contains a very interesting synopsis of the State laws limiting marriage selection examined in the light of eugenics. The pamphlet is written by Charles B. Davenport, of the Carnegie Institute of Washington, and deserves a wide circulation. It presents to the reader interested in this matter and especially in future legislation, the results of scientific investigation into some of the problems that have, first of all, a biological basis. An appendix contains the digest of State laws limiting marriage selection, up to April, 1913.

### Obituary.

#### NATHAN JACOBSON, M. D., of Syracuse, New York.

Dr. Nathan Jacobson died in Syracuse, N. Y., on Tuesday, September 16. Born on June 26, 1857, in Syracuse, New York, he received his education entirely in his native town, graduating from the College of Medicine of the Syracuse University in 1877. After one year of postgraduate study in Vienna he returned to Syracuse, in which city he had practised since, devoting himself largely to surgery. Since 1885, he had been connected with his alma mater as instructor and later as professor of clinical surgery. Interested in the medical societies, he held several offices in some of these associations. He was a valuable contributor to this JOURNAL.

#### CHARLES LESTER LEONARD, M. D., of Philadelphia.

Dr. Charles L. Leonard died at Atlantic City, N. J., on Monday, September 22nd. He was born in 1861, and graduated from the University of Pennsylvania in 1889; he was later appointed professor of röntgenology at his alma mater. Doctor Leonard was an expert in x ray work and another martyr to röntgenology. From constant exposure to the rays his hand became affected. The disease extended upward until the whole body was involved, notwithstanding the hand and later the entire arm were amputated. Doctor Leonard was a well known writer on röntgenology, and an esteemed contributor to our JOURNAL.

### News Items.

**Changes of Address.**—Dr. James Moran, to 262 West Eighty-third Street, New York.  
Dr. A. L. Benedict to 228 Summer Street, Buffalo, N. Y.

**Southern Minnesota Medical Association.**—Plans are being made for the midwinter meeting of the Southern Minnesota Medical Association, which will be held in Mankato on December 2d and 3d.

**Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.**—Wednesday, October 1st, Physicians' Motor Club, and the College of Physicians; Thursday, October 2d, Obstetrical Society; Friday, October 3d, Kensington Branch of the County Society and the Southeast Branch of the County Society.

**Cholera in Rumania.**—A report from Bucharest, dated August 28, 1913, stated that cholera had been increasing in Rumania. On August 26th there were present in Bucharest 212 cases of the disease. According to press despatches on September 22d there were 1,137 cases of cholera under surveillance in the Rumanian capital. There have been forty-five deaths from the disease.

**Smallpox in Oregon.**—Acting Assistant Surgeon Strate, of the United States Public Health Service, reported on September 13th the occurrence of an epidemic of smallpox of a mild type at North Bend and Empire, Oregon, the disease having been present at these two places during the past two months. According to the September 9th issue of the Public Health Reports of the United States Public Health Service, 334 cases of the disease have been reported from April 1 to July 31, 1913.

**Harvey Society Lectures.**—The first lecture in the course for 1913-1914 will be given on Saturday evening, October 4th, at the New York Academy of Medicine, by Augustus D. Waller, M. D., F. R. S., the distinguished physiologist of the University of London. His subject will be "A Short Account of the Origin and Scope of Electrocardiography." Doctor Waller comes from London especially to give this lecture and brings with him his own apparatus with which he will give demonstrations during the lecture. He is a pioneer in animal electricity and was the first to record the human electrocardiogram. No one who is interested in this modern method of diagnosis of heart diseases should fail to hear Doctor Waller's lecture.

**The Outbreak of Typhoid Fever in New York.**—According to newspaper reports, the typhoid fever situation in the east side of New York is still serious. On Tuesday, September 23d, fourteen new cases were reported to the Department of Health, making a total of 225 known cases in the hospitals and many under analysis. While Bellevue Hospital is not filled to capacity, the wards are crowded, and Beth Israel Hospital, at 70 Jefferson Street, has been obliged to turn patients away on account of the crowded condition. The outbreak seems to be restricted to the east side of the city below Fortieth Street, as the cases reported in other parts of the city point to the fact that conditions are normal for this time of year. Investigations are being made by the Department of Health to ascertain the cause of the outbreak, but so far the results of these investigations have not been made public.

**Personal.**—Dr. John N. Bassin, of Poughkeepsie, N. Y., has been appointed assistant instructor in surgery at the New York Polyclinic Hospital and Medical School. Dr. Hanau W. Loeb, of St. Louis, Mo., has been appointed dean of the medical faculty of St. Louis University, to succeed Dr. E. P. Lyon, who was recently appointed dean of the medical department of the University of Minnesota.

Dr. William Jepson, head of the department of surgery at the University of Iowa, has resigned.

Dr. P. Challis Bartlett, the retiring superintendent of the Rutland, Mass., State Sanatorium, was given a farewell banquet on the evening of September 18th by the members of the staff of the sanatorium. Dr. W. B. Howes, assistant physician, acting as toastmaster.

Dr. A. G. Pohlman, professor of anatomy in the Medical Department of the Indiana University, Bloomington, Ind., has been appointed head of the department of anatomy in St. Louis University.

**Physicians of Essex County, N. Y., Organize.**—At a meeting held in Port Henry, N. Y., on Monday evening, September 8th, the Essex County Medical Society was formed. Previous to this, Essex was one of three counties in the State of New York in which there was no medical society. Dr. S. J. Banker, of Port Edward, president of the Fourth District Branch of the Medical Society of the State of New York, was organizer, and Dr. Abraham Jacobi, of New York, read a paper. The following officers were elected to serve for the first year: President, Dr. L. B. Barton, of Wellsboro; vice-president, Dr. C. B. Warner, of Port Henry; secretary, Dr. Charles Payne, of Westport; treasurer, Dr. W. T. Sherman, of Crown Point; censors, Dr. T. H. Canning, of Port Henry, Dr. W. F. Brown, of Mineville, and Dr. F. M. Noble, of Bloomingdale. The semiannual meeting of the society will be held in Elizabethtown on the first Tuesday in June.

**Mississippi Valley Medical Association.**—The provisional programme has been issued for the thirty-ninth annual meeting of this association, which will be held in New Orleans on October 23d, 24th, and 25th, with headquarters at the Grunewald Hotel, and preliminary arrangements for the reception and entertainment of the delegates have been made. Dr. W. W. Butterworth is general chairman of the committee on arrangements. Chairmen of other committees that are to assist in arrangements for the three day convention are: Dr. E. M. Hummel, finance; Dr. Allan Eustis, entertainment; Mrs. S. M. D. Clark, ladies' entertainment; Dr. J. P. Kelly, reception; Dr. S. C. Stanton, exhibits; Dr. John S. Oechsner, clinics; Dr. E. B. Martin, transportation; Dr. G. K. Pratt, Jr., headquarters; Dr. A. Nelken, registrations; Dr. C. N. Chagny, badges; Dr. M. A. Shlenker, hotels; Dr. William Perkins, publicity; Dr. Oscar Dowling, sanitary exhibits; Dr. C. C. Bass, scientific exhibit. Dr. J. J. D'Aquin is assistant chairman of the general committee. The officers of the association are: Dr. Albert E. Sterne, of Indianapolis, president; Dr. D'Orsay Hecht, of Chicago, first vice-president; Dr. Hugh Cabot, of Boston, second vice-president; Dr. Henry E. Tuley, of Louisville, secretary; Dr. Samuel C. Stanton, of Chicago, treasurer.

**American Public Health Association.**—The annual meeting of this association was held in Colorado Springs, Colo., on Tuesday, Wednesday, Thursday, and Friday, September 9th, 10th, 11th, and 12th, under the presidency of Rudolph Hering, D. Sc., of New York. More than three hundred delegates were in attendance, almost every State in the Union being represented, as well as Canada, Mexico, and Cuba. Two hundred papers were read and discussed, many advanced ideas on matters relating to public health and sanitation being brought out, and it was the general opinion of the officials that the convention was the best in the history of the organization. The election of officers resulted as follows: Dr. W. C. Woodward, of Washington, D. C., health officer of the District of Columbia, president; Professor Selskar M. Gunn, of the Massachusetts Institute of Technology, Boston, secretary (reelected); three vice-presidents, Dr. John T. Anderson, head of the bacteriological bureau, United States Public Health Service, Washington, D. C.; Dr. Mario Labredo, president superior of the board of health of Cuba, Havana; and Dr. C. J. Hastings, of Toronto, Canada; Dr. Livingston Farrand, of New York, treasurer (reelected). Mr. Lawrence Veiller, of New York, was chosen chairman of the sociological section, Dr. Hoyt Dearholt, of Minneapolis, was named vice-chairman, and Mr. S. Poulter Morris, of Denver, secretary. Dr. Lee K. Frankel, of New York, was named chairman of a new committee to unite more closely the sociological section with that of vital statistics, and also to interest large corporations in the industrial health campaign now being urged. The public health officials section elected Dr. C. V. Chapin, of Providence, R. I., chairman; Dr. Noulon Cauchon, of Ottawa, Canada, vice-chairman, and reelected Dr. E. C. Levy, of Richmond, Va., secretary, and Dr. A. S. Fell, of Trenton, recorder. The committee of seven, which is the executive committee and controls the organization's affairs between conventions, was elected as follows: President, Dr. W. C. Woodward, of Washington; Dr. Rudolph Hering, of New York; Dr. H. D. Holton, of Brattleboro, Vt.; Dr. P. H. Bryce, of Ottawa, Canada; Mr. Homer Folks, of New York; Dr. J. E. Monjaras, of Mexico City, Mexico, and Professor S. M. Gunn, of Boston. Next year's meeting will be held in Jacksonville, Fla.

## Pith of Progressive Literature.

### MUNCHENER MEDIZINISCHE WOCHENSCHRIFT.

August 8, 1913.

**Tenosin, a New Remedy to Replace Secale.**—F. Jäger presents the results of his experiments as follows: Tenosin is found to possess all the beneficial action of secale. It acts best after the expulsion of the placenta. Generally one c. c. suffices; but the dose may be repeated if necessary. Its advantages over secale is the smallness of the dose required and the promptness of its action. The best secale preparations give results in from ten to fifteen minutes; while the effects of tenosin may be counted on in from two to five minutes. This is of great importance in serious atonic hemorrhages.

**A Simple Protection for the Hands in Pus Operations.**—A. Brünning describes the elaborate tests given this method of protecting the hands against infection from pus. The hands are washed with soap and brush in hot running water, followed by cleansing the nail grooves and hands with eighty per cent. alcohol, a short rinsing in running water, then dried on a sterile towel; a coat of three per cent. sterile borated petrolatum is rubbed onto the hands. A portion the size of a hazel nut is used, the surplus being wiped off with a sterile towel. The hands are now infected with various agents which excite suppuration. A watery solution of agar cultures is rubbed into the hands and left to dry for five minutes. After this the hands are washed with hot water and soap for three minutes, sometimes also cleansed in alcohol for one minute. Scrapings are then taken from different parts of the hands and culture plates prepared. After observing the plate and bouillon cultures carefully for five days, the majority will be found to be sterile. Borated petrolatum proved to be sterile, as is expected of hydrocarbons. The author explains that the layer of fat acts as a protective agent in that it retains the bacteria and prevents their ingress into the crevices of the skin; then, by later washing, the petrolatum with its contained bacteria is readily removed.

August 12, 1913.

**The Origin of Cholesterin Stones.**—L. Aschoff describes two kinds of gallstones. The pure cholesterin arises under the influence of disturbed metabolism by obstruction. The other originates from the decomposition of gall, caused by the secretion and exudate, which results from the inflammation of the gallbladder wall. The stones once formed retain their original character and, in this way, their pathogenesis is revealed.

**Perforation of the Uterus by a Foreign Body.**—A. Zimmler gives the history of a patient who had chills, pain in the pelvis and bleeding from the vagina. The cervix was found to be sufficiently dilated to admit the examining finger, which met with

<sup>1</sup>In our issue of September 20th, on page 681, we review an article by Professor C. A. Ewald, entitled *Alcohol in Infectious Diseases*, which appeared in the *Medizinische Klinik* for August 3, 1913. In this review there appears the sentence "In all nervous conditions, epilepsy, gout, and in chronic diseases of the heart, kidney, and liver, alcohol should be prescribed." Through an oversight, the word "not" was left out before "be prescribed" so that the sentence would read: "In all nervous conditions . . . alcohol should not be prescribed." [Editor.]

a lengthy, hard body, the point of which was felt externally. By light pressure with the external hand aided by the internal, the operator succeeded in removing the foreign body, which proved to be a goosequill ten cm. long. The product of conception, of five weeks growth, was removed, partly with the finger and finally by a curette. No antiseptic douching could be resorted to, on account of the perforation. Iodoform tampons were inserted, and an ice bag applied over the pelvis. The patient made a prompt recovery. When quizzed, she confessed that she inserted the goosequill herself with the hope of aborting pregnancy. On the following day upon lifting a pail of water she experienced a sharp pain, so severe as to cause her to cry out.

**Rupture of the Uterus from Pituglandol.**—G. Epstein reports a case of ruptured uterus. The patient, thirty-four years old, had had seven spontaneous, full term deliveries. She was now at full term, and attended by a midwife. Pains began at eleven p. m.; membranes ruptured at one a. m.; later, the heart sounds ceased to be heard and the discharge of meconium caused the midwife to send for a physician. As none could be procured at the time, the patient was sent to a hospital. At 5:30 a. m. one dose of pituglandol, 1.1 c. c., was given subcutaneously to increase the pains. The cervix was widely dilated. Since, after one and one half hours, this did not, in the least, increase the pains, another dose was given; five minutes later the patient became restless and excited, as now very severe, quick pains ensued. The patient cried out suddenly; the pulse became feeble, and cold perspiration appeared on the forehead. Rupture of the uterus was diagnosed and laparotomy resorted to at once. The cervix was torn through on both sides, up into the parametrium. The uterus was extirpated. The child could not be resuscitated, and the mother died of general peritonitis on the third day.

August 1, 1913.

**Addison's Disease and Pregnancy.**—E. Vogt states that Addison's disease is rarely complicated with pregnancy. Pregnancy may continue undisturbed. One case, a patient under the author's observation, resulted in stillbirth at full term. Another case was one of premature birth at the thirty-fifth week. Generally there is no cause for abortion. In the face of the bad prognosis for the mother, it is best to allow pregnancy to continue to full term, with the hope, at least, of saving the child. The prospects for the children are not bad, even when of premature birth. They develop normally.

**The Danger of Combining General Narcosis with Morphine and with Narcotics.**—W. Straub presents the history of a young person, who, on account of an accident, was to have a finger amputated. The child was given morphine with the idea of performing the amputation under its influence, which, however, was not feasible with the amount of pain experienced. For this reason chloroform was given, which proved fatal. The child died of paralysis of the respiratory tract. The depth of the narcosis was not abnormal and the dose of morphine was too small to be contested.

**Seasickness and Atony of the Vagus.**—Friedlander cites two forms of seasickness, the visceral

and the nervous forms. A small proportion of the patients experience either only nausea and vomiting, or simply visceral discomfort. The second class of patients, along with these symptoms or without them, experience general depression with psychic, nervous symptoms. The author recommends several turns of a broad flannel bandage snugly applied to fix and elevate the stomach, the patient to retain the reclining posture. Atropine is recommended. The author considers this medication and mechanotherapy more promising than the administration of hypnotics or nervines.

August 26, 1913.

**Studies of the Secretion of the Pancreas and Stomach by Experiments on Dogs.**—E. Schlagentweit and W. Stepp report their experiments on dogs, and conclude that the pancreatic secretion may be the result of various factors. The significance of each single factor is difficult to estimate. If the chemical excitation of hydrochloric acid is lessened we infer that an insufficiency of other regulations quickly results in severe injury to the function of the pancreas.

**The Influence of Kuhlenskampf's Anesthesia on Neuralgia of the Brachial Plexus.**—M. Thobben relates the history of a patient, who had been exposed to a draft while asleep. This supposedly resulted in severe pains above the clavicle, which radiated down the entire arm, which was very painful on pressure. Hot air baths, electricity, electric light baths, and antineuralgics were used, but all without result. Finally 20 c. c. of two per cent. novocaine solution were injected above the clavicle, after the method of Kuhlenskampf. The pain, as well as the tenderness on pressure, were at once relieved, also the swelling. Two weeks later the patient returned to his work. Two months later he was still entirely well and doing heavy work.

## ZEITSCHRIFT FÜR UROLOGIE.

VOL. VII, NO. 1.

**Primary Urethral Carcinoma of the Fossa Navicularis.**—Ottow reports a rare case of this kind. Under local anesthesia he removed the penis at the penoscrotal junction; up to six months there was no return.

VOL. VII, NO. 2.

**Urethral Calculus in Bilharziasis.**—Pfister had a case of bilharzia in which there was found an urethral stone which he removed through the urethroscope. He comments upon the frequency of urethral stone in bilharzia, stone occurring in seven per cent. of all cases.

VOL. VII, NO. 4.

**Atrophy of the Prostate.**—Posner has found that two opposite processes in the prostate, hypertrophy and atrophy may cause practically the same symptoms. In the only four cases of atrophy he has seen in the past three years the causes were, first, chronic gonorrhea; second, senile involution; third, valves caused by atony of the bladder; fourth, questionable. Prostatectomy in these cases is more difficult than when the prostate is hypertrophied. The operation of election is the suprapubic.



**Bladder Tumors in Aniline Dye Workers.**—Lewin reports the case of a malignant bladder tumor in a man of forty-nine who six years before had left an aniline factory in which he had worked twenty-five years. This tumor when seen was not operable. The patient told of eight other cases occurring among the workmen in the factory; four apparently recovered without treatment; and four died, two after operation.

**The Prognosis of Nephritis.**—Strauss gives the comparison between the nitrogen content of the blood serum and that of the urine in normal cases, and also in cases of insufficiency of the kidneys. In the former there was from thirty to forty milligrammes of residual nitrogen in 100 c.c. of serum; while in the latter, when the kidneys became insufficient, the residual nitrogen was sometimes as high as 200 milligrammes. In cases which show high residual nitrogen in the blood prognosis is always grave. Death is always a matter of comparatively short time when more than 150 milligrammes of residual nitrogen was found in 100 c.c. of blood serum. But even a much lesser proportion by no means excludes impending uremia. The test is good in both acute and chronic nephritis.

#### LANCET.

September 6, 1913.

**Pain and Sleeplessness.**—Robert Jones describes pain as "an uneasiness, varying from a feeling of slight discomfort to extreme distress; and it may arise from the derangement of any function; also from violence, pressure, or undue tension in any part of the body." Then, after a brief survey of the several general causes of pain in the broad sense indicated by the definition, Jones passes to the consideration of sleep, which he terms, "a bio-rhythmic rest." The several suggested causes of sleep are related and support is lent to Durham's hypothesis which is to the effect that sleep is due to a diminution in the cerebral blood supply. Jones had a patient with a large tumor of the brain which projected through an opening in the skull and which was found to be distinctly smaller during sleep than when the patient was awake. Children under five years of age should have at least twelve hours of sleep a day, and from that age to fifteen years at least ten hours. In Jones's opinion much of the present increase in insanity in the young is due to the prolonged deficiency in the amount of sleep which is obtained. The remainder of Jones's paper deals with the measures to relieve pain and combat sleeplessness, and, after predicating the removal of the cause when it can be found, proceeds to advocate almost everything from motor drives and baths through cathartics and purges to the use of morphine. Despite the multiplicity of the remedial measures discussed there is much in the paper which might be of occasional use to the practitioner, but the indications and limitations as laid down are so varied and complex that a perusal of the entire article is necessary for their understanding.

September 6, 1913.

**The Value of Anociassociation (Crile).**—J. Henry Chaldecott and C. W. G. Bryan find nothing but praise for the methods of Crile, which they have now employed in some twelve cases which would otherwise have been most serious operative

risks. They find its power of minimizing or totally abolishing postoperative symptoms most remarkable. In eleven abdominal cases one patient only was sick, and that very slightly. Two of the patients were women over eighty years of age, one having her gallbladder removed for carcinoma and impacted stones, the other her gallbladder opened and drained for acute cholecystitis. Neither of these patients had any postoperative symptoms, and they experienced so little discomfort that, until their wounds were dressed, they did not know that the operations had been performed. The authors do not find that the method lengthens the duration of operations, for, while it may take a little time to infiltrate with novocain, this is saved by the rapid induction of anesthesia. In their experience it has been possible in long operations to work with from eight to ten per cent. of oxygen, and if cyanosis occurs with this proportion it is usually found that the infiltration has been insufficient. Good relaxation has been obtained for the suture of the perities, but here the use of gauze pads often seems to cause some rigidity which, however, disappears at once after their removal.

#### CANADIAN MEDICAL ASSOCIATION JOURNAL

September, 1913.

#### Pituitary Extract in Obstetrical Practice.

B. P. Watson thus sums up his observations: Pituitary extracts have a powerful effect in inducing and in strengthening uterine contractions. The type of contractions induced is similar to that which occurs normally, although at first there may be a tendency to prolongation of the pains. Such prolonged contractions result in slowing of the fetal heart, but the child is seldom in danger. When given in the late part of the first and in the second stage of full time labor, the polarity of the uterine contractions is not interfered with, but in early abortions and early in the first stage a simultaneous spasm of the os may occur. Its chief field of usefulness is in the first and second stages of labor, when there is delay due to feebleness of the pains, alone or when combined with other complications, such as malpositions of the head, malpresentations, multiple pregnancy, slight narrowing of the pelvis, etc. In the induction of abortion, in the treatment of abortion already in progress, and in incomplete abortion, its action is so uncertain that it is not to be recommended, except in cases where the os is widely dilated. In the induction of premature labor its effects are uncertain, but if sufficient dose is given they may be good. In the induction of labor at full term and after, better results are obtained than in premature cases. It gives good results in many cases of post partum hemorrhage, but is not superior to the various preparations of ergot. It has the power of sensitizing the uterus, so as to allow these preparations to act more powerfully, the combination being most effective. It is a useful adjunct in the treatment of placenta prævia, used in conjunction with rupture of the membranes, the use of hydrostatic dilators, or turning.

#### Pain as a Symptom in Pulmonary Tuberculosis.

—Robert C. Patterson says that although pulmonary tuberculosis is a comparatively painless disease, there occur a considerable variety of aches and

pains whose recognition and differentiation is important. We are apt to look on the majority of patients with this disease as neurasthenic and to ascribe many of their complaints to this cause, but in doing so there is danger that an organic basis for their pains may be missed and treatment directed wrongly, or else neglected altogether.

#### INDIAN MEDICAL GAZETTE.

August, 1913.

**Sterilized Pus for the Treatment of Infections and Sterilized Cancer Inoculations.**—V. B. Nesfield suggests using sterilized pus in the place of autogenous or other vaccines because of its great simplicity and cheapness; because the pus is truly autogenous, which is not true of vaccines prepared from organisms grown on artificial media, as the organism is changed by such growth; and because besides the bacteria pus contains toxins and antibodies, both extremely useful for therapeutic inoculation. His method of sterilizing the pus is to mix the pus, which must be evacuated aseptically as possible, with an equal part of one in 40 solution of carbolic acid, in a small bottle. The mouth of the bottle should then be closed with a rubber membrane, and the bottle then be put in a basin of cold water, which must be slowly brought to boil. To allow air to escape a hypodermic needle may be thrust through the rubber membrane. This heating should be repeated the next day. He begins with two minims as a dose, gradually increasing to fifteen. Inoculations are performed every other day.

**Review on 422 Cataracts Done by "Smith's Method."**—Ram Nath Trivedi performed this operation on seventy-two patients for immature cataract. Escape of vitreous took place during the operation in 5.92 per cent, and after the operation in 3.31 per cent. from the patients squeezing their eyes. Rupture of the capsule took place in twenty cases, but in none of them was a secondary operation necessitated. Iritis occurred in only two cases and was of a mild type. Prolapse of the iris was seen in 1.5 per cent.; panophthalmitis in 1.4 per cent, largely to patients disturbing the dressings; delay in healing of wound very seldom; opacity of the vitreous, postoperative glaucoma, secondary hemorrhage, or detachment of the retina or choroid in no case. The average vision before discharge was 6/15 to 6/8; ninety-seven per cent got good vision for both distance and near; only 1.5 per cent. obtained poor vision from some pathological defect in the other refractive media. Glasses were prescribed at the end of three months. A table of twenty cases, that were seen again months or years later, showed that all had vision ranging from 6/8 to 6/5. These cases are said not to be selected, but taken simply as they came.

#### BOSTON MEDICAL AND SURGICAL JOURNAL

September 11, 1913.

**Gonococcus Vaccines and Glycerin Extracts of the Gonococcus in the Diagnosis of Gonorrheal Infections.**—George Cheever Shattuck and W. Stewart describe their experiments which were undertaken with a hope of finding a reliable method of diagnosis for gonorrhea by means of a specific

reaction. Three types of reaction have been observed after the subcutaneous injection of vaccine: The local at the point of injection; the focal at the seat of the lesion, and the general; but the concentrated vaccine used by the writers showed no superiority over that used by others for diagnostic tests. It produced in gonorrheal and in control cases a local lesion like that of a chemical irritant. They think that autolysis may have been a factor in producing the supposedly irritating properties of the vaccine: that the changes in it may have prevented it from producing a specific reaction; and that the unsatisfactory therapeutic effects of gonococcus vaccine may be traceable to autolysis. Glycerin extracts of the gonococcus inoculated by the method of von Pirquet caused, in a few cases, the formation of peculiar papules which may have represented a specific reaction. Most of the cases showed no definite reaction. Although their results were negative they believe that present knowledge justifies the hope that a valuable diagnostic test for gonorrheal infection may yet be devised through improved methods of preparing vaccines or extracts of the gonococcus.

**The Pathological Lesion of Whooping Cough.** F. B. Mallory says that although the bacillus discovered by Bordet and Gengou in 1900 has been generally accepted by bacteriologists as the cause of whooping cough, it has not been accepted to any extent by the profession because the organism has never been demonstrated in connection with any lesion, only in connection with the disease. In going over sections from an acute case of whooping cough he noticed what seemed to be minute organisms packed in large numbers between the cilia of the epithelial cells lining the trachea. Better sections and stains showed the organisms to be minute bacilli, present in great numbers over the surface of each cell. Similar organisms were found between the cilia of the cells lining the bronchi, also free in the bronchial secretion and enclosed in polymorphonuclear leucocytes, but never within the alveoli. The bronchopneumonia which so often complicates whooping cough, seems to be entirely due to other contaminating organisms. The action of the *Bacillus pertussis* seems to be largely mechanical. It interferes with the normal movements of the cilia and therefore furnishes a continual irritation which excites the coughing. The organism also secretes a mild toxine, as is shown in three ways: By a slight inflammatory exudation, by a lymphocytosis, and by the production of a specific antibody.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

September 22, 1913.

**Chronic Focal Infection as a Causative Factor in Chronic Arthritis,** by Frank Billings.—See this JOURNAL for July 5th, p. 38.

**The Role of the Prostate and Seminal Vesicles in General Toxemias,** by H. H. Young.—See this JOURNAL for July 5th, p. 38.

**Therapeutic Pneumothorax as a Palliative Measure, Safeguarded by Stereoroentgenograms. A Report of Twenty Cases from the Cincinnati Tuberculosis Hospital,** by K. Dunham and C. S. Rockhill. See this JOURNAL for July 5th, p. 49.

**Intratracheal Insufflation Anesthesia (Meltzer-Auer).** Report of a Series of Four Hundred and Twelve Cases, by C. H. Peck. See this JOURNAL for July 5th, p. 39.

**Local Anesthesia,** by J. F. Mitchell.—See this JOURNAL for July 5th, p. 39.

**General Anesthesia in the Surgery of Childhood,** by W. C. Woolsey.—See this JOURNAL for July 5th, p. 41.

**Hydrotherapy in Nervous Fatigue,** by Curran Pope. See this JOURNAL for July 5th, p. 50.

**The Quality of Drugs Sold to Dispensing Physicians,** by W. A. Puckner.—See this JOURNAL for July 5th, p. 49.

**Administration of Alkaloids before Anesthesia.**—The conclusions of I. C. Herb are as follows: 1. The administration of morphine, scopolamine, and atropine before general anesthesia has certain advantages, but these are not sufficient to counterbalance the risks attendant on their employment. 2. The loss of the pupillary reflex is a serious handicap, as nothing else indicates so unerringly the degree of narcosis. 3. That the danger from ether, chloroform, or nitrous oxide is diminished is contrary to the evidence at hand. 4. They should not be employed when inexperienced anesthetists are in charge. 5. The routine use of certain fixed doses before every anesthetic, regardless of the patient's condition, should be discouraged. 6. The employment of alkaloids has a distinct field of usefulness before local analgesia.

**Nitrous Oxide and Oxygen Anesthesia,** by H. G. Sloan. See this JOURNAL for July 5th, p. 39.

**Vaccine Therapy for General Practitioners.**—J. H. Richards believes that, as a rule, all chronic bacterial disease can be treated with advantage by means of vaccine, and also many acute diseases. The following bacteria have been advantageously employed in vaccine treatment: Staphylococcus, streptococcus, gonococcus, colon group (including typhoid), tuberculosis, pneumococcus, Pfeiffer's and Friedlander's bacilli, and the bacilli of rhinoscleroma and acne. In regard to the dose, which is of utmost importance, he suggests the following rules: 1. The first dose, and this alone, is to be decided arbitrarily. 2. The second dose, and all succeeding ones, must be regulated by the effect of the first dose. 3. A marked local reaction at point of inoculation following the dose, and accompanied by increased severity in the symptoms of the disease, and slight or no improvement in patient's condition before time for next dose, indicates that too large a dose has been given. 4. Slight local reaction following the injection, and accompanied by slight or no improvement increased severity in the disease and followed by no improvement in patient's condition, indicates that the dose has been too small. 5. Slight or no local reaction, accompanied by moderate, slight, or no increase in the severity of the disease, and followed by improvement in patient's condition, indicates that a correct dose has been given. 6. The second dose after a correct dose has been given should not be administered until the negative phase has been well passed. This is usually within from two to four days.

**The Administration of Salvarsan and Neosalvarsan by Enteroclysis.** Report of Thirty-seven Injections.—L. Oulmann and J. L. Wollheim describe the technic employed by them, which involves a special apparatus, and state the conclusions derived from the literature and their personal studies as follows: 1. The administration of these drugs by enteroclysis has a place in therapeutics. 2. In general, this ought not to replace the intravenous method, because it is possible that, in passing through the intestinal mucous membrane or the liver after absorption, some of the salvarsan may be changed chemically, and in that way its therapeutic effect may be less to the unit of dose. 3. It should be used in children in preference to other methods. 4. It should be the method of choice when the intravenous method is not feasible. 5. The subject is worthy of further study, to determine the exact place of this method in the administration of salvarsan and neosalvarsan.

#### MEDICAL RECORD.

September 13, 1913.

**Clinical Studies on the Curative Action of Leucocyte Extracts in Infective Processes.**—P. M. Niss, Jr., and J. G. Dwyer state that most workers have, in their search for biological therapeutic agents, directed their energies to the production of specific antisera, and have, with few exceptions, neglected to approach the question of the treatment of infections from the side of the intracellular resisting agents of the system. In many infections, however, the ultimate weapons of defense are the leucocytes, either in their normal state, acting as phagocytes, or possibly when breaking down in the circulation or in exudates. The paper is based on a series of erysipelas infections treated with leucocyte extract, comprising 138 cases, the great majority of which were of the most severe type. This was due to the fact that the authors were not consulted until the ordinary remedies had been tried; so that such cases probably offer as fair a test of the value of a therapeutic agent as could be devised. The majority of the infections were secondary to operative procedures, and the others were of the so called idiopathic form. The results obtained were so uniformly beneficial, constant, and marked that, judging from them, it would seem that in this disease we can almost prognosticate the results following the use of the extract. In every case there was a marked reaction following its employment, which was usually shown by a fall in temperature and rapid improvement in the general condition. The duration of an average case of erysipelas under the routine measures of treatment is about ten to fourteen days; while in this series of cases the average duration, whether treatment with the extract were instituted early or late, was 3.1 days after treatment had been begun.

**Intestinal Hemorrhage in the Tuberculous.**—J. M. Cruice says that while blood in small quantities in the stools of patients with pulmonary tuberculosis is not an uncommon occurrence, a hemorrhage of any size is rare. Guyénét divided the intestinal hemorrhages into the mechanical, or those due to rupture of a vessel in the site of an ulcer-



tion, and the dyscrasias, or those due to a diapedesis caused by some alteration in the blood, as well as in the vessel wall. The prognosis is extremely grave, and the accident is usually the closing scene of the drama. In the treatment the most essential thing is rest; which is best secured by the hypodermic injection of morphine. A light ice bag may be applied, but all abdominal manipulation should be avoided. All food should be discontinued for a time, and then nothing but a liquid diet should be given until all signs of hemorrhage have disappeared. Calcium lactate, in doses of ten grains three times a day, may be given, to try to increase the coagulability of the blood. Unless the patient is exsanguine or in collapse, saline infusions should not be used, as they seem to have a marked tendency to increase or start again the bleeding. It is very doubtful if any benefit is to be derived from epinephrin, though its use is advocated by many.

**Chronic Mesenteric Ileus, with Report of Three Cases.**—This paper is by T. B. Spence and H. F. Graham, who state that the condition to which they refer is not the same as that in cases ordinarily described under the names acute dilatation of the stomach, acute arteriomesenteric ileus, gastroenteric paresis, etc., but is primarily an incomplete obstruction of the duodenum by the root of the mesentery. The obstruction is not absolute. It may be intermittent, and if death results it is after a comparatively long period of time. It is usually accompanied by very moderate secondary dilatation of the stomach, but gastric dilatation may be absent. The history of this disease has been that the physician almost invariably has failed to recognize his first case; but this primary failure would not occur if the question of mesenteric ileus were considered whenever persistent vomiting is the chief symptom of a disease. Prophylaxis consists in a liberal diet and forced feeding in all wasting diseases, as typhoid fever, septic conditions, etc., while the prolonged dorsal position should be avoided. In every case of repeated vomiting where the diagnosis is at all obscure the abdominal and knee chest positions, or the elevation of the foot of the bed, should be faithfully tried. Operative treatment should be resorted to only when the postural fails, or in cases characterized by repeated attacks of mesenteric ileus with free intervals between. Some patients have recovered as the result of gastroenterostomy, and one at least has been cured by a duodenojejunosomy, which, the authors think, will eventually be adopted as the best procedure if a satisfactory and safe technic can be proved by a sufficient number of cases.

**Potassiummercuric Iodide.**—D. MacFarlan points out the valuable antiseptic properties of this drug, and recommends its topical employment. It is readily soluble in both water and alcohol. For purulent ophthalmia, he says, one to 10,000 is a good dilution; for ordinary antiseptic work, one to 2,000. Then diluted one to 2,000 in alcohol and applied on a swab to the throat in diphtheria and scarlet fever, it has a marked influence in reducing the infective inflammation (but, of course, is to be employed as an aid to the general treatment). In erysipelas the local application stops the mischief most rapidly.

**A Case of Varicose Ulcer Treated by Feeding It with Cheese.**—G. O. Williams reports this case. Treatment was commenced May 1, 1913. The general treatment was by means of Blaud's pill. Local treatment: Soft well ripened full cream cheese, to which was added a mixture of equal parts of cream and water, was applied three times a day on a piece of gauze just large enough to cover the ulcer. The patient, a stout woman of fifty, doing farm, dairy, and household work, continued her regular occupations. The ulcer filled rapidly, and on May 20th was found to be fully healed; no scab even remaining. The author states that he has previously treated similar cases with soft, unsalted cheese curd with good results; but the progress has not been as rapid as in the present instance.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

September, 1913.

**A Lobar Form of Bronchopneumonia of Long Duration, Occurring in Children and Young Adults.**—David Riesman gives the essential features of this affection as follows: 1. The disease is a confluent lobular pneumonia of lobar distribution characterized by long duration, low fever, and the following physical signs: Impairment of resonance, bronchovesicular breathing, and showers of crackling râles. 2. It must be looked upon as one of the causes of obscure long continued fever. 3. The disease always seems to end in complete recovery, both symptomatically and anatomically. 4. In the beginning, typhoid fever may be suspected; in the later stages, tuberculosis. 5. The disease is believed to be often overlooked, owing to the fact that the lower posterior aspect of the chest is seldom examined in ambulatory cases, especially when the symptoms are rather trivial. Seven cases are described in the paper, and the author states that in the treatment the measures which have appeared to be of some avail are counterirritation to the chest, abundant feeding, and either a simple cough mixture, with a small dose of an opiate, or one of the creosote preparations. In favorable weather he has advised that the patient should be taken outdoors, and a sojourn at the seashore in proper season is also beneficial.

**The True Value of Operation for Cancer.**—In order to estimate this, E. M. Foote says, we must know, 1, the object of the operation, and, 2, its result. Speaking broadly, there are four reasons for operation for cancer which may be present in the mind of patient or surgeon: 1. The complete removal of the cancer and cancer bearing tissue, the so called radical cure. 2. The establishment of a diagnosis. 3. The relief of some special symptom, such as hemorrhage, discharge from an ulcerating surface, the closure of a sinus, the division of a stricture, or the removal of a disfigurement. 4. The attainment of certain social ends, to keep up the patient's hope or to satisfy the family that something is being done, etc. (Under this head should perhaps be admitted the possibility that the patient may die from operation, a hope which probably exists in the mind of the patient and his friends oftener than they would like to admit.) In cases of advanced cancer one cannot hope to formulate specific rule to

cover the wide variety of conditions presented to the operator, but there are certain general principles which ought to be regarded: 1. The removal of the visible growth is desirable, so far as this can be accomplished without sacrificing important muscles, nerves, etc. 2. The wound should be so shaped that it can be entirely closed. 3. Lymph glands should be removed if they are readily accessible, even if deeper ones known to be involved are left behind. 4. It is of the utmost importance to save the patient's vitality by making the operation short, keeping the body warm, using a minimum of anesthetic, and, above everything else, keeping the loss of blood down to the smallest possible point. 5. If operation is performed for a special object, such as the relief of a plastic defect, it is generally wise to limit the operation to this, resisting the temptation to excise a few portions of the tumor because they are easily reached. 6. Plastic operations involving skin actually in contact with a cancerous growth may be successfully performed, and in the case of slowly growing tumors are often worth while. 7. Curetting or scraping an ulcerating cancer is of doubtful efficacy. In the second part of the paper the author presents the actual results observed from operations of the radical type, those for diagnosis, and those for special objects. In conclusion he urges that, while not every cancer patient with a recurrence should be operated upon, all patients who have been operated upon should be followed month by month, and single recurrences favorably situated should be promptly removed.

**Therapeutic Artificial Pneumothorax.**—H. M. King and C. W. Mills report that in sixteen cases in which this treatment was tried at the Loomis Sanatorium two patients have shown marked and apparently permanent improvement, six have shown temporary or slight improvement, in one, hemorrhages have apparently been controlled, in one case of lung abscess no improvement followed, and in six cases, on account of pleural adhesions, either no gas could be injected or not enough to produce any sufficient collapse.

**The Diagnosis of Tuberculosis of the Kidney.**—From a study of this subject F. E. Keene and J. L. Laird present the following conclusions: 1. The kidney is the primary seat of disease in tuberculosis of the female urinary tract; as a rule the infection originates from a focus in some other organ and gains entrance to the kidney by way of the blood stream. 2. The pathology varies greatly in both kind and degree. 3. Subjective symptoms referable to the kidney disease are by no means characteristic. 4. The most prominent symptoms are those referable to deranged bladder function, but these may be decidedly intermittent in their severity. 5. Some degree of pyuria is the rule; hematuria the exception. 6. In the absence of mixed infection the temperature is normal, or shows only a slight evening elevation. 7. The palpatory findings are dependent upon the type and extent of the pathological changes. 8. The tuberculin reaction is of doubtful value. 9. By far the most important agent in determining the diagnosis is the cystoscope, which in the majority of cases shows a picture so characteristic that the nature of the infection is at once recognized. 10. The diagnosis in every suspected case

should be made by the combined clinical and laboratory examination. 11. The Bloch method of inoculation of guineapigs should be used, and also the subcutaneous or intraperitoneal methods as controls. 12. A positive laboratory result by either method determines the diagnosis of tuberculosis of the genitourinary tract; of renal tuberculosis in the female, in the male the exact focus to be determined by additional clinical and laboratory means. 13. A single negative laboratory result, regardless of thoroughness of examination, does not determine an absolute negative diagnosis of renal tuberculosis, as the manifestation of this disease is essentially intermittent.

#### AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN

September, 1903.

**Aberdalden's Test of Pregnancy.**—Heaney and Davis describe in full detail the technic of making this test and give, as well, a résumé of some of the work done with this reaction. Their conclusions are as follows: A review of the literature and an experience with the test, together with the use of other means of testing the digestive activity of the blood, leads one to question the specificity of the test of Aberdalden; though, since the need of such a reaction is great the test should be further tried, and its results accurately reported.

**The Treatment of Puerperal Infection.**—Ingraham reviews briefly the various methods by which autoinfection may arise; from a distant point of suppuration with metastasis through the blood stream; by extension from contiguous disease; and from the presence of pathological organisms in the vagina and vulva. On account of the presence of bacteria he considers that the risk involved by making frequent vaginal examinations is probably the greatest in the production of puerperal infection. The different ways in which infection from the outside may occur are mentioned and the treatment according to the locality and the extent of the infection is briefly summarized.

**Tuberculosis of the Kidney.**—Kapsammer, in an article of twenty-five pages, gives a very complete review of the subject. In going over his statistics he finds that tuberculosis of the kidney is, as a rule, unilateral, that men suffer with it more frequently than women, and that it is found on one side as frequently as on the other. In regard to the mode of infection, it seems that primary tuberculosis of the kidney, as a rule, is by the hematogenous route. From this organ it may extend to others of the urogenital structures along the ureter, by continuity of tissue, or else by the hematogenous or lymphogenous path. That an ascending infection of the kidney must be rare is shown by the experiments of several who found that an ascending infection could be brought about only by the ligature of the ureters when they are involved. After dealing with the morbid anatomy of the organ and the differential diagnosis, the therapeutic measures are discussed. The author believes that the operative therapy is the only rational treatment that can be considered at the present day. As soon as the diagnosis is made, a nephrectomy should be performed. Kapsammer advises the removal of

the kidney and the ureter, if diseased, in one piece so as to avoid, as much as possible, postoperative complications.

# AMERICAN MEDICINE.

August, 1913.

## The Pernicious Vomiting of Pregnancy.—

R. A. Kingman is the author of this paper, and he gives the essential elements of the contention set forth in it as follows: 1. Pregnancy is a physiological process in which nausea and vomiting have no useful, necessary, or normal part. They are therefore never physiological, but always pathological, and therefore to be prevented or stopped in every case, and at once. 2. Toxemia plays no important part as a cause of pregnancy vomiting, though it is doubtless often present as a result of a common cause, and may be a factor in advanced cases. 3. Neurotic influences greatly increase susceptibility to reflex stimuli, as also the degree of the response; hence all such influences are to be sought out as important factors. 4. The essential, exciting, determining cause in all serious cases is a reflex disturbance proceeding from the uterus, usually from the cervix, and especially from the region of the internal os. 5. The important conclusion of the whole matter is that an intelligent treatment based upon this conception has resulted in quick, uniform, and permanent cure, in every case, during a period of twenty years, regardless of the stage or severity of the case; provided the patient was not moribund when first seen. 6. These results are not exceptional, but can be obtained by anyone who will fit himself to make an accurate diagnosis of the pelvic condition and to properly carry out the indicated treatment. 7. If prompt relief from suffering, and security from all danger, can be promised in every case, who will dare in future to counsel destruction of the child? In the vast majority of cases of pernicious vomiting in pregnancy there is present antelexion of the cervix uteri, with varying descent of the uterus upon the pelvic floor and more or less fixity of the organ from thickening and contraction of the periuterine cellular tissue. Kingman advises the employment of the knee chest position, which, he says, must be so used as to insure the free advance of all abdominal and pelvic contents toward the diaphragm, permitting the distention of the vagina with air; and yet the patient must be so draped and protected as to avoid undue exposure, exertion, or fatigue. It is easy to-day to procure corsets which support the lower abdomen and remove all pressure from the waist and lower ribs. The useful but primitive cotton tampon and air ball of Graily Newitt are supplanted by an improved form of wood packing; though the Newitt air ball pessary may still serve a useful purpose in cases where, for any reason, the patient cannot be regularly seen and treated. The use of proper clothing and the intelligent treatment of antelexion, with its attendant conditions, previous to the beginning of pregnancy, supplemented by proper advice, often succeed in making a patient immune to even the so called "physiological vomiting."

**Some Remarks on Arteriosclerosis.**—I. L. Nascher holds that the fundamental error in dealing with arteriosclerosis is the almost universal con-

ception of it as a pathological entity; whereas it should be recognized that there are many forms of arteriosclerosis, that this is a generic term covering several distinct pathological conditions, and that only in the terminal stages of these do they approach a general type and finally become a clinical and pathological entity. It will be found, he says, that of the various methods of treatment which have been advocated in arteriosclerosis, each is of service only in certain forms of it—that there is no one remedy, or no one method, applicable to all forms of the disease; while the senile, physiological form cannot be cured at all.

**"Blue" Blood.**—R. L. Watkins says that the color of the drop of fresh blood taken for examination is of important significance. Blood from the wrist or lobe of the ear, because it is capillary, is arterial, and thus normally red, while that taken from the end of the digits is blue, or venous, and thus always abnormal; since here the artery connects directly with the vein, without any intervening capillaries. Blood for examination should therefore be taken from the wrist or lobe of the ear, and if a drop of such blood is found of a dark blue color it is a sure indication of either excessive gases in the intestinal tract or stomach, or of decomposition or putrefactive processes going on somewhere in the system. If, on the other hand, the drop is crimson it is indicative of excessive oxygen in the corpuscles, or, possibly, too thin blood, as in leucemia and some cases of tuberculosis. The latter often alternates with the blue black condition, putrefactive products being present one day and absent the next, after being absorbed or thrown off. Blue blood is always present where there is intestinal indigestion with gases and decomposition of food.

# ARCHIVES OF OPHTHALMOLOGY.

September, 1913.

**The Experimental Production of Sclerokeratitis and Chronic Intraocular Tuberculosis.**—F. H. Verhoeff says that when dead tubercle bacilli are injected into the vitreous or the anterior chamber of a rabbit they produce, after about three months, lesions in the corneosclera closely analogous to those of tuberculous sclerokeratitis in man. Smaller tubercles are produced on and within the iris, and still smaller ones on and within the ciliary processes. The latter are of special significance, as they indicate that the foci in human cases of tuberculous cyclitis are not necessarily due to direct metastases from the blood. Tubercles of the chorioid are also produced, due to bacilli passing from the filtration angle along the postchorioid space. These observations confirm the theory previously advanced, that tuberculous scleritis and keratitis are due to infection from the aqueous through the filtration angle. They also strongly suggest that the chronic types of tuberculous iritis and cyclitis, and possibly chorioiditis, are likewise due to metastases from the aqueous, the bacilli reaching the latter from the vessels of the ciliary body. The lack of immune substances in the aqueous no doubt increases the chances for such metastases to occur. In addition these observations suggest certain procedures in regard to treatment.



**On the Treatment of Trachoma with Iodic Acid.**—Josef Rudas gives the results obtained in the Military Hospital in Krakau, where this method of treatment has replaced all others since 1906. The iodic acid is moistened until it forms a plastic mass which is rolled into a rod. For comparison, 583 cases thus treated were compared with 553 cases treated by other methods. The average length of treatment was 44.12 days in the former, and 64.47 in the latter. Ulcer and pannus occurred in 0.85 per cent. of the former, in 3.25 per cent. of the latter. Disturbances of vision were 0.51 per cent. in the former, 3.07 per cent. in the latter. Relapses occurred more rarely after treatment with iodic acid, with a difference of eight per cent. The eye is cocaineized, the iodic acid rod is applied to the lower transition fold, which is then wiped dry with cotton and the superfluous iodic acid washed off with a three per cent. boric acid solution. Extreme care is not necessary, even if the noninfected parts of the conjunctiva are touched, as this acid does not attack the healthy cornea. The upper lid is then averted, and an application made in the same manner; the lid is then doubly everted with a forceps, and the upper transition fold cauterized in the same way. After cauterization the follicles should appear yellow, and if any are not of this color they should be cauterized again. The pain begins as soon as the effect of the cocaine wears off and varies in severity. A violent inflammation ensues, but after this passes off, the conjunctiva presents a clean wound surface. The formation of a symblepharon must be guarded against. The results are, in the first stage, complete recovery; in the moderately severe cases, a superficial, delicate, scarcely visible scar, which is much less than that following any other method of treatment; in the severe cases, better results than by other methods. Schiele asserts that good results are also obtained in the presence of ulcer and pannus.

#### JOURNAL OF MEDICAL RESEARCH.

August, 1913.

**The Association of Tuberculosis and Malignant Growths.**—Harris discusses the question whether the tuberculosis is primary and causes histological disturbances which provoke the formation of the neoplasm, or whether the earlier presence of the growth with degenerated areas form a vulnerable site for the *Bacillus tuberculosis*. It may, however, be possible that their association is merely a coincidence. After reviewing briefly the literature, Harris reports a case of tuberculosis of the larynx and cancer. In this instance it is his impression that the tuberculosis formed a primary pathological soil upon which the tumor probably thus provoked, continued to flourish, and the tuberculosis in part yielded.

#### NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

August, 1913

**Clinical Studies in Pituitary Irritation, with Report of a Case.**—L. J. Genella reports a case which for a time presented the clinical picture of paresis, after which, preceded by persistent neuralgia, there occurred a gradual enlargement of the

patient's right hand and foot, followed, within three months, by similar growth of the left hand and foot. There was no enlargement about the jaws. When the man died an autopsy was refused, but permission was received to trephine the skull, and it was found that there was no enlargement in the bony sella turcica. The author gives the main points of differentiation in the most common conditions which may be confounded with that met with in cases of this type, among which are Paget's disease, Charcot's disease, rheumatoid arthritis, osteitis deformans, gigantism, and myxedema.

**Legislation—State and Local. What It May Accomplish for Sanitation.**—S. D. Porter says that as yellow fever was banished from Cuba and plague from California, so may many of the diseases that are now causing thousands of deaths be eliminated by the passage of proper laws. Having referred to some of the measures requisite for the prevention of malaria, hookworm diseases, typhoid fever, and various other diseases, he states that no public health student can question the necessity for more adequate State and local legislation for the advancement of sanitation. Education of the people, however, must come before legislation, and this was very forcibly demonstrated in Louisiana during the yellow fever epidemic of 1905. Again, the educational campaign inaugurated in that State three years ago has been influential in bringing about increasing annual appropriations by the legislature for public health work. The author concludes with a few suggestions for State and local legislation which may accomplish much for sanitations: More liberal appropriations for public health work; the establishment of laboratories for the study of the causes of transmission of disease; laws prescribing the qualifications of health officers, establishing medical inspection of school children, establishing a chair of hygiene and sanitation in colleges and universities and more systematic teaching of these in all institutions of learning.

**Further Observations of the Neutrophile Leucocyte Picture as a Guide for Tuberculins.**—W. J. Durell concludes that in the polynuclear neutrophile picture we have a means of determining when the toxic or harmful dose of tuberculin is about to be given or repeated; or when we are giving the supposedly safe smaller doses which are practically useless, i. e., when the bone marrow cells become prone to exaggerated function or to a dormant state or function. It is in the latter condition that the tuberculins are especially indicated, and can be used as a "whip in hand" in order to stimulate these cells into greater activity; thus favoring the supply of new cells, which soon become matured into more resistant cells, carrying in the blood circuit and to the diseased tissues the greatest amount of antibody substances, and raising the body's resistance to its efficient limit.

**Ehrmann's Palmin Tests.**—J. A. Storck reports that of eight instances in which he applied the test (described in the *Berliner klinische Wochenschrift*, July 15, 1912), six proved positive, and in each the patient showed no evidence of any pancreatic disturbance. In the two instances in which no reaction occurred there were evidences of pancreatic disease, i. e., fat droplets, undigested meat

fibres, meat nuclei in the feces, and sugar in the urine. Recently the author has been using palm oil free of fatty acids for testing pancreatic function, and finds it satisfactory.

#### NEW YORK STATE JOURNAL OF MEDICINE.

August, 1913.

##### Relief of Vesical Obstruction in Selected Cases.

—Henry G. Bugbee says that his method is applicable to certain types of obstruction of the vesical outlet due to stricture of the prostatic urethra, contraction of the vesical neck, small enlargements of the prostate, prostatic nodules left after the perineal operation, irregular prostatic outgrowths, and certain tumors, where open operation is scarcely called for, often unsatisfactory in result, or is contraindicated on account of the condition of the patient. The treatment which he advocates is the destruction of the obstructing tissue by the high frequency current, applied in the manner originally proposed by Beer for the destruction of vesical papilloma. The current destroys any tissue which it penetrates; there is no bleeding, very little pain, the work is done under the eye, the extent of destruction can be limited, and there is no injury to structures which impairs the function of the organs. The bladder and urethral mucous membrane are anesthetized by filling the bladder with a solution containing four per cent. of novocaine dissolved in a one in 16,000 solution of epinephrin, leaving the fluid in the viscus for twenty-five minutes preceding treatment. The current is applied with a No. 5 copper wire through an indirect close vision No. 18 F. cystoscope. The terminal end of the wire for a quarter of an inch lies on the tissue to be destroyed and the current is turned on. The wire penetrates the tissue, bubbles rise from the surface, and after a few seconds of contact a gray furrow is left on the area to be destroyed. After a few applications bubbles may fill the field, which can be cleared by irrigation. Fourteen patients have been treated thus and all have shown improvement, there have been no unfavorable results, and there has been no tendency to recurrence of the trouble. In two cases of inoperable cancer the treatment gave great relief to the symptoms and considerably prolonged life.

**The Medical versus the Surgical Treatment of Puerperal Eclampsia.**—E. Gustav Zinke arrays a large number of statistics from various sources to show that all surgical intervention, no matter of what form, has accomplished little or nothing in reducing the mortality of puerperal convulsions. The collective statistics show that the maternal mortality under surgical intervention considerably exceeds thirty per cent., while with strictly medical care similar statistics show it to be only twelve per cent. Rest, chloral, and veratrum viride are the essential measures.

#### PENNSYLVANIA MEDICAL JOURNAL.

August, 1913.

**Isolated Sclerotic Involvement of the Mitral Valve.**—Robert N. Willson describes the condition as one of sclerotic thickening and deformity, causing insufficiency or stenosis, and often both. In the more advanced cases atheromatous degenera-

tion is often superposed on the sclerotic lesion, and in a large percentage of the cases there is a deposit of lime salts which has resulted in a greater or less degree of calcareous change. Of the etiology of the disease Willson is able to say but little. It is certain that syphilis may be a causative factor, tuberculosis may be one, and it is possible that infection by other pathogenic bacteria may also be the underlying cause of a certain proportion of the cases. The physical signs, course of the disease, and particularly the auscultatory phenomena are often quite typical of the more common infective valvular lesions. But in many cases, regardless of age, there is a striking amount of arterial sclerosis. This has even been marked in a child of four years. Early arteriofibrosis, premature accentuation of the aortic second sound, and a tendency to left ventricular hypertrophy in the presence of signs of developing mitral disease give reason to anticipate fibrosis rather than the ordinary inflammatory lesion.

**The Correction of Nasal Deformities.**—George M. Marshall's operation is particularly suited to those cases of lateral deviation and depressions with obstructing deflections of the septum. An incision about one quarter of a centimetre in length is made parallel with the normal line of the nose and over the nasal process of the superior maxillary on the side of the prominence. With a bevelled chisel with a width of about the length of the incision the nasal process of the superior maxilla is penetrated, the greatest caution being observed not to go beyond the bone through the mucous membrane. The opposite side is then treated similarly. Then by means of suitable forceps the fracture is completed on each side, completing the mobility of these bony processes. It may also be necessary to force the septum into correct position by the forceps if this is in malposition. It may be necessary to complete the straightening process by a sharp blow with the mallet over the prominent side of the nose. During the entire operation pressure must be maintained over the incisions when they are not the sites of work, this is to prevent hemorrhage and subsequent hematoma formation. The lines of incision are dressed with iodoformed gauze and collodion. In some cases nasal splints have to be inserted to maintain position. An important feature of the after-treatment consists in having the patient further the correct reposition by frequent pressure over the side of the nose which was prominent before the operation.

#### Proceedings of Societies.

##### AMERICAN PROCTOLOGICAL SOCIETY.

*Fifteenth Annual Meeting, Held at Minneapolis, Minn., June 16 and 17, 1913.*

The President, Dr. LOUIS J. HIRSCHMAN, of Detroit, Mich., in the chair.

**A Method of Operating on Fistula without Cutting Muscular Tissue.**—Dr. ROLLIN H. BARNES, stated that this method was used in those cases of fistula which involved the sphincter mus-

cles. An incision was made externally to the sphincter, similar to that made when incising an ischiorectal abscess. Through this opening the scar tissue was dissected out up to the internal opening. An incision was then made at the skin margin, so that the middle of this incision passed through an imaginary longitudinal line drawn from the internal opening. A submucous dissection was then channelled out up to the internal opening. Gauze drainage was kept in this until the external wound was healed sufficiently. Then the submucous tract, which remained was incised under local anesthesia. No muscular tissue having been cut, the function of the sphincters was preserved intact.

**Report of a Case of Fecal Tumor Associated with Hirschsprung's Disease.**—Dr. ALOIS B. GRAHAM reported a case of fecal tumor associated with Hirschsprung's disease, the clinical history of which was unique and exceedingly interesting.

**A Further Consideration of Sir Charles Ball's Operation for Internal Hemorrhoids.**—Dr. ALFRED J. ZOBEL, after a trial of this operation, summed up his conclusions as to its value, as follows: That, as a modification of the old ligature operation, it was better than the latter, and at the same time was far superior to the clamp and cautery operation, in that it took care of and avoided the recurrence of that revoluted anal skin ring which generally became markedly edematous immediately after these operations, leaving behind skin tags after the swelling subsided. In every instance in which the essentials of Ball's technique had been followed out carefully the author's results had been exceedingly satisfactory. The operation was recommended.

**Deductions Based on an Analysis of 3,000 Rectal Cases.**—Dr. T. CHITTENDEN HILL stated that the principal object of tabulating 3,000 consecutive rectal cases was to furnish data as to the relative frequency of the various affections of the rectum and colon. There was a total of 1,120 operations performed in this series, and some deductions of a practical nature were drawn from this experience. It was found that rectal ailments were more common among males than females, the ratio being three to two. Hemorrhoids formed a large proportion, forty-one per cent. of the total. Next in frequency were abscesses and fistulae, eighteen per cent., and the remaining disorders were tabulated as follows: Pruritus ani, eight per cent.; anal fissure, ten per cent.; colitis, six per cent.; prolapsus ani and procidentia recti, 3.7 per cent.; cancer of the rectum and sigmoid, two per cent.; benign growths, 1.5 per cent.; stricture, 1.5 per cent.; syphilis, two per cent.; constipation, 2.8 per cent. Other miscellaneous conditions were recorded which made up but a fraction of one per cent., such as anal verruca, congenital stenosis, patulous anus, furuncles, foreign body, incontinence, coccygodynia, trauma, sigmoid diverticulitis, etc.

**Personal Reminiscences upon the Subject of Proctology.**—Dr. J. M. MATHEWS told of his early experiences in his chosen field of endeavor. He related his meeting many years ago with those renowned surgeons who had made St. Mark's Hospital, of London, so famous. Having been called "the father of proctology," he gratefully accepted

the title, and, like a father, he offered good advice to, and would ever cherish what he now termed his offspring, the American Proctological Society.

**Z-Plastic Operation for Anal Stricture.**—Dr. W. M. BEACH stated that extensive cicatrices, resulting from trauma, and involving the partial or entire anal circumference, not infrequently resisted the usual methods employed to restore the physiological function of the anus. He therefore employed what he termed a Z-plastic method when operating on an anal stricture. The principle underlying the procedure was the transposition of dermic tissue in such manner as to obliterate the crest of the fibrous band. The first incision was made along the crest of such a band; then incisions were made at right angles from both ends, but running in opposite directions, thus approximating the letter Z. The flaps thus outlined were dissected up, transposed, and sutured. Various modifications were permissible, according to the extent of the stricture.

**Sphincteric Atrophy.**—Dr. RALPH W. JACKSON remarked that muscular atrophy about the anus produced more serious consequences than hypertrophy. The physiology of defecation was studied, and the action of the internal sphincter and of the external sphincter and levators sharply contrasted with their different innervation. This was preparatory to consideration and classification of the causes of sphincteric disuse and consequent degeneration. Congenital causes were found in imperforate anus and congenital anovaginal cloaca. Coincidental with general weakness cases occurred in infants, the aged, and the extremely ill. Traumatic causes were faults of proctological operations and after-care, or obstetric lacerations, or due to prolonged division by protruding piles or procidentia. Nerve causes were primarily sympathetic as in rectal stenosis, or central as in spinal cord lesions. Degeneration or absence of one sphincter without impairment of the other was considered. The unhappy consequences of sphincteric inadequacy were presented. Treatment was preventive or restorative. Neither availed much when due to nerve causes, except possibly in luetic cases. Of first importance was the minimizing of trauma, both obstetric and proctological (especially sphincteric incision). Repair of trauma should be immediate and accurate. Later attempts were much more difficult and uncertain on account of atrophic muscular changes, and often results must depend on cicatricial contraction and adaptation of other muscles, especially the levators, to sphincteric duty. Restoration of long overstretched muscles was largely dependent on general treatment. Sphincteric deficiency was a troublesome problem to every practitioner, and the prognosis was uncertain.

**Further Observations on the Surgical Anatomy of the Large Bowel.**—Dr. GRANVILLE S. HANES had a series of three x ray pictures made on the same individual to show what actually happened when tubes were introduced into the bowel. The first, showed a thirteen inch proctoscope introduced its entire length. The distal end was one inch above the umbilicus. The second showed an ordinary colon tube introduced its full length after the removal of the proctoscope. The tube passed along the sig-



moid up to the highest point (one inch above the umbilicus), and then turned upon itself, the distal end passing back into the rectum. The third radiograph showed the bowel injected with bismuth buttermilk, and the thirteen inch sigmoidoscope introduced again. This picture showed that it was impossible to pass any instrument high up in a normal colon, except by the greatest accident. The sigmoid was lifted up into the abdominal cavity; its lower arm was occupied by bismuth and the metal tube; while the upper segment of the sigmoid was seen very distinctly where it had dropped back from a point opposite the umbilicus into the pelvis to its junction with the lower extremity of the colon. He asserted the latter radiograph proved that it was impossible to pass a nonflexible instrument beyond the first half of the sigmoid. To control the outflow of fecal material in colostomies the author had found, in five cases operated in since January of this year, that the hard rubber rod could be allowed to remain permanently, when used as in the Maydl operation. The opening in the intestine was above the rod. A thin gauze dressing was applied over the bowel, and a strip of gauze was thrown around the knuckle of the intestine, and overlying gauze was then tied under the supporting rod. The strip of gauze constricted both the upper and lower segments of the bowel, and exerted a most satisfactory control over these artificial openings.

#### The Anorectal Line: Its Clinical Significance.

—Dr. COLLIER F. MARTIN, after discussing the development of the anus and rectum, stated that the anorectal line, or dentate border, had a very important clinical significance, in that it was the point at which both the blood supply and the nerve supply became differentiated. Above it the blood was carried by the portal circulation to the liver; while below it, the blood stream mingled with the general circulation by way of the inferior vena cava. Above it, the rectum was supplied only with visceral or sympathetic nerve fibres, while below it, the anus and its surrounding structures were supplied with spinal nerves, and by sympathetic filaments. These spinal nerves carried sensory impulses common to nerves having specialized cutaneous nerve endings. Below the anorectal line, as evidence of irritation of the spinal innervation, sensory disturbances were expressed in terms of pain, itching, formication, and in alterations in spinal sense of touch and temperature, with their modifications such as dryness and moisture. Stimuli producing these sensory disturbances showed their presence by exciting motor contraction, or by inducing alterations in secretion. Above the anorectal line all of the specialized spinal sensations were absent, only the visceral sensations being present. In the rectum it was only pressure and muscle sense that appealed to our consciousness. This sensation was translated in the brain into a desire for stool, which desire was inhibited or assisted voluntarily, as occasion might require. In general, there was a marked tendency for pathological processes to limit their invasion to the embryonic structure in which they began; the anorectal line being the "great divide" between the ectodermic and the endodermic structures. Rectal infection and malignancy rarely extended below the dentate border, while anal pathology usually re-

mained below this line and the levator ani muscles.

**Further Observations on Pruritus Ani: Its Probable Etiological Factor; Results of Treatment.**—Dr. DWIGHT H. MURRAY, whose paper was a continuation of his investigations on the etiology and treatment of pruritus ani, gave some new points which he had observed during the past year, and his additional experience in the treatment of patients. He found no reason for materially modifying his former reports, but had gathered data which helped to prove the correctness of his previous work. He found streptococcic infection in three cases of pruritus ani and vulvæ, and in four cases of pruritus that had involved the scrotum as well as the anus. These complicated cases improved, with the exception of two vulva cases, by the use of the vaccine treatment. During the past year Dr. Murray had increased his former series of thirty-two cases, by twenty-five additional cases, in five of which streptococcic infection was not found. These cases showed other infections, which still further proved the coccigenous nature of pruritus ani; and also demonstrated that other bacteria than streptococci might bear a causal relationship, as was hinted in his first paper on this subject. His cases, so far as he had been able to determine, had not been affected by diet. During the past year he had carefully investigated as to whether or not the itching extended into the anal canal beyond Hilton's white line, with the result that only in one instance did it extend beyond that point, and then only for a short distance. His investigations of the past year had given him additional proof that pruritus ani was not caused by any local lesion within the anal canal, and that when such lesions existed with pruritus ani they were coincidental. In the cases that had been operated in as for local lesions pruritus ani had not been permanently improved as a result of the operative procedure. His work showed that if a complicating infection existed, and other bacteria than streptococci were found to be the sole invading organisms, we must use the corresponding autogenous vaccine. The opsonic index, following a bacterial diagnosis, was the proper method for determining this. Dr. Murray gave statistics, in favor of his theory, drawn from three years original work on the subject; he also gave a summary of the results of treatment, showing the favorable clinical results with autogenous vaccines in a large majority of the cases treated. He summed up his conclusions, as follows: 1. Results of the past year's work continued to uphold the correctness of the bacterial theory of pruritus ani. 2. It was advisable to make a bacteriological examination of all cases of pruritus vulvæ; also of cases of scrotal pruritus. 3. The coefficient of extinction of opsonins was a valuable aid in diagnosis in complicated and obstinate cases. 4. Pruritus ani in his series of cases rarely extended above the white line of Hilton, and it was still *sub judice*. 5. The presence of a skin infection with a local lesion gave an unfavorable prognosis for the cure of pruritus ani by an operative procedure. 6. The absence of a demonstrable skin infection and the presence of a local lesion, with pruritus ani, would justify us in making a favorable prognosis for the cure of the pruritus ani by an operative procedure. 7. Pruri-

tus ani, with such infection as had been demonstrated, and a lesion existing in the anus or rectum, according to his statistics, was a coincidence; and the latter lesion was not the cause of the pruritus ani. 8. The sphincter muscle did not allow a leakage of rectal mucus upon the anal skin of one who had pruritus ani, except there was a patulous anus, any more than it did in a normal individual who had no pruritus ani. The moisture of the parts was due to a low grade inflammation of the infected anal skin.

**Treatment of Fistula in Ano.**—Dr. J. A. MacMILLAN gave three essentials for the operation for this condition: 1. An incision that would open up every ramification of the fistulous tract. 2. The excision of the fibrous tissue which formed its walls. 3. Free drainage, and a regulation of the granulation by means of pressure by gauze packing.

**Election of Officers.**—President, Joseph M. Mathews, Louisville, Ky.; vice-president, J. A. MacMillan, Detroit, Mich.; secretary-treasurer, Alfred J. Zobel, San Francisco, Cal.; executive council, Louis J. Hirschman, Detroit, Mich.; J. Rawson Pennington, Chicago, Ill.; W. M. Beach, Pittsburg, Pa.; Alfred J. Zobel, San Francisco, Cal.

#### PHILADELPHIA COUNTY MEDICAL SOCIETY.

*Meeting Held May 28, 1913.*

The President, Dr. CHARLES A. E. CODMAN, in the Chair.

Dr. WILLIAM L. CLARK showed a case of epithelioma of the lip in a man, sixty-five years of age, which had been treated by desiccation, with no return of the growth in seventeen months.

**The Gonococcus Complement Fixation Test and Analysis of Results from Its Use.**—Dr. B. A. THOMAS and Dr. ROBERT H. IVY were the authors of this paper, which was read by Doctor Thomas: In recognition of the admirable work by Schwartz and McNeil on the complement fixation test in gonococcal infections, the fact must not be overlooked that Müller and Oppenheim in 1906 were the first to apply this reaction to a gonorrheal affection and consequently were entitled to the distinction of being termed the originators. The present popularity of this test had been the outgrowth of the suggestion imposed by Schwartz and McNeil, namely, the employment of a polyvalent antigen. Careful analysis of the gonococcus complement fixation test performed with the sera of the cases tabulated in their series would seem to justify the following assertions: 1. A positive reaction was invariably trustworthy and always denoted the presence of a focus of gonococcal infection. 2. A negative reaction frequently failed to determine the presence of disease, especially in the acute and subacute stages, when limited to the urethra and never if confined to the anterior urethra or vagina alone. 3. In no alien nongonorrheal infections or systemic disease had a positive reaction been obtained, the test, therefore, appearing absolutely specific. 4. A positive reaction had been found to be present in 21.05 per cent. of patients clinically cured. 5. Not infrequently posi-

tive reactions would be discovered in patients denying gonorrhea, either when suspicious lesions were presented or accidentally. 6. In only 9.00 per cent. of cases of acute and subacute anteroposterior urethritis had the complement fixation test resulted positively. The earliest appearance of a positive reaction in a primary attack of posterior urethritis, without complication, occurred in the sixth week. 7. In a number of cases of chronic recurrent urethritis, with acute exacerbations, the test was invariably positive; many of these patients undoubtedly had prostatitis. 8. The reaction resulted positively in one third of all cases of chronic posterior urethritis; undoubtedly many of these patients had a mild or low grade prostatitis. 9. In 52.08 per cent. of cases of chronic prostatitis a positive reaction was obtainable. 10. Two thirds of all stricture cases demonstrated a positive test. 11. In epididymitis, a positive complement fixation test was observed in 87.5 per cent. of cases. If from this series one case, probably tuberculosis, might be eliminated, and a time duration of five weeks could be imposed, the positive results in this form of disease had been 100 per cent. 12. In arthritis, undoubtedly gonorrheal in character, positive reactions were obtained in 100 per cent. of cases. 13. In the diagnosis and differential diagnosis of pelvic disease in women, the gonococcus fixation test was destined, unquestionably, to play an important rôle. The authors had been unable to obtain positive results in uncomplicated urethritis, vulvovaginitis, and Bartholinitis, and it would appear that the infection must ascend at least to the level of the uterus in order to produce a positive blood response. 14. Inoculations of gonococcus bacterin, antigonococcal serum, and gonorrheal phylacogen, might in themselves, by the production of immune bodies, be causes of positive reactions. How long these immunizing effects might endure was unknown, but they had observed patients, treated by immunotherapy, who one year later demonstrated negative complement fixation reactions. 15. Although the bacteriological demonstration of the gonococcus culturally was the only absolute method for its identification in chronic inflammatory processes, the method as a routine procedure was impractical and susceptible of many failures and fallacious results, so that the complement fixation test was not only less laborious, but productive of a higher percentage of positive findings.

**Some Remarks on the Proposed Legislation in regard to the Feeble-minded in the State of Pennsylvania.**—Dr. J. NORMAN HENRY called attention to the enormous expense entailed on the State in the support of those who for mental causes, many of which were hereditary, were unable to support themselves. The proposed legislation to confine feeble-minded women to institutions during their childbearing life was a good plan, but inadequate to meet the necessities. Men also should be restrained either physically or physiologically. Under ideal conditions of prevention of procreation of the feeble-minded, the eighty per cent. of such people, who were estimated to suffer from their vitiated inheritance, might be done away with and a new impetus given to the study and cure of the remaining twenty per cent. who were apparently without hereditary taint.

**State Control of Medical Practice. Its Possibilities and Its Limitations.**—Dr. MAX GOEPP gave a brief historical review of legislation bearing on medical matters during colonial times, and quoted laws in force at the present time in Pennsylvania and the several acts preceding it during the last thirty years. The duties and powers of the Bureau of Medical Education and Licensure were to influence the general standard of practitioners through control of preliminary education; to influence and gradually improve the standard of technical efficiency through control of medical education and examinations for licensure; to revoke license to practice on proof of moral turpitude or habitual inebriety; and to exercise some control over special systems of practice by prosecution of persons not legally qualified to practise. He spoke of the impossibility of completely eradicating quackery. Regulation of the financial status of medical practitioners was desirable, but not feasible by legal means. The remainder of the paper was devoted principally to methods of State board examinations and the discussion of questions asked.

**Acute Phlegmonous Cholecystitis; Report of a Case with Gangrenous Enteritis.**—Dr. ALBERT E. ROUSSEL observed that the extreme rarity of the conditions mentioned in the title, either alone, and more especially combined, prompted the recital of the facts of the case as he knew them and the detailed findings at necropsy. Perusal of the literature revealed no absolutely similar cases. In the case here recorded there was sudden onset with symptoms of myocarditis, purpura hemorrhagica, and gastritis with a very rapid course terminating within a few hours in death. No other case quoted in the paper showed evidence of myocarditis, although in Eskridge's first case pericarditis and endocarditis were present, and in Salter's case endocarditis and symptoms of heart trouble were observed. Babcock showed a relationship between chronic cholecystitis and myocardial disease, mentioning a definite case in his own experience, but his case was not of a phlegmonous or gangrenous character. The purpuric spots mentioned in the case in this paper were not observed in any of the other cases. The autopsy findings were, briefly, emaciation, edema, purpuric spots, ulceration of the lobes of the ears and tip of the nose, extensive gangrene of small intestine, extensive discoloration of the stomach and colon, cholecystitis with ulcerated areas, gray necrotic membrane, and one gallstone, few areas of fat necrosis in the pancreas, cloudy swelling of the kidneys, pericardial effusion, healed nodule of tuberculosis in the right pleura, congestion of both lungs, active tuberculosis of the right lung, and ulceration of the stomach. In view of the extensive inflammation of the entire gastrointestinal tract beginning with gastritis and gastric ulcer, passing into gangrene in the small intestine, and terminating in inflammation and discoloration in the colon, it was reasonable to presume that it was due to streptococcal infection that extended into the gallbladder producing similar changes in that structure. It may be presumed that a mixed infection in the tuberculous right lung of the patient, aided by the crippled heart, permitted a generalized streptococcal infection of the gastrointestinal tract. It must be con-

cluded that gangrenous cholecystitis might occur independently of impacted gallstones or typhoid fever and might be secondary to a similar process in the intestinal tract. Also it must be admitted that gangrenous enteritis independent of obstruction, intussusception, or malignant disease might occur as the result of some virulent infection, probably streptococci, and might extend into the gallbladder by continuity of structure. Further such infection might gain access to the gastrointestinal tract directly or indirectly from localized foci. That the several organs of the chest and abdomen must be below par for the culmination of this process must be acknowledged, since all of the cases enumerated showed more pronounced changes in the gallbladder and intestines, the more disturbed were the other viscera. In the face of these facts the conditions must be regarded as a fatal disease.

## Letters to the Editor.

### CEREBROSPINAL MENINGITIS.

173 LEXINGTON AVENUE,  
NEW YORK, September 14, 1913.

To the Editor:

In yesterday's issue of your esteemed JOURNAL I noticed Dr. M. C. Ogan's paper, Cerebrospinal Meningitis—References to Some Recent Literature. Will you kindly permit me to call the author's attention to his omission to mention my numerous papers on the continuous warm water bath treatment of this disease, the most recent of which being included in my article, The Continuous Warm Water Bath, the Rational Remedy in Tuberculosis (Phymatiasis) and Infectious Diseases in General, published in the *International Clinics*, June, 1913. A. ROSE, M. D.

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

**Diagnostic Methods.** Chemical Bacteriological and Microscopical. A Textbook for Students and Practitioners. By RALPH W. WEBSTER, M. D., Ph. D., Assistant Professor of Pharmacological Therapeutics, and Instructor in Medicine in Rush Medical College, University of Chicago, etc. Third Edition, Revised and Enlarged, with Thirty-seven Plates and 164 Other Illustrations. Philadelphia: P. Blakiston's Sons & Co., 1913. Pp. xxxvii+692. (Price, \$4.50.)

This third edition fully maintains the excellent standards of its predecessors. Although the second edition came out but a year ago, there is much that is new and important that has been added since then. Abderhalden's sero-diagnosis of pregnancy is given in much detail, and the older reactions, such as the Wassermann, are very clearly presented. The book is a very useful one and should be had by all who are doing clinical laboratory work.

**Burdett's Hospitals and Charities for 1913.** Being the Year Book of Philanthropy and the Hospital Annual. Containing a Review of the Position and Requirements, and Chapters on the Management, Revenue, and Cost of the Charities. An Exhaustive Record of Hospital Work for the Year. A Useful and Reliable Guide to British, American, and Colonial Hospitals and Asylums, Medical Schools, and Colleges, Nursing and Convalescent Institutions, Consumption Sanatoria, Religious and Benevolent Institutions and Dispensaries. By Sir HENRY



BURDETT, K. C. B., K. C. V. O., Author of *Hospitals and Asylums of the World*, etc. London: The Scientific Press, Limited, 1913. Pp. 976.

The twenty-fourth publication of *Burdett's Hospital and Charities* is, as usual, a very complete handbook without which no hospital or charity association or editorial office can exist. Compared with the previous issues there is hardly any change made in the general make-up.

*Aids to Gynecology.* By S. JEROMS VARNOS, M.D., N. R. C. P., Gynecologist to St. Anthony's Hospital, etc. Fifth Edition. Twelfth Thousand. New York: William Wood & Co., 1913. Pp. vii-124. (Price, \$1.)

In this volume of the *Students Aids* Series the publishers have produced a very good book of its kind. One that would be quite useful in reviewing rapidly the more prominent points. It cannot, however, on account of its small size, give the subject of gynecology the consideration that it should receive.

## Meetings of Local Medical Societies.

WEDNESDAY, October 1st.—Brooklyn Society for Neurology; Society of Alumni of Bellevue Hospital; Harlem Medical Association, New York; Bronx Medical Association; Elmira Academy of Medicine; Schenectady Academy of Medicine.

THURSDAY, October 2d.—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society; Dansville Medical Association; Practitioners' Club of Buffalo; Geneva Medical Society.

FRIDAY, October 3d.—New York Academy of Medicine (Section in Surgery); New York Microscopical Society; Gynecological Society, Brooklyn; Manhattan Dermatological Society; Practitioners' Society of New York; Corning Medical Association; Saratoga Springs Medical Society.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the fourteen days ending September 17, 1913:*

**Bogess**, J. S., Surgeon. Granted eight days' leave of absence from September 5, 1913. **Carmelia**, F. A., Assistant Surgeon. Granted three days' leave of absence from August 8, 1913, and three days' leave of absence from August 19, 1913, under paragraph 195, Service Regulations. **Carrington**, P. M., Surgeon. Granted twelve days' leave of absence en route to station. **Clark**, T., Surgeon. Directed to proceed to Charleston and other places within the State of West Virginia and make an investigation of the prevalence of trachoma and other infectious diseases among the mining and mountainous population of the State; directed to proceed to Philadelphia, Pa., for the purpose of investigating certain surgical treatment of cases of trachoma among immigrants arriving at that port. **Creel**, R. H., Passed Assistant Surgeon. Granted three months' leave of absence from August 26, 1913. **Gardner**, C. H., Surgeon. Granted two days' additional leave of absence from September 1, 1913. **Glueck**, B., Acting Assistant Surgeon. Granted one day's leave of absence, August 26, 1913, under paragraph 214, Service Regulations. **Gwyn**, M. K., Surgeon. Granted three days' leave of absence from August 10, 1913, and five days' leave of absence from August 26, 1913, under paragraph 195, Service Regulations. **Hamilton**, H. J., Acting Assistant Surgeon. Granted four days' leave of absence from September 12, 1913. **Holt**, John M., Passed Assistant Surgeon. Granted one month's leave of absence from November 6, 1913. **Keiller**, William, Acting Assistant Surgeon. Granted seven days' leave of absence from August 19, 1913, under paragraph 214, Service Regulations. **Kesl**, George M., Acting Assistant Surgeon. Granted two days' leave of absence, August 24 and 25,

1913. **Lumsden**, L. L., Surgeon. Upon the request of the director of the Department of Public Health and Charities of Philadelphia, Pa., directed to proceed to that city for consultation with Dr. J. S. Neff in regard to the prevalence of typhoid fever. Upon the request of the Department of Health of the State of Maryland and of the city of Cumberland, directed to proceed to Cumberland, Md., and make an investigation of the typhoid fever situation in that locality. **Marsh**, W. H., Acting Assistant Surgeon. Detailed to attend the twenty-second annual meeting of the Association of Military Surgeons of the United States, at Denver, Colo., September 16 to 19, 1913. **Nydegger**, J. A., Surgeon. Directed, upon the request of the health authorities of the State and county, to proceed to Hartsville, Ind., and other places in Bartholemew County to co-operate with the State and local health authorities in making a survey of the schools of Bartholemew county. **Oakley**, J. H., Surgeon. Leave of absence for fourteen days from August 16, 1913, amended to read "fourteen days' leave of absence from August 19, 1913. **Preble**, Paul, Passed Assistant Surgeon. Upon the completion of duty in connection with the pollution of boundary waters between the United States and Canada, directed to return to station at Washington, D. C.; granted twenty-five days' leave of absence from September 5, 1913. **Ramus**, Carl, Surgeon. Granted fourteen days' leave of absence from September 17, 1913. **Reichard**, M., Acting Assistant Surgeon. Granted seven days' leave of absence from August 15, 1913, under paragraph 214, Service Regulations. **Schereschewsky**, J. W., Surgeon. Granted twenty-one days' leave of absence from September 8, 1913. **de Valin**, Hugh, Passed Assistant Surgeon. Directed to proceed to Cumberland, Md., and vicinity for the purpose of cooperating with the State and local health authorities in investigations of the typhoid fever situation. **White**, J. H., Surgeon. Detailed to represent the Service at the annual meeting of the Mississippi Valley Medical Association, at New Orleans, La., October 23 to 25, 1913. **Wilson**, R. L., Passed Assistant Surgeon. Granted seven days' leave of absence from September 6, 1913.

### Board Convened.

Board of medical officers convened to meet at call of the chairman in New York city for the preparation of a manual for the mental examination of immigrants. Detail for the board: Passed Assistant Surgeon T. W. Salmon, chairman; Passed Assistant Surgeon E. H. Mullan; Assistant Surgeon George Parcher; Assistant Surgeon H. A. Knox; Assistant Surgeon G. A. Kempf; and Acting Assistant Surgeon B. Glueck.

### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending September 20, 1913:*

**Bradley**, Alfred E., Lieutenant Colonel, Medical Corps. Ordered to Watervliet Arsenal to investigate water supply, etc. **Burnett**, Thomas W., First Lieutenant, Medical Corps. Now on temporary duty at Fort Rosencrans, Cal., is assigned to permanent duty at that post in addition to his other duties; relieved from further duty at Fort Casey, Wash. **Cade**, W. T., Jr., First Lieutenant, Medical Corps. Leave of absence extended fifteen days. **Chamberlain**, W. P., Major, Medical Corps. Left Plattsburg Barracks on September 16th on twenty-one days' leave of absence. **Crabtree**, George H., Major, Medical Corps. Relieved from duty with the Isthmian Canal Commission on the Isthmus of Panama and will proceed to Camp Douglas, Ariz., for duty. **Crum**, Wayne H., Captain, Medical Corps. Upon arrival in the United States will proceed to Fort McDowell, Cal., for duty, relieving First Lieutenant James F. Johnstone, who, upon being thus relieved, will proceed by the first available transport sailing from San Francisco, Cal., to Honolulu, H. T., for duty. **De Loffre**, S. M., Captain, Medical Corps. Arrived at Plattsburg Barracks, N. Y., on September 16, 1913. **Drake**, Percy G., First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort McKinley, Me., and will proceed to the Philippine Islands on December 5, 1913. **Falisi**, J. Vincent, First Lieutenant,

Medical Reserve Corps. Ordered to active duty from September 17 to 27, 1913, and will report at Fort Logan H. Roots, Ark., for duty. **Ford, H. G.**, First Lieutenant, Medical Corps. Joined Camp E. S. Otis, Canal Zone, on September 8, 1913. **Henry, Ziba**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Sill, Okla., and will proceed to the Philippine Islands on December 5, 1913. **Hereford, John R.**, First Lieutenant, Medical Reserve Corps. Relieved from duty in the Philippines Department, effective on January 15, 1914, and will proceed to the United States. **Hull, Howard L.**, First Lieutenant. Granted leave of absence for five days. **Kerns, Harry N.**, First Lieutenant, Medical Reserve Corps. Ordered to report to the Army Medical School on September 20th for required course of instruction. **Kinsey, Oliver, Jr.**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Washington, Md., to take effect September 30, 1913, and will then proceed to his home and on arrival will report to the adjutant general of the army; granted leave of absence from October 1 to and including November 23, 1913; resignation accepted, effective November 23, 1913. **Michie, Henry C.**, First Lieutenant, Medical Corps. Granted leave of absence for twenty-four days, effective on his being relieved from treatment at the Walter Reed General Hospital. **Milteneberger, Val E.**, First Lieutenant, Medical Reserve Corps. Granted leave of absence for one month. **Mitchell, L.**, First Lieutenant, Medical Corps. Reported for duty at Fort Lawton, Wash. **Moncrief, William H.**, Captain, Medical Corps. Relieved from duty as attending surgeon, Philadelphia, Pa., effective on arrival of Major Thomas L. Rhoads, Medical Corps, and will then proceed to the Walter Reed General Hospital, Washington, D. C., for duty. **Munson, E. L.**, Major, Medical Corps. Leave of absence extended one month. **Selby, George M.**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort MacKenzie, Wyo., and from active duty in the Medical Reserve Corps, to take effect on the arrival of First Lieutenant Frederick H. Sparrenberger. **Sherwood, J. W.**, First Lieutenant, Medical Corps. Left Fort Clark on September 7th for Culberson's Ranch for temporary duty. **Sparrenberger, Frederick H.**, First Lieutenant, Medical Reserve Corps. Relieved from further treatment at the General Hospital, Fort Bayard, New Mexico, and will proceed to Fort MacKenzie, Wyo., for duty. **Tarleton, L. O.**, First Lieutenant, Medical Corps. Left Vancouver Barracks for Target Range, Provestel, Washington. **Tenney, Elmer S.**, First Lieutenant, Medical Reserve Corps. Relieved from duty in the Philippines Department, effective January 15, 1914, and will proceed to the United States. **Vedder, E. B.**, Captain, Medical Corps. Arrived at Army Medical School on September 14th. **Von Kessler, William C.**, First Lieutenant, Medical Reserve Corps. Ordered to report to the Army Medical School on September 23d for required course of instruction. **Wilde, A. G.**, First Lieutenant, Medical Corps. Joined Signal Corps Aviation School, San Diego, Cal., on September 4th. **Woodson, Thomas D.**, Captain, Medical Corps. Now at San Francisco, Cal., is relieved from duty in the Army Transport Service and ordered to Fort Leavenworth, Kansas, for duty.

#### United States Navy Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the two weeks ending September 20, 1913:*

**Cohn, I. F.**, Passed Assistant Surgeon. Ordered to Receiving Ship, Navy Yard, Puget Sound, Wash. **Connor, W. H.**, Passed Assistant Surgeon. Detached from the Naval Hospital, Newport, R. I., and ordered to the Naval Hospital, Boston, Mass. **Espach, W. C.**, Assistant Surgeon. Commissioned an assistant surgeon in the Medical Reserve Corps from August 18, 1913. **Hathaway, G. S.**, Passed Assistant Surgeon. Detached from the Naval Hospital, Boston, Mass., and ordered to the Naval Hospital, Newport, R. I. **Hoyt, R. E.**, Surgeon. Detached from the *Massachusetts* and ordered to the *Michigan*. **Jones, J. F. X.**, Assistant Surgeon. Commissioned an assistant surgeon in the Medical Reserve Corps from August 18, 1913. **Kaltes, F. X.**, Passed Assistant Surgeon. Detached

from the *New York* and ordered to the *North Dakota*. **Lynch, C. P.**, Assistant Surgeon. Detached from the Naval Hospital, Las Animas, Colo., and ordered to the Naval Recruiting Station, St. Louis, Mo. **McDonnell, W. N.**, Passed Assistant Surgeon. Detached from the Navy Rifle Team and ordered to the Naval Hospital, Washington, D. C., for treatment. **McGuire, L. W.**, Passed Assistant Surgeon. Detached from Puget Sound Hospital and ordered to temporary duty at Washington, D. C. **McMullin, J. J.**, Passed Assistant Surgeon. Detached from the *North Dakota* and ordered home. **Robbins, I. W.**, Assistant Surgeon. Detached from the San Francisco Training Station, and ordered to the Navy Yard, Puget Sound, Wash. **Smith, C. G.**, Surgeon. Detached from the *Michigan* and ordered home to await orders. **Trible, G. B.**, Passed Assistant Surgeon. Detached from the Naval Hospital, Washington, D. C., and ordered to the *Solace*. **Whitmore, G. B.**, Passed Assistant Surgeon. Detached from the Receiving Ship, Navy Yard, Puget Sound, and ordered to the Naval Hospital, Puget Sound. **Younie, A. E.**, Assistant Surgeon. Commissioned an assistant surgeon in the Medical Reserve Corps from August 18, 1913.

### Births, Marriages, and Deaths.

#### Born.

**Knewstep.**—In Hampden, Va., on Friday, September 5th, to Dr. and Mrs. William E. Knewstep, Jr., a son.

#### Married.

**Brophy—School.**—In Philadelphia, on Wednesday, September 17th, Dr. John A. Brophy and Miss Carolyn M. School. **Hammond—Bringham.**—In Alton, Ill., on Monday, September 15th, Dr. William D. Hammond, of Chicago, and Miss Camille Bringham. **Horsford—O'Crowley.**—In Newark, N. J., on Thursday, September 11th, Dr. Frederick Charles Horsford and Miss Edna Madeline O'Crowley. **Thomas—Pratt.**—In West Chester, Pa., on Monday, September 15th, Dr. George Carroll Thomas, United States Navy, and Miss Bertha Leeta Pratt. **Towle—Kelly.**—In Boston, Mass., on Wednesday, September 17th, Dr. Charles E. Towle, of Dorchester, and Miss Agnes G. Kelly.

#### Died.

**Bartlett.**—In Milwaukee, Wis., on Thursday, September 11th, Dr. Edward Wilcox Bartlett, aged seventy-four years. **Berlet.**—In Philadelphia, on Sunday, September 14th, Dr. James F. Berlet, aged sixty-two years. **Campbell.**—In Block Island, R. I., on Sunday, September 14th, Dr. Charles E. Campbell, of New York, aged seventy-four years. **Case.**—In Warrensburg, Mo., on Sunday, September 14th, Dr. Zophar Case. **Curtis.**—In Chatham, Mass., on Saturday, September 20th, Dr. John Green Curtis, of New York, aged sixty-eight years. **Dunkle.**—In Rochester, Minn., on Thursday, September 11th, Dr. Samuel C. Dunkle, of Glidden, Iowa. **Herman.**—In Baltimore, Md., on Saturday, September 13th, Dr. Nathan Herman, aged fifty years. **Jacobson.**—In Syracuse, N. Y., on Tuesday, September 16th, Dr. Nathan S. Jacobson, aged fifty-six years. **Moore.**—In Saranac Lake, N. Y., on Saturday, September 13th, Dr. Robert Emery Moore, of Brooklyn, aged thirty-four years. **Norwood.**—In Spencer, Mass., on Thursday, September 11th, Dr. Ephraim Wood Norwood, aged sixty-six years. **O'Neal.**—In Mechanicsburg, Pa., on Thursday, September 18th, Dr. Lindsay P. O'Neal, aged seventy-five years. **Raessler.**—In Sioux City, Iowa, on Sunday, September 7th, Dr. Rufus Raymond Raessler, of Anthon, aged forty-five years. **Ross.**—In London, England, on Friday, September 19th, Dr. F. W. Forbes Ross. **Smith.**—In Houston, Texas, on Wednesday, September 13th, Dr. L. W. Smith, aged thirty-five years. **Wallace.**—In East Brady, Pa., on Sunday, September 14th, Dr. Robert S. Wallace, aged eighty-two years. **Wenner.**—In Wilkes-Barre, Pa., on Monday, September 15th, Dr. Alfred J. Wenner, aged forty-nine years.

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### Original Communications.

#### ULTIMATE RESULTS OF THE CHETWOOD OPERATION FOR RETENTION OF URINE.

By E. L. KEYES, JR., M. D.,  
New York.

Not so many years ago very few surgeons realized that such a condition as contracture of the neck of the bladder really existed, or that there were types of prostatic retention (including prostatism without hypertrophy, and prostatism due to relatively small, fibrous, concentric hypertrophy) for the treatment of which the usual methods of prostatectomy were not thoroughly satisfactory. But the discussion of the operations of Chetwood, Young, and Goldschmidt before the American Medical Association last year proves that many men now recognize and are prepared to combat these conditions. Therefore it is no longer necessary to apologize for attacking the prostatic bar and allied conditions by means of electric cauterization.

During the past ten years I have employed the Chetwood operation upon about one quarter of my cases of prostatic hypertrophy. I have also employed it for the removal of all minor obstructions, such as bars and contractures at the bladder neck, when simple perineal section seemed likely to prove inadequate to afford proper drainage for the bladder. In selecting cases for such an operation one is likely to err on the one hand in operating upon patients with little or no retention, but suffering from painful and frequent urination, and who would do as well without operation upon the bladder neck; or, on the other hand, in attempting to relieve by cauterization an obstacle requiring prostatectomy. The former error I have fallen into once, in the case of a patient without residuum who had suffered for a long time from painful and frequent urination, the cause of which I was unable to ascertain. I did a perineal section, burned what appeared to be a bar at the bladder neck, and although the operation did the patient no harm, it certainly did him no good. He was killed five years afterward in an accident, and up to the time of his death he had much the same pains as when he first consulted me. The other error, viz., that of operation upon prostaties who would do better by prostatectomy, is rather hard to estimate. I find that my results from operations upon lateral or bilateral hypertrophies (elevating a bar at the neck of the bladder) and upon small general hypertrophies,

average about as well as those from operations for contracture, though I am more and more inclined to submit definite cases of hypertrophy to suprapubic prostatectomy.

In many instances, however, the motive for electing this operation has been the patient's bad general condition. For the Chetwood operation causes less shock than any form of prostatectomy. It may be performed under local anesthesia, or in two stages, or if the whole operation is performed at once, it takes but five or ten minutes. The hemorrhage is insignificant; the convalescence less stormy than that of prostatectomy. I cannot compare the Chetwood operation fairly with the procedures of Young and Goldschmidt, for I have never employed either of these, being unwilling to trust to the precise accuracy of my urethroscope or cystoscope in diagnosing the shape and size of the prostatic obstacle, for experience has shown me that this sometimes differs materially from what the examination had led me to expect. A very amusing instance of this occurred last Spring when I cystoscoped a patient and demonstrated a projection of the right lobe. I then performed perineal section, and found the urethra pushed sharply to the right by an adenoma, about the size of a marble, in the left lobe. Yet, this projecting mass was almost entirely within the urethra and the very slight and unimportant enlargement of the right lobe was all that had been seen at the bladder neck. This patient was relieved of his retention by cauterization of the bar, and enucleation of the adenoma from the left lobe of the prostate, from within the urethra. Indeed, an evident advantage of operating through a perineal incision is that one can deal with any and all urethral conditions found, be they stricture, prostatic abscess, or actual obstruction at the bladder neck; and at the close of the operation palpation verifies the result. Moreover, the presence of visibly or palpably enlarged lateral prostatic lobes in no way interferes with the success of the operation, as it does with the clip operation of Young. I have, as in the case just cited, once or twice removed whole lobes, and have several times made two incisions in the prostatic bar, and pulled out a small piece of tissue between. Thus, the operation has a distinctly wider scope than that of the intraurethral operations. Moreover, its field is one on which prostatectomy scarcely encroaches, for the smaller types of prostatic hypertrophy are confessedly the most troublesome to deal with by prostatectomy.

Let us now turn to a consideration of results. Beginning with two operations in 1901, I have per-



formed fifty-seven Chetwood operations with two deaths, both due to sepsis; one on the thirteenth day and one at the end of the fourth week. A third patient was operated upon for complete prostatic retention. He left the hospital in three weeks, healed, emptying his bladder and in satisfactory general condition. Three weeks after this he died, his death being apparently due to chronic colitis. He had no further urinary symptoms, and I do not believe that the operation hastened his demise. Of the remaining cases some failed to be cured for two reasons, either the prostatic obstacle was not sufficiently removed (in which case the patient continued to have residual urine, and after a lapse of time the symptoms returned, or increased); or, the obstacle was too fully removed (leaving the patient with incontinence of urine).

#### INCOMPLETE RELIEF.

Eliminating from our statistics one case of tuberculosis, four cases of tabes, and three of carcinoma, the patients surviving operation and whose ultimate results at present do not concern us, incomplete relief was afforded to seven patients.

The very first patient I operated upon was seventy-one years of age, and had chronic complete retention from a contracted bladder neck, stone, relapsing epididymitis, and grave renal infection. His bladder neck was burned, his stone removed, his right vas deferens tied off. The suppuration in the right testicle nevertheless continued, and required incision during the convalescence. He returned home six weeks after operation with a residuum of from three to five ounces. In the three months following operation he gained thirty-five pounds, but continued to pass water every hour or two by day, and from two to four times at night. Eighteen months after the operation he began to lose ground again and died of his retention at the end of two years.

The second patient I operated upon was seventy-three years of age. He had a right lateral hypertrophy, acute retention, and pyonephrosis. He could not endure the passage of a catheter, and therefore most unwillingly submitted to a perineal section. The bar at the neck of the bladder was burned, fragments of the right lobe shelled out, and his symptoms temporarily and partially relieved. As his condition improved after the operation he continued to discharge great quantities of pus from the left kidney and had what appeared to be reflex spasm of the sphincter, for at times he would empty his bladder completely, and at other times would require catheterization. I urged nephrectomy upon him so strongly that he changed his physician and died eleven months after operation of sepsis.

The next patient operated upon was sixty-seven years of age. He had a bilateral hypertrophy, and two to three ounces of residuum. His bar was burned at both ends and the intervening portion removed. His symptoms were thereby relieved for five years. They then relapsed and he had his prostate removed. But as he has continued to suffer from recurring stone in the bladder since that time he doubtless still has some retention. It is now eleven years since his operation, and I have not seen him during this interval.

These three cases illustrate three facts: In the first place, if the retention is not entirely relieved, relapse of symptoms may be looked for (whether the operation done be a Chetwood or a prostatectomy). In the second place, other conditions, such as the pyonephrosis mentioned, may spoil what would otherwise have been a cure. In the third place I required the experience derived from these three cases to learn how to do the operation successfully.

A fourth member of my seven incompletely relieved patients came to me in April, 1908, with complete retention for eight years, due to contracture and a big prostatic abscess. His condition at the time of the operation was desperate. The operation was performed in two stages under local anesthesia, and his satisfactory recovery was, little less than a resurrection. Yet, he continued to have about three ounces of residuum, marked nocturnal polyuria, constant edema of the feet, and bilateral pyonephrosis, as demonstrated by pyelography. This did not prevent his giving up his catheter and holding his urine for from two to four hours, night and day, for five years. Then his residuum began to climb again, and he has had to return to the catheter, once a day, for the past few months.

The fifth unrelieved patient was operated upon for contracture in the tenth year of catheter life. Six years later (in his eighteenth year) his residuum was 150 to 200 c. c., he was using the catheter once a day, and his kidneys were obviously giving out. He doubtless died shortly thereafter.

The sixth patient, sixty-four years of age, at the end of three years had the same partial retention as before operation.

It is to be noted in reference to these three cases that all were contractures and therefore unsuited for prostatectomy.

The seventh patient, seventy-three years of age, had complete retention, following a Young prostatectomy. I performed a Chetwood operation on the chance that it might help (though he had no contracture), and did him absolutely no good. He was last seen two years after operation.

#### INCONTINENCE OF URINE.

My patients who have been left with incontinence of urine by the Chetwood operation number six. Two of these have unimportant and occasional loss of a few drops of urine at seven and nine years, respectively, after operation.

CASE 2369. The patient first entered my office in December, 1881, for the relief of nocturnal emissions. He continued to suffer from these, as well as from minor sexual neuroses, and a great deal of headache, and visited the office almost every year until 1899, for the treatment of these conditions. In 1903 he returned with a recent history of difficult, frequent, and imperative micturition. Catheterization revealed eight ounces of residuum; the prostate felt normal; there was no history of gonorrhea or syphilis, nor evidence of stricture, and there was but little pus in the urine. The reflexes were normal. For one year the patient was kept under treatment by the catheter while various futile attempts were made to relieve the retention, but it remained undiminished. Accordingly perineal section was performed on March 12, 1904, revealing a contraction of the whole posterior urethra. This was torn open with the finger to the bladder neck which was burned "at 7 o'clock" for 0.75 cm. No prostatic enlargement was discovered. The patient urinated

but once through his perineum after the removal of the tube on the second day. He left the hospital on the eighth day with two ounces of residual urine, and on the fourteenth day the bladder was emptying itself and he was holding his urine four hours by night, and two hours by day. April 10, 1904. He slept all night; his urine was normal. He lost only a few drops of urine after urination. February 1, 1905. He was much stouter than ever in his life, and perfectly well, excepting for the loss of a few drops of urine after sitting still for several hours, and occasionally a very slight dampness of his nightshirt. March 15, 1913. His condition was unchanged.

CASE 44720. Aged thirty-six years; he had had gonorrhea for three months, with profuse discharge; he was urinating every four hours by day, and twice by night, with residual urine amounting to thirty c. c.; an urethral stricture in the bulb grasped a 23 F. sound. The urethra was extremely sensitive, and he suffered many referred pains. The patient, a physician, was very solicitous. June 6, 1905. Perineal section revealed the stricture, and beyond this a small cavity in the right lobe of the prostate, where an abscess had opened into the urethra; behind this was a moderately tight bladder neck, which was burned. The wound did not heal until July 10th, at which time his gonorrheal infection was still moderately active. On September 12, 1906, he had gained forty pounds. The urine still contained some pus and shreds, but there was no urethral discharge. He emptied his bladder; a 27 F. sound was not grasped. His incontinence of urine consisted in dribbling a few drops only, by day, and only when he is tired. On May 6, 1908, the urine contained only a bacterial haze and a careful physical examination revealed no lesion. His incontinence of urine consisted of "a few drops once a week or so." August 6, 1912, he reported another gonorrhea in 1911. Urine was clear; he was perfectly well excepting for the occasional loss of a few drops of urine.

Three others were left incontinence of sufficient importance to cause inconvenience. One a year after operation had incontinence only after becoming tired by standing at his occupation for six or eight hours. Another was reported a year after operation as having regained "fairly good control." He died a few months thereafter of apoplexy. A third, six months after operation, had some residuum by day, and incontinence by night. At the time of operation I suspected this man had carcinoma, and in spite of a gain of seven pounds, this curious combination of retention and incontinence, which was certainly not due to unusual bladder irritability, rather confirmed the tentative diagnosis.

Finally, one case operated on in desperate straits, and whose most important lesion at the time of operation was a pyonephrosis, was left with incontinence of urine and a perineal fistula up to the time of his death from intercurrent disease, two years after operation. Bad as this result was I question whether he would have survived a more grave operation, and the drainage of his kidney unquestionably saved his life.

CASE 4137. Aged fifty-five years. He had had complete retention three weeks, preceded by a gradual increase of urinary frequency for six months. The prostate was not enlarged. Perineal section revealed a bladder neck too tight to admit even the finger tip; this was divided by a burn on May 5, 1909. Two weeks later the fistula had healed, but incontinence was complete. On June 11th he was dry by night and just beginning to get control by day. November 6th: He was dry by night and when sitting down; but he ran an elevator and began to dribble after working three or four hours. A month later, local treatment by instillations had so improved this incontinence that he was absolutely dry until 3 p. m., and also dry throughout the holidays. In May, 1910, he was still better, losing his urine only when tired from long standing.

CASE 5731. This patient, aged seventy-four years, was first seen on the day of his operation, at which time he

had been depending upon the catheter for three years, since the opening of a prostate abscess into his rectum, previous to which time he had occasionally used the catheter. During his three years of catheter life he had suffered relapsing epididymitis on both sides on various occasions, and had several attacks of angina pectoris. November 10, 1905. Perineal section revealed a marked bar at the bladder neck with a right lateral lobe. The Chetwood operation and a double vasectomy was done in thirty-four minutes. I never saw the patient after operation, but a month later his nurse reported "The perineal wound is healed, the bladder empties itself, the testicle no longer relapses, but the urine continues purulent." On January 7, 1906, his physician reported, "He empties his bladder but has had a good deal of incontinence, especially when on his feet, and he has to wear a urinal to catch the overflow." A year later his physician reported, "He regained fairly good control and has been pretty comfortable. I should think that 'much improved' would describe the result." In March, 1907, he died of apoplexy.

CASE 8043. Aged sixty-four years; he has had frequent urination for three years, beginning with an abscess that broke into the rectum. He urinates every hour by day, and has incontinence of urine by night. His residual urine is eight ounces, full of pus. He was treated by catheterization and bladder washing for ten days with the result that the pus was much less but the symptoms unabated. He passed thirty-five per cent. of phenolsulphonphthalein in the first hour, after ten minutes delay. On June 11, 1912, cystoscopy showed a moderate intravesical projection of the left lobe, and perineal section revealed the fact that this lobe was not very large, and that the enlargement in it consisted chiefly of two distinct hard nodules. The remainder of the prostate appeared to be normal; the bladder neck was elevated by this lobe and this elevation, or bar, was burned through; a tentative diagnosis of carcinoma being made.

The fistula closed in three weeks, but left him with some incontinence of urine by day and by night.

On January 8th, six months after operation, he wrote that he was seven pounds heavier than before operation; that by day he could hold his urine from two and one half to three hours; that the residuum was about three ounces; that his incontinence by night continued; but that by day he was dry and had no pain on urination.

CASE 8737. Aged seventy-one years; six years ago he had acute retention; thereafter slight irritability, until one year ago when he had fever and passed blood, and the bladder became irritable. During the year he lost twenty-five pounds, and three weeks ago the irritability again became intense. For the past three years he had a daily chill, followed by a temperature of 102° F.

September 14, 1908. Examination revealed a normal prostate; there was a great deal of thick renal pus in the urine; he had a dry tongue, and was in a very poor general condition. The patient was put in the hospital and a perineal section done under local anesthesia. A marked bar was found at the bladder neck, but no other evidence of prostatic hypertrophy. Chetwood operation was done, and the tube was taken out on the third day.

He continued to have chills and fever from his renal infection for many days and extensive sloughing occurred throughout the perineal wound. He left the hospital in five weeks, however, but with a big hole in the perineum, through which he had complete incontinence.

Thereafter his general condition improved greatly, and, although he continued to have attacks of chills and fever every few months, he was able to work for a year, up to the time of death, which occurred suddenly, after a few hours illness, in December, 1910.

#### CURES.<sup>1</sup>

Among the fifty-seven patients operated upon, twenty-seven have been followed for a year or more (omitting cases of carcinoma, tabes, and tuberculosis). Seventeen, or sixty-three per cent., of these patients were cured, and the cures verified for nine years in one case; seven years in three cases; six years in one case; five years in one case;

<sup>1</sup>Among these have been included only one case that was not personally verified. Three of the cases (two cures, one uncured) had no retention of urine before operation. Their inclusion obviously does not modify the statistics.

four years in two cases; three years in four cases; two years in one case; and one year in three cases. (I have included among the cures the two cases of insignificant incontinence recited.) Three patients have grave incontinence of urine; two incomplete and one complete. Seven patients were incompletely relieved, and of these two went as long as five years before their symptoms again gravely inconvenienced them.

The general aspect of these statistics is not particularly good; for although the mortality is low, the proportion of the absolute cures is also low. But as I look back over them, I feel that the average result is far better than I could have obtained by any other operation. A number of them were desperate risks, and most of them represented that class of prostate that is too small to be satisfactorily dealt with by prostatectomy. I shall continue to put faith in the procedure and expect that a second series of twenty-five cases followed more than a year will show a much larger proportion of cures.

109 EAST THIRTY-FOURTH STREET.

## A NEW PRINCIPLE IN ESOPHAGOSCOPY.\*

BY RICHARD LEWISOHN, M.D.,  
New York.

In the past thirty years a large number of physicians and instrument makers have busied themselves with the construction of various types of esophagoscopes and much ingenuity has been expended in the development of different models. The multiplicity of instruments is a proof that no one instrument is entirely satisfactory in every respect. The straight tube esophagoscope, as you all know, is the one in most extensive use at present, and this principle of construction is the only one that has proved itself useful. Still one cannot say that the instrument is a popular one. There can be no doubt that in the hands of experts it has given very satisfactory results. Nevertheless the introduction of the straight tube especially into the lower parts of the esophagus is not only not entirely devoid of danger, but very difficult in a large majority of cases, inasmuch as the overextension of the head forces the patient into a most uncomfortable position. For this reason attempts have constantly been made to construct an instrument, the introduction of which would be less dangerous and less disagreeable to the patient. Without dwelling here on the various models heretofore constructed for this purpose, the majority of which have been based on the principle of the jointed tube, I would like to show you here an esophagoscope which I have constructed, based upon an entirely new principle, namely, that of a rectangular telescope.

The new features which were strictly adhered to for the first time in the construction of the instrument are: 1. The introduction is possible in the normal position of the head; 2, the instrument is so constructed that it actually passes in the longitudinal axis of the esophagus, and not at an angle to this axis.

I wish to make the description of this instrument as short as possible, as I hope to have an opportunity to demonstrate it on a patient, and give you then the further details of its construction. It is a right angular instrument, with a light attachment at the proximal end of the horizontal tube and a mirror at the junction of the horizontal and vertical parts. The vertical part consists of six telescopic tubes, the uppermost of which carries two metal guides. These guides, which act as a kind of obturator, lead the way into the esophagus. It is surprising how easily one can enter, with their aid, the mouth of the esophagus, and anchor the instrument within the upper part of the esophagus. All further manipulations (evolving the telescope, etc.) are, of course, done under the guidance of the eye.

The aspiration of mucus is done either by a piece of rubber tubing attached to a Killian bottle or by means of an applicator. I have constructed in the last few months a forceps which will ultimately make possible not only the excision of specimens for microscopical diagnosis, but also the removal of foreign bodies.

I have used the instrument in quite a number of cases, mostly of cancer of the esophagus.

In trying to compare in an unbiased way this new instrument with the straight tube, I would like to state the following: This instrument was not constructed to supplant the straight esophagoscope. I think that in the hands of experts the straight tube will continue to be a very useful instrument.

The technic of straight esophagoscopy, however, is not easily acquired, and though I have seen a great many colleagues use the straight tube, I have found very few who could master the introduction. The introduction of this new model is, on the other hand, extremely simple, and with the exception of one case where pathological conditions in the upper air tract were prevailing, I have never had any difficulty in introducing the instrument. Patients who have had the straight tube as well as the telescope passed on them greatly prefer this new model, because it is introduced in the normal position of the head, and avoids the very uncomfortable overextension of the head. On the other hand, this new model is not as simple in its construction as the straight tube. Instrumentation through it is somewhat more difficult, as all manipulations have to be done over a right angle. Furthermore, for reasons which are self evident, it only brings into view lesions which are more than eight inches from the teeth, and at least in its present construction does not show affections of the uppermost part of the esophagus behind the cricoid.

I started this work a few years ago because I felt that the straight instrument did not meet with the general approval of the specialists, to say nothing of the aversion it still encounters from the general practitioners and the patients. I felt that the unpopularity of the straight esophagoscope was mainly based on the fact that the straight tube does not adapt itself sufficiently to the normal anatomical relations between the mouth and the esophagus. I feel assured that I have succeeded in constructing an instrument which overcomes this objection. Those who are in every way satisfied with the use

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of the straight tube should continue esophagoscopy with that instrument; those, however, who feel that the straight esophagoscope is not a harmless instrument and gives a good deal of discomfort to the patient, I would advise to try this new model. I feel assured that the telescopic model will prove to be a useful addition to our esophagoscopic armamentarium.

1 WEST EIGHTY-FIFTH STREET.

## THE ETERNAL MEDICAL VERITY.

BY W. B. KONKLE,  
Montoursville, Pa.

Not an eternal medical verity, but *the* eternal medical verity—the primal truth, the basal truth. *Nature is the healer*—that is it. Jesuit's bark and quicksilver with its latter day ally or competitor, arsenic, do not negate the great verity. Ordinary therapeutic agents and measures so multiform and manifold do not cast doubt upon it. Vaccines, serums, and organic extracts only corroborate it. Beyond this a thousand things establish it. Through his journey down the years closely by his side Nature walks with the individual, her *agis* over him, unrelaxingly watchful, *toujours en vedette*, lifting him when he falls, rescuing him when he is assailed. And his heart beats on, and his brain acts, and his senses receive, and his members put forth strength. Nothing derogatory to his protectress is it that certain of his foes are stronger than she.

Nature reckons naught of the lamentable fact that of his physical enemies man is himself the worst. Through her benign and masterful ministrations, in spite of himself he survives the ages. Yet, nevertheless, the case remains that most of her weaknesses and failures, manifest or seeming, are due to his own suicidal, self annihilative customs and habits. But in such contingency surely Nature is not at fault. Let not the results of errors of fashion and conduct be attributed to impotence or lapse of function upon her part. For instance, let there not be charged to her the sins of the corset as a cause of pelvic derangement and of impairment of the hepatic and mammary glands. Indeed the most common ground of Nature's so called failures, as well as the largest field of opportunity for science and art in therapeutics, is where Nature has been priorly diverted or perverted or inverted or obstructed.

Nature at times and in places seems to blunder and fail because she works by the process of gradual development, rather than by immediate change. She does not leap to her ends, but guardedly, deliberately approaches them. She does not peremptorily cast out of date means and instruments aside, but slowly effaces them. Evolution is her method; not instantaneous, outright creation or obliteration. She keeps on running over the bridge while the old structure is little by little being transformed into new.

And, too, Nature may seem remiss, even perverse, where she is in reality energetic and consistent as judged by the criterion of her aims and plans. One of her highest, worthiest designs is the survival of

the fittest. Logically, inevitably the means to that end is the elimination of the unfit. And in this light to Nature will be ascribable full success when otherwise viewed she might be deemed accusable of slackness and defeat.

Among the prerogatives and offices of the present day healer is eminently included prophylaxis. Indeed this has come to be esteemed the most prominent and promising department of medicine. And Nature, too, is *par excellence* the preventive healer, paradoxically speaking. Here she is at her very best and queenliest. Here she operates marvelously. In example germs as disease factors may be cited. When they and their rôle in pathology were discovered with affright scientists meditated their absolute exclusion from the organism as a measure expedient, even imperative. And then, lo! it was found that Nature had anticipated the necessity, and had established a system of defense charmingly effective. Aye, a far sighted, tactful *Frau* is this same Mistress Nature, who saves herself as a healer a lot of aftercare and effort by nipping trouble in the bud. Not she the one to leave the macrobe helplessly and hopelessly exposed to the onslaughts of the microbe. Also through victory itself temporarily won by the latter she provides double armament against any future attack.

Our fundamental principle of *vis medicatrix naturæ* has not, however, come down the centuries unchallenged. No tenet is so exempt from antagonists that it may walk abroad without sword and shield. The great Erasistratos himself, in contrast with his equally great contemporary Herophilos, led off in dissent from the Sage of Cos. He did not wholly repudiate Hippocratism; but he rather completely divorced himself from *vis medicatrix naturæ*. Then in legitimate line from the illustrious Alexandrian we come to Asclepiades of Prusa, the forerunner of the Methodists. The Bithynian was the arch adversary of Nature the healer, stigmatizing Hippocrates' attitude of expectancy and subordination as a "meditation upon death." He says, "In disease Nature as often works injuriously as beneficially." But Asclepiades was better than his creed. In practice he employed the very agencies of Nature which he spurned in theory. Practically a wise, skillful doctor, he rendered the decadent Roman aristocracy most valuable and acceptable service, instilling as was his wont into his therapy the spirit of his own famous maxim of "*tuto, celeriter, ac jucunde*." His followers all along the way into modern times espoused his feud against *vis medicatrix naturæ*. In later days Cullen like the ancient master sharply distinguished between theoretic views and practical indication, and in consequence is accorded enviable renown as a physician. Hahnemann was harmless. Brown and Broussais translated their pernicious theories into practice. They were as bad as their bad creeds.

Even to-day Nature has her contemners. Yet at this late hour occasionally is heard the echo of the Bithynian's voice—"In disease, Nature as often works injuriously as beneficially." Such detractors of Nature, goddess whose nude form is radiant with vigor and chaste loveliness, regard her as vacillating, frivolous, and wanton. They would say to her, Put on your clothes, you old hussy! and

be conventional and regular and orthodox, as a dame of your age and standing should be!

At the other pole of thought as pertaining to the principle of *vis medicatrix naturæ* is found the new Vienna school. Of this Olympus Skoda is the Zeus. As marked as his *penchant* toward accuracy of diagnosis was the school's therapeutic nihilism. The matter of cure was unconditionally left to the tutelage of Nature who might seek in vain for a handmaid in Vienna medicine. To diagnosticate and prognosticate, that was about the sole office of the physician. Undoubtedly a patient would be content, would feel that he had gotten all that he could wish or ask, when he was told what was the matter with him, and whether or not he was going to die. To be sure at the outset he might find himself in the sentiment of one of Molière's characters who soliloquized thus: :

*"Je tremble du malheur qui m'en peut arriver,  
Et l'on cherche souvent plus qu'on ne veut trouver."*

And then, of course, he might, too, as his case proceeded be taken with some longing for medical help. Such a mental attitude would not be at all strange since the infallible Galen himself says: "*Populus remedia cupit.*"

But of the forming and directing minds that from the beginning and throughout have swayed the destinies of medicine, so far as we know a majority overwhelming have stood for the idea of *vis medicatrix naturæ*. Haeser says that Bolos, a contemporary of Hippocrates, wrote upon the healing power of Nature. We, however, are accustomed to look to the immortal Coan as the chief expounder and exponent of the principle in question. Hippocrates did much for medicine. He led the healing art forth from its temple prison into the free air and under the broad sky. A French scholar remarks that as Thucydides banished the marvelous from history so Hippocrates banished it from medicine. He insisted that observation rather than speculation constitutes the true instrument of progress. And with a charm and grace unmatched and all his own he taught how to observe and how to record. He, besides, established individualization in practice. These things he did. But a still more important service to his art was his earnest and eloquent announcement that the healer is Nature, and the physician is her servant, not her teacher. This is naturism. This is Hippocratism. And as Bouchut aptly states, "After two thousand years of observation, of experience, and of controversy, the naturism of Hippocrates yet stands upright."

Under the therapeutic banner unfurled by the peerless Son of Cos with ranks unbroken the grand army of medicine has marched along the track of the intervening centuries. Herophilos, taught of the Coan Praxagoras, held it aloft. The Empirics, of whom Heraclides of Tarentum was the most distinguished, sturdy bore it far. Aretaios of Capadocia, truest of Hippocratism, maintained it intact and unsullied. Thus strong, leal hands have ever welcomed, ever defended, ever carried forward the standard raised by the lord of the little Ægean isle. And thus was it passed on and on and on. The list of those great banner bearers is long. Only a few more such representative names may be men-

tioned. Standing for Rome there was Celsus, dignified by the twofold title of *Latiq* Hippocrates and Cicero of medicine. And there was the Pergamenian, Galen the unique, rare encyclopedist, autocrat of his guild for a thousand years. And there was Orebasios, another Pergamenian, friend and physician of the Emperor Julian. And then followed in order the illustrious Arabs, who received from the Syrian Jews and Nestorians the torch of Greek thought and learning and with it illumined Asia, Africa, and Europe. And then came Paracelsus, the Luther of medicine, whose motto was, "*Qui suus esse potest, non sit alterius.*" And there was Fernel, the scholar, schoolmaster in the medicine of the *renaissance*. And there was Paré, who adopted as his device, "*Je le pansay, Dieu le guarit.*" And afterward came Sydenham, Hippocrates *redivivus*, a very titan among the men of the healing art. And then came Boerhaave the erudite, the most famous doctor in the world, he who made Czar Peter the Great wait his turn with numerous other patients. And then follow down to the present naturists and naturists a brilliant host.

But if adherence to naturism has been so general and continuous, if it has been so constantly held as the touchstone or loadstar of medicine, what important purpose can be served by its reannunciation? If the principle may to-day be considered a threadbare truism does not its representation smack of the platitudinous? Its iteration and reiteration is warranted by a single significant circumstance. While acknowledged academically, the principle has been in practice violated in one way or another at all epochs and by its ablest exponents. Again and again has naturism been wounded in the house of its friends—unintentionally so, unconsciously so. Hippocratism has been dishonored by Hippocrates. Such transgression occurs either through application of faulty theory or by the misinterpretation of a fact not perceived in all its bearings. The fallacy will best be avoided by frequent reference to the great, basic principle itself, *magna charta* of the healing art, as in "Pilgrim's Progress" Christian persistently consults his roll on his way to the Celestial City.

Yes; Hippocrates himself who saw so keenly and so clearly became so ensnared by his humoral pathology, his doctrine of coction and crisis and his adaptation of the Pythagorean system of numbers that at many points he widely departed from his own naturism. The mistakes of the master incessantly reappear in the practice of his followers. Theories, systems, assumptions so befog the field that genuine, vital Hippocratism is largely lost from view. A Will-o'-the-wisp chase is kept up after the essence of the *vis medicatrix naturæ*. Ontological speculation supercedes phenomenal observation—it is sought to know what can not be known. In this mad endeavor to drive Nature into a trap it is forgotten that whoever or whatever she may be she still is the healer. And thus the wisest heads have been turned and the most skillful practice has been marred. And it has been found necessary to hark back to naturism pure and simple, and from there to start afresh.

Even with the advantage of vastly expanded knowledge and the possession of a long record of

errors we yet lack caution in divining natural indication. Within easy memory we indiscriminately depressed elevated temperature. We know better now—know that fever is often beneficent. Just now we are in danger of making the same *faux pas* with reference to blood pressure. When shall we learn that to suppress a symptom is not to remove disease? When shall we cease to act upon the policy of the ostrich who thinks herself amply protected when she has thrust her head in the sand?

From this review some lessons may be deduced. And first of all and above all, in whatsoever we do we should be as sure as may be to contravene no natural process. We may aid as we can, at times may even take the initiative, but must strive to not antagonize Nature—must, so far as possible, and as soon as possible relinquish to her the arena. It is true she is both resourceful and benignant; and when we get in her way she manages to step around us or over us. But that furnishes no excuse for our getting in her way. Particularly careful should we be to not meddle with normally progressing operations. Meddlesome practice is like bothering a brooding hen. Biddy, though not a philosopher, though not knowing much beyond laying and hatching eggs, is yet in her line an inspired hen—as much inspired as Moses or Socrates. And the doctor should bear in mind that no matter how great his services in a case may be, Nature does still more. The Blücher of a Waterloo should not take on the airs of its Wellington.

In his management of disease the physician should closely study natural indications. He should remember that theory belongs to the science, not to the art of medicine. In the "Odyssey" occurs an expression like this: "He has told many lies in telling things seemingly true." Theorization is exceedingly liable to come to about that. Herophilus declared that when properly employed medicines are "the hands of the gods." Their proper use, however, presupposes thorough scrutiny of the conditions. In any case before attempting to modify alterations of function the meaning of such alterations should be accurately interpreted. Otherwise justification might be found for this cynical statement of Wedekind: "The value of medicine, expressed in two words, consists chiefly in this, that civilized nations have to suffer far more from their physicians than from their diseases."

Natural indication should have its influence in the determination of the direction of investigation. What sense is there in a quest for means to accomplish things that can not be accomplished? This proposition is tentatively put forth: What Nature does not do sometimes upon her own initiative, of her own free will and accord, that she cannot be forced or coaxed to do at any time. Such rule if it has any value will be especially applicable to the cancer problem. At any rate, prophylaxis is the Promised Land where medicine hopes at last to dwell. And it is a safe prediction that never will a time come when perfection of artificial cure will render neglect of the prevention of disease a matter of indifference and unimportance.

Not to effect striking cures of incidental sickness, but to make people comfortably and enjoyably live out their three score years and ten or four

score years is the true end of medicine. Comfortably and enjoyably live advisedly we say, because good living is a higher mark than long living. Says Seneca, "*Non vivere bonum est, sed bene vivere*"; of which maxim another form is "*Dum vivimus vivamus*." To this end let the physician ever entertain and cultivate confidence in, and respect and veneration for, the laws of Nature. The Ecclesiast says, "Let us hear the conclusion of the whole matter; Fear God, and keep His commandments; for this is the whole duty of man." Slightly paraphrasing the text it may be addressed directly to the members of the healing art: Let us hear the conclusion of the whole matter: Revere Nature and sustain her laws; for this is the whole duty of the physician. Here and there, forsooth, a thunderbolt blasts a kingly oak; but the mighty world girdling electric tides in unbroken silence steadfastly keep their equipoise. Now and then the storm lashed sea swallows up some gallant ship; but the life bearing currents of old ocean without pause or sound through unfathomed depths majestically sweep on. The meteor shoots out to extinction in the blackness of darkness; but the everlasting stars in their courses never fail.

"And were the world below content to mark  
And work on the foundation Nature lays,  
It would not lack supply of excellence."  
(Dante, Cary's translation.)

## EOSINOPHILIA PRODUCED BY HYPODERMIC INJECTIONS OF CROTALIN SOLUTION.

### *Its Value as a Guide to Dose and Frequency of Administration.*

BY RALPH H. SPANGLER, A. B., M. D.,  
Philadelphia,

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Since the hypodermic use of crotalin solution was introduced as a therapeutic agent about five years ago, much has been learned as to its action on the human organism. There still remains, however, much to be perfected as to the best method of preparing the solution, and the strength of dose suited to varying individual idiosyncrasies needs further investigation. It is, moreover, of the greatest importance to determine a scientific method of regulating the dose and the frequency of its administration.

The writer's personal experience with crotalin has been largely confined to its use in cases of epilepsy, and careful records have been kept of two hundred and fifty-two patients treated in private practice. Furthermore, correspondence with a large number of physicians, seeking information in reference to the use of crotalin, has made it seem of value to report my recent experiences and observations, with the hope of developing additional information in regard to its physiological action and therapeutic value.

### CARE IN PREPARATION OF THE SOLUTION.

Crotalin being an albuminous substance, it is impossible to sterilize it with heat. It is, therefore, necessary to add to a solution of crotalin some anti-



septic. In the writer's experience the most satisfactory preservative and antiseptic for this purpose is trikresol. The venom is extracted from the living reptile, *Crotalus horridus*. The evaporated, dried, yellowish crystals of the venom are dissolved in sterile water and glycerin, to which is added enough trikresol to keep the solution sterile. This solution is prepared in varying concentrations and put into sterilized ampoules containing one c. c. each, representing 1/400 grain, 1/200 grain, 1/100 grain, *et cetera*, according to the dilution desired by the physician. A bacteriological test of each new lot of ampoules is made to determine freedom from aerobic and anaerobic contamination. Plates of agar agar are also made in addition to the other tests and allowed to incubate for seventy-two hours. Thus danger of infection from the solution is practically eliminated.

#### TECHNIC OF GIVING INJECTION.

It has seemed best to use an all glass, aseptic, hypodermic syringe and a platinoidium needle, about one and a half inches in length. The syringe is sterilized by cleansing with alcohol and boiling. The needle is heated over a Bunsen flame or boiled. After breaking off the neck of the ampoule the crotalin solution is drawn into the syringe and after expelling the air, is ready to be injected.

The site of injection is cleansed with tincture of green soap and alcohol, or touched with tincture of iodine. The needle should be well introduced into the muscles (intramuscular), at an angle of about sixty degrees, and the contents of the syringe expelled slowly. After withdrawing the needle the wound is covered with a little sterilized cotton and collodion, or Turlington's balsam.

#### SITE OF INJECTION AND LOCAL REACTION.

It has been my practice to give the injections in the supinator group of muscles of the forearm, as a rule using the right and left arm alternately. The degree of local reaction obtained varies with the individual susceptibility of the patient. In most cases the patient complains of a slight burning or stinging sensation at the site of injection, and this sensation frequently radiates for a few inches up and down the forearm. This discomfort lasts but a few minutes, and no further effect is noticed for from two to six hours, when a swelling and slight erythema appear. The degree of cellulitis thus produced varies greatly in different subjects, and a decided variance in susceptibility is often shown from time to time in the same individual. In the average patient the maximum amount of local reaction is obtained in from twenty-four to thirty-six hours after an injection, and by the third or fourth day the part, in which the injection was given, will usually have regained its normal condition.

The forearm has been chosen as the site for the injection so as to avoid the involvement of the shoulder joint, in case the patient shows undue susceptibility or an excessive cellulitis is produced. Moreover, it is very convenient to apply to the forearm an icepack or a saturated solution of sulphate of magnesia, on layers of sterilized gauze, if the patient complains of much inconvenience from the reaction, so that it is necessary to use a local application.

#### THE DOSE.

In the average adult case I usually give 1/400 grain of crotalin in solution at the first injection. In children, anemic adults, or plethoric subjects, I frequently use only 1/600 grain for the initial dose.

The second treatment should not be given until all evidence of local reaction from the first injection has disappeared. As a rule it is best to wait at least seven, and in some instances ten, days before administering the second dose. The strength of dose at the second treatment should never be larger than at the first treatment. In nine out of ten patients the small second dose produces but slight local and no systemic manifestation, but one out of ten or twelve patients, occasionally, will exhibit evidence of oversusceptibility. Thus, if the strength of the second dose is increased, and any anaphylactic tendency is present, a severe local and profound systemic reaction will result. Quite naturally the question arises—is there any scientific method to guide the physician in regulating the strength of dose, and the frequency with which the injections should be administered in a given case?

#### THE EFFECT OF CROTALIN ON THE BLOOD.

For the past year I have been watching very carefully the effect of crotalin solution injections on the blood count. The statement has been made that the crotalin treatment should not be used because "all venoms have a hemolytic effect." In a series of 161 cases, in which complete blood counts were made after administering crotalin solution, for periods of from two to six months, there was absolutely no hemolytic effect produced, as evidenced by no reduction in the number of red cells, no crenation of the same, no decrease in the percentage of hemoglobin, nor evidence of hemoglobinemia. On the contrary seventy-five per cent. of these patients, after having their accustomed quantity of bromide much reduced or entirely withdrawn, showed an increase in the number of red cells and the percentage of hemoglobin, after a course of several months' treatment with the crotalin solution.

It has been suggested that crotalin influences epileptic cases by producing a leucocytosis. In the above referred to series of 161 cases, the leucocyte count in ninety per cent of them was never over 8,000 or 9,000 and the highest leucocyte count in the remaining ten per cent. of the series was 12,500.

#### EOSINOPHILIA PRODUCED BY CROTALIN.

While crotalin does not produce a leucocytosis, it does have a marked influence on the differential leucocyte count. Careful records have been tabulated in fifty-seven cases in which, from six to twelve or more differential counts were made over periods of from three to six months in each case. This series shows very conclusively that crotalin has a decided tendency to produce an eosinophilia. Moreover, the susceptibility of the individual to crotalin can be determined by the degree of eosinophilia produced. From forty-eight to seventy-two hours after an injection of crotalin solution, depending on the susceptibility of the patient, the proportion of eosinophiles will often be increased to from eight to ten per cent. In more susceptible individuals they are often increased to fifteen or

twenty per cent., while in patients showing oversusceptibility I have seen as much as thirty per cent., and in one instance a forty-three per cent. eosinophilia present.

#### DIFFERENTIAL LEUCOCYTE COUNT A GUIDE TO DETERMINING THE STRENGTH OF DOSE AND THE FREQUENCY OF ADMINISTRATION.

It should be a routine practice when beginning the treatment of a patient with crotalin solution, to have a complete blood count made and the percentage of hemoglobin estimated before the first injection is given. From thirty-six to seventy-two hours after the injection, when the local reaction has about reached its height, another differential count is made, noting especially the increase in the percentage of eosinophile cells. Clinical experience seems

as three weeks between treatments, in cases showing a marked eosinophilia from the crotalin solution injections.

It is my practice not to increase the strength of dose as long as an eight to ten per cent. eosinophilia is produced. This is true even if very slight local reaction is obtained. My past year's experience would indicate that it is far better to regulate the strength of dose by watching the differential leucocyte count, than to depend on the degree of local reaction obtained. I have records of cases where the dose has never been above 1/200 grain, and the local reaction very slight. The average patient requires a treatment about once in seven to ten days, and it is usually necessary to gradually increase the strength of dose to 1/100 grain, or in some instances to 1/75 grain. Rarely, however, have I

#### TREATMENT SHEET AND BLOOD FINDINGS

Name, B. T.

May 29th, hemoglobin ninety per cent.—reds 4,790,000, whites 8,124.

Major Attack,—X  
Medium Attack,—O  
Mild Attack,—.

Date, 1913.	Dose of crotalin, Grain.	Arm.	Local reaction.	Clotting time of blood, Minutes.	Polymorpho-nuclears.	Differential leucocyte count—				Transitional leucocytes.	Attacks.
						Small leucocytes.	Large leucocytes.	Eosino-philes.	Baso-philes.		
May 28th	.....	.....	.....	24 1/2	60	29	6	2	2	1	
May 29th	1 300	L.	very fair	.....	65	22	7	2	3	1	
May 31st	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
June 4th	1 300	L.	good	.....	55	28	9	6	2	.....	
June 6th	.....	.....	.....	.....	52	.....	.....	.....	.....	.....	
June 7th	.....	.....	.....	5	54	33	7	5	2	1	
June 11th	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
June 12th	1 200	R.	severe	.....	70	21	6	2	1	.....	June 13th O
June 14th	.....	.....	.....	58 1/2	56	.....	.....	.....	.....	.....	
June 16th	.....	.....	.....	.....	56	24	10	7	1	2	
June 18th	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
June 21st	1 300	L.	very severe	.....	67	15	8	7	2	1	
June 23d	.....	.....	.....	61 1/4	44	33	8	13	2	1	
June 24th	.....	.....	.....	.....	44	31	5	18	1	1	
June 25th	.....	.....	.....	.....	75	16	4	3	1	1	
July 1st	.....	.....	.....	.....	68	14	6	11	.....	1	
July 7th	1 300	R.	very severe	5 1/2	48	30	9	12	1	.....	
July 9th	.....	.....	.....	60 1/4	6	.....	.....	.....	.....	.....	
July 10th	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
July 11th	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
July 14th	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	
July 15th	1 300	L.	very severe	.....	57	.....	.....	.....	.....	.....	
July 16th	.....	.....	.....	.....	58	26	7	6	2	1	
July 17th	.....	.....	.....	61 1/4	.....	.....	.....	.....	.....	.....	
July 18th	.....	.....	.....	.....	45	32	9	11	2	1	
July 22d	.....	.....	.....	.....	45	31	10	8	2	1	
July 24th	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
July 28th	1 400	L.	good	.....	56	26	8	7	2	1	
July 29th	.....	.....	.....	.....	58	22	8	10	1	1	
July 30th	.....	.....	.....	61 1/2	.....	.....	.....	.....	.....	.....	
July 31st	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
August 5th	1 400	L.	good	61 1/2	55	27	7	9	1	1	
August 6th	.....	.....	.....	.....	51	29	11	6	2	.....	
August 11th	.....	.....	.....	.....	50	35	8	8	1	1	
August 12th	1 400	L.	good	.....	60	27	9	4	.....	1	
August 14th	.....	.....	.....	60 1/4	.....	.....	.....	.....	.....	.....	
August 18th	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	

August 8th, ninety per cent. hemoglobin—reds 4,980,000, whites 7,812

to indicate that it is best not to have more than an eight to ten per cent. increase in the eosinophiles in most cases. As a rule in from six to eight days after a treatment the eosinophile cells will have dropped to two or three per cent. To be sure that the differential count has returned to near the normal, another differential count is made before giving the next treatment. It is advisable always to make the two differential counts between treatments, but it is imperative that a second be made if the eosinophilia has been above twelve per cent. at the height of the local reaction (seventy-two hours). In patients with oversusceptibility, as indicated by a thirty, forty, or higher percentage of eosinophilia, a subsequent treatment must not be given until the percentage of eosinophiles has returned to about the normal. Occasionally I have felt it advisable to wait as long

found it necessary to give as large a dose as 1/50 grain in order to have an eight to ten per cent. eosinophilia produced. It has been more than a year since I have given so large a dose as 1/25 grain, and I would at this time especially caution against large doses. During the last two years three fatal cases have been reported to me by physicians from different sections of the country. In two instances the strength of dose used was 1/25 grain, and in the other case 1/15 grain was given. In previous articles (*New York Medical Journal*, September 14, 1912, and April 5, 1913) the chemistry of crotalin was discussed, and its effect on the clotting time of the blood pointed out, with detailed reports of patients treated. Reprints of these articles will be furnished to physicians upon their request.

Below is appended the history of a patient re-

cently treated, and the form of office record kept of private patients. This includes the date of each treatment, the strength of dose, site of injection, the degree of local reaction, the clotting time of the blood, together with the differential leucocyte counts made from time to time.

CASE. B. T.; male; aged thirty-nine years; single; occupation, broker.

**Chief Complaint:** Major and minor epileptic seizures. **Family History:** Mother died at sixty-five years, of senile dementia; mother's brother had grand mal; one maternal uncle was an epileptic; mother's sister has an epileptic daughter. Father living and well; one brother died in childhood; one brother living and well. **Previous Personal History:** Second in order of birth; full term child; normal, spontaneous birth; bottle fed infant. Cut teeth, talked, and walked at usual age. Measles in childhood. No accident, injuries, nor operations. Specific history negative. At twenty-one years, after a long, hard bicycle ride, had a convulsion at night accompanied with tongue bite and incontinence of urine. **Epileptic History:** One month after convulsion this patient had a second convulsive seizure (diagnosed epilepsy). These attacks continued at about monthly intervals ever since. The longest interval between attacks had been two months under bromide treatment. Had never had more than one attack in twenty-four hours. Record of major attacks for 1913 was as follows: January 8th, February 7th, March 9th, March 15th, April 10th. Between these major attacks would occur, at irregular intervals, mild seizures of petit mal. **The Major Attack:** No describable aura, moan, or cry; tonic followed by clonic convulsion; biting tongue; stertorous breathing with frothing at the mouth; occasional incontinence of urine; went to sleep; woke up with headache and felt very dull the next day.

**Minor Attacks:** These occurred at irregular intervals between the major seizures and vary from momentary lapses of unconsciousness to various forms of automatism.

**Physical Examination:** Weight, 187 pounds; height, five feet eight inches; reflexes active; station and coordination good; pupils react normally. Heart and lungs negative. Slight amount of albumin and a few hyaline casts in the urine. Always more or less constipated.

2035 CHESTNUT STREET.

## THE USE OF THE PHARYNGOSCOPE BY THE GENERAL PRACTITIONER.

BY HAROLD HAYS, A. M., M. D.,

New York,

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Since I devised the pharyngoscope in 1909 (described at that time in *The Laryngoscope, American Journal of Surgery*, and *NEW YORK MEDICAL JOURNAL* during that year), I have had the pleasure of seeing it grow in popularity until to-day it, or some of its modifications, is used universally. I have had letters of commendation from physicians in almost every country and feel that these have been sufficient reward for the time and labor spent in perfecting it. Although during the past four years I have in no way changed the original instrument, I have learned a great deal from its use and will take this opportunity to present my experiences, believing as I do that the instrument has come to stay.

For those who are not acquainted with the instrument, a brief description of it will suffice. The pharyngoscope was first designed to give me a better view of the nasopharynx, but it was only a short time before I was assured that it could be used for examination of the larynx as well, particularly in those cases where a mirror or the direct laryngoscope could not be used.

The pharyngoscope (see illustration) is composed of a horizontal and vertical shaft which join each other at right angles, at the outer third, so that the instrument may be used as a tongue depressor. The inner portion of the horizontal shaft consists of a central circular tube with an electric light carrier on either side, the three components being incorporated in a flat piece of metal. From the inner end project the two electric lights which are water tight, give an intense illumination, and become only warm enough to keep vapor off the lens. In the central tube is inserted the telescope, which is made on the principle of the Otis cystoscope. To the eyepiece is attached a little metal ball which indicates the position of the lens. This horizontal shaft, including the telescope, is about eight inches long. The widest portion of the instrument, which is at the extreme inner end, is less than five eighths of an inch, and the flat metal shaft itself measures less than one half an inch in diameter. The vertical portion is about six inches long and half an inch wide. It is attached to the horizontal portion by a screw joint, and contains the wires for connection with the rheostat or dry cells. Near its upper portion is an arrangement for cutting off the electric current so that the lamps need not be turned on until the instrument is in the mouth.

The instrument is inserted into the mouth like a tongue depressor until the inner end of the telescope is about one sixteenth of an inch from the pharyngeal wall. When once in place it is held firmly by the examiner and the patient is told to close his mouth and breathe quietly through his nose. As soon as the mouth is closed, it is observed that the muscles are relaxed and that the nasopharyngeal space is much enlarged. An excellent view of the parts to be seen can be obtained by gazing through the eyepiece of the instrument.

There are four points that are of a great deal of importance in the use of this instrument:

1. The illumination must be as great as the lamps can stand.
2. The lights should not be turned on until the instrument is in the mouth.
3. The lamps should not touch any part of the throat.
4. Every manipulation should be made gently, but firmly.

Many men have not been able to get sufficient illumination because they have used a 16 candle power lamp instead of a 32 candle power lamp on the rheostat. The former cannot be turned down enough to give sufficient light. Of course, where dry cells or a wall plate is used, no trouble of this kind occurs.

The lights should not be turned on until the instrument is in the mouth. The throat reflexes are very delicate and therefore the nervousness of the patient is greatly exaggerated if he sees two burning lamps going into the throat, no matter how much assurance one gives him that they do not get hot. On the contrary, if the lamps are not lighted until out of the line of the patient's vision he imagines that only an ordinary tongue depressor is being used.

The third point is of equal importance, for a sensation of warmth in the throat is liable to be exag-

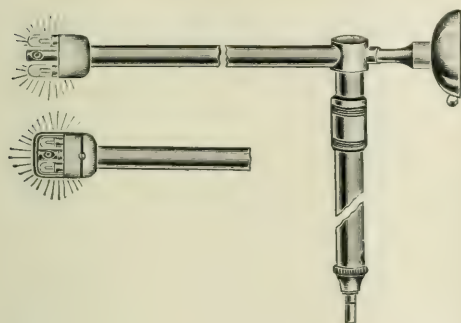


gerated. If the patient should persist in changing his position so that the instrument cannot be held steadily in the mouth, it is better to remove it and try the procedure again.

The success which one attains in using such an instrument as the pharyngoscope depends greatly on the gentleness and the dexterity of his manipulations. I have seen men poke the instrument into the mouth with such clumsiness, even brutality, that after examining hundreds of cases I am sure they would never be successful in making any lengthy study. (*Buffalo Medical Journal*, February, 1910.)

I have not modified my original description of the instrument. Since that time I have examined thousands of patients with it with very little trouble at all. I at first described in numerous papers views of the nasopharynx and larynx. But it is not in the usual cases, the simple and easy ones, that one needs an instrument of this character, and although it was originally meant for laryngologists, its field of usefulness is with those men who do not examine these parts regularly and need a special instrument to make their diagnosis a simple matter.

The principal things one wishes to see in the na-



The author's pharyngoscope.

sopharynx are abnormal growths, the Eustachian tubes, the fossæ of Rosenmüller and the posterior tips of the inferior turbinates. All of these can be readily viewed with the pharyngoscope and studied for a sufficient length of time if one uses an ordinary amount of care. I have used the instrument innumerable times in children for the diagnosis of adenoids, and have saved many a child who was a mouth breather from an unnecessary operation—by seeing that he had no adenoids, where by the ordinary examination with the finger, I would have thought I had discovered some abnormal tissue. The obstruction in these cases was due either to something in the nose or a high arched palate. (*Journal of Ophthalmology, Otology, and Laryngology*, August, 1909.)

The general practitioner, as a rule, finds a great deal of difficulty in using the rhinoscopic or laryngeal mirror. The former even where used properly gives a very restricted view and the latter is rather difficult to manipulate. Oftentimes the medical man wishes he were in a position to diagnose pathological conditions of these parts, and he can readily do so with the pharyngoscope. Professor

Simpson (*The Laryngoscope*, August, 1910) says: "It is surprising how, by its use, even in very young patients, a complete picture of the vault of the pharynx may be obtained, thus doing away with the annoyance of digital examination and the difficulty of the ordinary rhinoscopic mirror. In older patients, to those who are not expert in the use of the rhinoscopic mirror, the use of the Hays' pharyngoscope reduces the examination of this region to comparative simplicity. Among its benefits may be mentioned the mapping out of various hypertrophies and adhesions about the fossa of Rosenmüller and their removal under vision, through the anterior nares with the pharyngoscope *in situ*." Although the examination for adenoids in children is one of the most important things the general practitioner has to do as far as the throat is concerned, there are numerous other pathological conditions of the nasopharynx with which he ought to be cognizant. Many cases of catarrhal deafness and chronic ear suppuration are due to pathological conditions around the Eustachian tubes which can easily be rectified if they are once seen. I refer particularly to small adenoids and adhesions in the fossa of Rosenmüller which interfere with the muscular action of the tubes. Many a case of deafness in later years could have been cured if the family physician had only been able to recognize the cause of the condition in the nasopharynx.

Another important symptom due to nasopharyngeal abnormalities is a constant hacking cough. This may be due entirely to chronic irritation, or a growth, or less commonly to a band or adhesion extending from the soft palate to the pharyngeal wall. I recall distinctly one young woman who had had an irritating cough for years. She had been examined and treated by numerous specialists without relief. On inserting the pharyngoscope I saw very plainly a band of fibrous tissue about two centimeters long by a quarter centimetre wide extending from her soft palate to the pharyngeal wall behind the Eustachian tube on the left side. By breaking down this band with my finger, her cough entirely disappeared.

Very few men are conversant with the use of the laryngeal mirror, yet how often it is necessary to get a good view of the larynx! It is to those men that I particularly commend the pharyngoscope, for no one can help seeing the larynx with this instrument in almost every case. The instrument is used in the same way as for rhinoscopic examination except that the lens is turned down instead of up. Oftentimes one gets a better view if the mouth remains open, or the tongue may be held by the examiner in the same way as when using the mirror. Applications of various medicaments can be made easily, by passing the applicator alongside of the instrument. With the mirror, as one knows, the view of the larynx is at an angle and therefore the manipulation of an instrument is particularly difficult. The view with the pharyngoscope is direct. Therefore in inserting an operative instrument, one can attack directly the part in view. I have made frequent applications to the larynx in this way and Glogau (*The Laryngoscope*, October, 1911) reports the removal of a laryngeal polyp by this method. The patient stood the mirror very poorly even with

cocaine anesthesia and would not allow the direct laryngoscope to be used. An operation with cutting forceps and pharyngoscope was readily done. He sums up as follows: 1. There are cases of extreme nervousness, where the mere touch of the laryngeal mirror prevents any operative interference on the larynx, even after thorough cocaineization. 2. Intralaryngeal operations under guidance of the pharyngoscope is of great value, as it contains the advantage of the direct laryngoscopic picture with comfort to the patient. 3. While this method is not destined to replace all others now in vogue, it will be valuable in selected cases. 4. In intralaryngeal manipulations, like probing, etc., this method will, on account of its advantages, find a place in the technic.

I cannot too strongly emphasize the fact that the general practitioner should perfect himself in the technic of laryngeal examination, whether by means of the mirror or the pharyngoscope. There are many cases of hoarseness or cough which are diagnosticated as laryngitis without the larynx ever having been seen. Very often the case is not a simple one, but the beginning of a tuberculous condition or carcinoma. How many patients could have been saved or at least made more comfortable if a proper diagnosis had been made at the beginning of the ailment! If a physician cannot master the technic of using a laryngeal mirror, he can learn to use a pharyngoscope with no trouble at all. Once he has seen the larynx to his satisfaction it will be a pleasure to him to examine all other patients with laryngeal symptoms. To my mind the pharyngoscope is of as much value to the general practitioner as it is to the specialist, and it is for that reason I have more directly addressed my remarks to the man who first sees the patient, and who can make himself far more proficient by using the newer diagnostic aids.

11 WEST EIGHTY-FIRST STREET.

## PEDICULOSIS CAPITIS AMONG SCHOOL CHILDREN.\*

BY JACOB SOBEL, M. D.,  
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In the medical inspection and examination of school children three varieties of pediculosis are encountered, in the following order of frequency—pediculosis of the scalp, pediculosis of the body or more properly of the clothing, and pediculosis of the eyelids.

There is scarcely a school in any section of a city or town in which some cases of pediculosis capitis will not be found, either in the form of the pediculi themselves or in the form of their forefathers—the nits in various stages of development; and it suffices to say that all public and other schools in every city have their quota in varying degrees of severity and in percentages ranging from one to seventy. Those of us who have had to deal with this problem in a city like New York, which, because of its cosmopolitan character harbors a heterogeneous

people, of different and often contrary ideas as to mode of living, customs, cleanliness, hygiene, and sanitation, have tried hard and long to effect ways and means whereby pediculosis capitis, I might almost say the nit plague, could be eradicated. After a study of this perplexing problem from many viewpoints and for many years, and after a practical application of many methods hereafter to be enumerated, much has been accomplished. But we are still far from a satisfactory solution of the situation. In discussing the various phases of medical inspection a member of our medical corps frankly said to me "pediculosis capitis is a dead issue." When one considers, however, that "a single female pediculus will have five thousand descendants in eight weeks," the question appears a real live one. On the other hand, a school principal not to be outdone by the medical inspector in an opinion of the hopelessness of nit eradication told me "the inspector may come and the nurse may go, but the nits seem to increase forever." These statements of inspector and principal are evidence of the magnitude of this problem and show how little encouragement workers in this field receive, despite the enormous energy which they exert for the control of the condition.

The following questions suggest themselves: Why does pediculosis capitis assume so much importance as to require constant and unrelenting efforts for its eradication? Wherein lies the difficulty of controlling this condition? Why have not better results been obtained? Why are so many cases still extant among school children? It is to a consideration and discussion of these questions that I invite your attention, in the hope that the presentation of our observations may perhaps aid others and with the expectation that the experiences of others will prove of lasting benefit to us.

Pediculosis capitis among school children assumes major importance from several standpoints:

1. From the cosmetic side: Pediculosis in any form is a dirt disease and, as such, is a forerunner of illness in its many phases. It is an index of the family's cleanliness, of the parents' care and attention, and often of the character of the school child. The presence of pediculi in the home, on members of the family, or on the school child may be an accident; their continuance means a disregard for cleanliness and health.

2. Pediculosis capitis acts as an indirect causative agent of local and general pus infections, glandular involvements with subsequent suppuration and scarring, and possible predisposition to tuberculous adenitis; it often means secondary impetigo contagiosa, dermatitis, furunculosis, eczema, ulceration, folliculitis, and plica polonica.

3. Scalp pediculi are probable carriers of disease: Though not proved absolutely, the presumption is fair, that the pediculus capitis can and does carry disease, just as the body louse carries typhus, the domestic fly poliomyelitis, typhoid, tuberculosis, and dysentery, etc., the flea bubonic plague, the mosquito malaria and yellow fever, the bed bug kala azar, relapsing fever, and anterior poliomyelitis (Howard and Clark, *Journal of Experimental Medicine*, XVI, No. 6, 1912), the tick, Rocky Mountain spotted fever. Goldberg and Anderson (*Public Health Re-*

\*Read at the Fourth International Congress on School Hygiene, Buffalo, N. Y., August 25-30, 1913.

ports, No. 74) state that "the head louse (pediculus capitis) may become infected with typhus. The virus is contained in the body of the infected louse and may be transmitted by subcutaneous injection of the crushed insect and we believe also by its bite." On the other hand, Howard and Clark, in their investigation with the pediculus capitis as a carrier of anterior poliomyelitis, say (*The Journal of Experi-*

tremely difficult, if not well nigh impossible, largely because of the migratory character of its population. Were our people to remain stationary for any great length of time—a condition which obtains in most of the continental cities and in many of those in the United States—the education of the public would very materially help to control this condition. With us, however, no sooner have we educated the

CHART I.

Year.	Number of public schools under supervision.	Registration of public schools under supervision.	Number of cases of pediculosis capitis found.	Percentage of pediculosis capitis.	Number of children with pediculosis capitis excluded from schools.	Percentage of patients excluded.	Instructions and treatments.
1909.....	594	674,677	151,585	22.4	2,034	1.3	7,826
1910.....	596	682,292	152,045	22.5	1,497	0.9	882,907
1911.....	543	680,905	159,565	23.3	1,475	0.9	859,801
1912 <sup>1</sup> .....	653	802,837 <sup>2</sup>	184,007	22.8	3,368	1.82	1,609,057
		150 Other	111,206				

<sup>1</sup>During 1912 parochial and other schools were inspected regularly.

<sup>2</sup>Estimated from registration; totals correct.

mental Medicine, XVI, No. 6, 1912) "Lice (pediculus capitis and pediculus vestimenti) have not taken the virus out of the blood of monkeys or maintained it in a living state." Experiments with head lice are by no means closed, and the last word as to their status as carriers of disease has not been spoken.

4. Pediculosis of the scalp disturbs the general health by causing itching, restlessness, insomnia, ir-

parents and children of one section, no sooner has this condition been controlled there, than these people migrate to another city or to another part of our own city, and make way for a second influx of immigration which requires the same systematic education that their predecessors received. And sooner or later it comes to pass that these new comers are affected with "Wanderlust" and in their place comes

CHART II—NEW YORK CITY—RELATION OF NUMBER OF CASES OF PEDICULOSIS CAPITIS FOUND IN PUBLIC SCHOOLS TO THAT OF OTHER COMMUNICABLE DISEASES OF THE SKIN AND EYES.

Year.	Registration.	Total number of communicable diseases of skin and eyes including pediculosis capitis.	Total number of pediculosis capitis.	Total number of communicable diseases of skin and eyes other than pediculosis capitis.	Percentage of other communicable diseases of the skin and eyes.
1909.....	674,677	271,970	151,585	120,385	17.8
1910.....	682,292	277,811	153,797	124,014	6.3
1911.....	680,905	297,111	152,045	145,066	8.6
1912.....	802,837 <sup>1</sup>	250,783	159,565	91,218	8.2
			184,007	65,876	
			25,342		

Pediculosis capitis practically stationary—other communicable diseases of skin and eyes on the decline.

<sup>1</sup>Includes other schools as well as public.

ritability of mind and body and as a result of all this anemia and a general lowering of the body tone.

5. Pediculosis of the scalp is a transmissible condition which causes suffering and disease in others, and prevents them from following their vocation.

6. The existence of pediculi on the scalp interferes with the child's education because of enforced exclusion from school for varying periods.

a third installment of aliens. And so it goes on. The process of education and of clean up is one unbroken chain.

A glance at Chart I will show that for the past four years (1909-1912) the percentage and number of cases of pediculosis capitis among school children have remained substantially the same. In 1909, 1910, and 1911, practically speaking, only the

CHART III—SHOWING THE CONTROL OF COMMUNICABLE DISEASES OF THE SKIN AND EYES EXCLUSIVE OF PEDICULOSIS CAPITIS.

Year.	Public school registration.	Trachoma.	Conjunctivitis.	Ring-worm.	Impetigo.	Scabies.	Favus.	Molluscum contagiosum.	Total.
1909.....	674,677	47,611 <sup>1</sup> (1,392)	49,305 (4,338)	—988 (121)	12,516 (250)	4,066 (219)	499 (18)	154 (5)	126,385
1910.....	682,292	20,915 (498)	26,835 (1,547)	4,508 (100)	9,052 (162)	2,251 (207)	200 (27)	143 (6)	64,014
1911.....	680,905	15,245 (426)	25,041 (1,137)	4003 (138)	7,713 (227)	1,768 (131)	220 (16)	06 (1)	55,066
1912.....	802,837 <sup>2</sup>	14,497 (92)	33,875 (805)	4,108 (79)	10,332 (151)	2,594 (202)	349 (15)	122 (4)	65,876

<sup>1</sup>Exclusions from school in parentheses.

<sup>2</sup>Includes other schools as well as public.

7. The presence of pediculosis capitis often interferes seriously with the child's mental equilibrium, in that it subjects him to the taunts of his classmates and in this wise produces a profound nervous depression.

The eradication of pediculosis capitis among school children in New York city is rendered ex-

public school children were inspected and, while the number of cases of pediculosis capitis as recorded for these years does include a small number that were casually seen at other schools on morning inspection, this number is negligible and for practical purposes would not figure in the percentage. In 1912 the parochial and other schools were inspected



regularly and systematically, and the proportion of cases of pediculosis in the public and other schools is estimated from the registration, the totals being correct. It will be noted that there has been a gradual decline in the number of cases of pediculosis capitis excluded during 1909, 1910, and 1911, namely, 2,014, 1,497, 1,475. Exclusion takes place only when live pediculi are found, when the case is an aggravated one, or when persistent neglect of treatment is shown. This table shows, therefore, a decline in the severity of the cases if not in numbers. In 1912 the number of exclusions was larger than in any of the previous three years. This is

the practical decline from year to year of exclusions from school because of these conditions.

Why is it that trachoma, conjunctivitis, ring-worm, scabies, impetigo, etc., have declined so noticeably, while despite all efforts, pediculosis capitis in so far as numbers and percentage are concerned has remained unchanged? In the first place, the tenement population is aroused only with the greatest difficulty to the realization that pediculosis capitis is of any consequence as far as health is concerned. Many look upon its presence as of minor importance, and tell you that they cannot be "bothered about such a little thing" or that "nits go

CHART IV. POORER SECTIONS—ROUTINE CLASSROOM EXAMINATIONS, FEBRUARY, 1913.

Good cooperation of school authorities.				Fair to poor cooperation of school authorities.			
School <sup>1</sup> .	BOYS AND GIRLS.		Percent- age.	School.	BOYS AND GIRLS.		Percent- age.
	Number examined.	Number of cases of pediculosis capitis.			Number examined.	Number of cases of pediculosis capitis.	
A	1,201	41	3.5	K	2,097	1,035	50
B	1,097	53	5	L	2,133	758	35
C	2,034	98	5	M	908	283	30
D	2,064	164	8	N	1,810	570	31
E	1,461	130	6	O	300	102	6
F	3,274	238	7	P	2,190	438	20
G	2,123	172	8	Q	1,398	287	20
H	2,608	227	9	R	340	60	17
I	1,150	102	0	S	1,433	263	16
J	2,293	225	10	T	2,068	271	13
			EXCEPTIONS.				
U	2,070	786	38	W	1,137	80	8
V	1,093	913	54	X	2,007	210	11

<sup>1</sup>Letters used arbitrarily.

accounted for by the fact that the more aggravated cases were found in schools other than public, schools which had not received the benefit and advantages of regular school and home inspections and instructions for several years past. It will also be noted that on the average five to six instructions and treatments were given to each case. More important and more striking than any figures or charts can show or words describe is this improvement in the type of case, the passing I might say of those cases of pediculus dermatitis, in which the secondary effects of scratching resulted in pronounced scalp and suboccipital dermatitis, im-

away without any treatment." In fact a fairly large number consider it a "good omen," a sign of health and strength. Often when you suggest that the hair which is matted, twisted, glued together and filled with crusts, nits, pediculi, and pus—the plica polonica—be cut short, or off, you are confronted with the remark that it must not be disturbed, lest the child's eyesight is weakened, or its strength become lost; or you will be told that the secondary dermatitis is good for the child because the poison is coming to the surface, and that to cure the condition would "drive the poison in." These people do not fear contagion from this condition. It would

CHART V.—BETTER SECTIONS—ROUTINE CLASSROOM EXAMINATIONS, FEBRUARY, 1913.

Good cooperation of school authorities.				Fair to poor cooperation of school authorities.			
School <sup>1</sup> .	BOYS AND GIRLS.		Percent- age.	School.	BOYS AND GIRLS.		Percent- age.
	Number examined.	Number of cases of pediculosis capitis.			Number examined.	Number of cases of pediculosis capitis.	
AA	2,036	10	1	FF	1,538	29	2
BB	1,748	1	1	GG	1,029	51	5
CC	3,000	80	3	HH	1,795	100	6
DD	1,374	54	4	II	1,322	82	6
EE	798	29	4	JJ	1,420	121	8.5
		Better home conditions Better social status Better financial status					

<sup>1</sup>Letters used arbitrarily.

petiginous crusts, moist exudation, glandular enlargements and suppuration, and scalp abscesses. For this advance, medical inspection of school children is directly responsible.

Chart II shows that during 1909-1912 the number of cases of pediculosis capitis remained about the same, whereas the actual number and percentage of other communicable diseases of the eyes, skin, and scalp—trachoma, conjunctivitis, ring-worm, impetigo, scabies, favus, molluscum contagiosum—declined. Chart III shows the decline from year to year of the communicable diseases of eye, skin, and scalp, exclusive of pediculosis capitis, and

seem rather that a goodly number cater to it, were we to judge by the overcrowding and uncleanness at home, the indiscriminate sleeping together, and the common use of toilet articles, such as they are. The contagiousness, the dangers, the unsightliness, and the consequences of the other communicable conditions—trachoma, conjunctivitis, scabies, ring-worm, impetigo, favus, etc.—appeal to them more directly and they make greater and more prolonged effort to prevent contact of the one person with the other, to avoid the use of the same toilet articles and to procure treatment. They have a respect for these conditions and an indifference for pediculosis

capitis which is very striking. Then again the other communicable diseases of the skin and of the eyes are more or less localized; they can be limited by medication given at the hospital or dispensary; they do not spread rapidly as a rule; treatment is more direct; we have parasitides which can reach them, and, with the exception of trachoma, treatment is given by the nurse at school.

On the other hand, pediculosis capitis is a condition which is not limited and which cannot be treated satisfactorily at the hospital or dispensary or school, as can the other communicable diseases. It requires rather the personal care and attention of the mothers—a care and attention which they are often unable to give, because of poverty, or unwilling to give, because of ignorance, indifference, care-

lessness, and neglect.

In pediculosis capitis the mother pediculus leaves trouble in her trail, by the deposit of fifty or sixty ova weekly, which hatch out in three to eight days, and which in turn are capable of reproduction in eighteen to twenty days. It is one continuous performance. Verily, the female of *this* species is more deadly than the male.

The methods adopted for its control in New York city are as follows: A class routine examination of every child is made by the inspector, in company with the nurse, at the beginning of each school term, and the name of every pupil with nits or pediculi is recorded by code number on the class index card, together with the date of inspection. This initial routine is followed by a monthly routine of the classrooms by the nurse, or more frequently if indications demand it. Each child passes before the inspector or nurse, the girls raising and separating their hair so as to expose the occipital region. Cases which are more suspicious than others with respect to "live stock" are examined separately in the office, outside of the classroom. The children recorded on the class cards are reexamined and instructed at regular intervals, individually and in groups, but always outside of the classroom, and circulars of instruction (English, Yiddish, or Italian) are given and explained in detail. Girls are instructed to keep their hair braided tightly in school, and unbraided and combed daily at home. Consultations with parents at school, or in the home, are held by the inspector or nurse or both. Exclusion from school takes place only when live pediculi are found, in aggravated cases without live pediculi, and when persistent refusal or neglect of treatment is shown. The word pediculosis is never used; several code numbers, 2, 4, 6, and 8, are adopted to signify this condition, and these numbers are used interchangeably for the different children. Every precaution possible is used to guard the finer sensibilities of the individual pupils, particularly in the case of the girls of the upper classes.

It is true that all this has had a great moral and educational effect upon the parents and pupils so far as the severity of the condition is concerned, but the number and percentage of cases remain almost the same.

Why not better results? Why so many cases? I hesitate to speak of the drug treatment, for so many drugs have been tried by our corps of nurses and inspectors that to enumerate those untried would be the easier task. Crude petroleum, kerosene, carbonate of soda, staphisagria, bichloride of mercury, carbolic acid, spirits of camphor, vinegar, alcohol, ether, benzine, carbene, sulphur, mercurial ointments, borax, potash solutions, essential oils (anise, cinnamon), and proprietary preparations are a few

CHART VI.—ALL SECTIONS—ROUTINE CLASSROOM EXAMINATIONS, FEBRUARY, 1913.

BOYS ONLY.				GIRLS ONLY.			
School.	Number examined.	Number of cases of pediculosis capitis.	Percentage.	School.	Number examined.	Number of cases of pediculosis capitis.	Percentage.
40	1,023	16	1.5	78	2,833	792	28
24	1,295	23	2	45	531	96	18
37	1,400	24	1.5	30	1,402	157	11
83	2,442	58	2.5	72	1,736	177	10
79	1,388	70	5.5	50	1,123	121	10
100	2,155	134	6	39	2,616	267	10

that have been tried for the various stages of this condition with only fair, and often with discouraging results.

#### DEPARTMENT OF HEALTH

##### THE CITY OF NEW YORK

##### DIVISION OF CHILD HYGIENE.

#### Instructions to Parents on the Care of Children's Hair and Scalp.

Children affected with vermin of the head are excluded from school. The following directions will cure the condition:

Mix one half pint of sweet oil and one half pint of kerosene oil. Shake the mixture well and saturate the hair with the mixture. Then wrap the head in a large bath towel or rubber cap so that the head is entirely covered; the head must remain covered from six to eight hours.

(Tincture of larkspur may be used instead of oil mixture. The directions for use are the same.)

After removing the towel, the head should be shampooed as follows:

To two quarts of warm water add one teaspoonful of sodium carbonate. Wet the hair with this solution and then apply castile soap and rub the head thoroughly about ten minutes. Wash the soap out of the hair with repeated washing of clear warm water. Dry the hair thoroughly.

NITS: If the head is shampooed regularly each week as above described, it will cure and prevent the condition of "nits."

Issued by Order of the Board of Health.

If pediculosis capitis were only a question of the destruction of the live pediculi, the problem would be comparatively easy, for an application of crude petroleum or kerosene (diluted half with olive oil to prevent dermatitis) usually kills all the live pediculi in twenty-four hours and renders incapable of development those ova which are about to blossom forth as pediculi. It is with the nits that the great obstacle is encountered. The nits are virtually glued to the hair by a material secreted by the pediculus, and for which no one has yet succeeded in finding a good and reliable solvent. But apart from this, the fact remains that no amount, and no kind of treatment at the school will yield results. *Pediculosis capitis is a problem of the home; for the home, and by the home; a problem of the child's*

brothers and sisters, often of the parents, and grandparents, and frequently of the bedding, the clothing, the towels, the combs, the brush, and other household utensils. It is a common experience to have a child "cleaned up" at the school by the nurse, only to return home, and become reinfected by other members of the family.

In an investigation of the home conditions of 161 families in which the school child had pediculosis capitis I found (Chart X) that the general condition of the home, of the bedding and of the clothing was filthy in eighty-seven cases, dirty in twenty-nine cases, fair in twenty-three cases and clean in twenty-two cases. In about one third of the cases (56 out of 161) which could be examined satisfactorily at home, the mother, the grandmother, or other children, had pediculosis of the scalp. In several instances the conditions were described as "horrible," "alive with lice." In a fair proportion of cases—from thirty to forty per cent.—pedi-

the school child *per se*, when it is exposed day in and day out to home reinfection. We have had many mothers' meetings to emphasize this question, but I am convinced, more than ever, that group teaching in this matter is not and never will be a success, and that what is required is *individual personal instruction in the home* by the nurse, and a practical demonstration by her of the ways in which the disease spreads, and the manner in which it can be prevented and cured. The parents must be shown that for mutual protection it is necessary to look after not only the school child, but after all members of the family, all the bedding, articles of clothing, furniture, and toilet articles. In truth, unless we can reach and destroy the pediculus soon after it alights on the head of the child the task is almost a hopeless one. The pediculus capitis recognizes no social distinction. Rank offers no protection. Therefore every parent should examine and comb carefully and thoroughly the heads of all the

CHART VII.—CLEANLINESS—FACE, NECK, HANDS.

Public School A.  
Class register, 48.Class 6A.  
Room 100.

Date.....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Attendance x <sup>1</sup>	44	46	x	x	48	46	44	48	48	x	x	47	48	48	48	46	x	x	47	48	45	48	44	x	x	48	47	48	47	47	
50																															
35																															
40																															
35																															
30																															
25																															
20																															
15																															

<sup>1</sup>No school day.

cutli were found on the bedding; while overcrowding during sleep, that is, one or two beds, or one bed and a couch, or an improvised bed made out of two chairs, often in one or two rooms, for the use of four to six or seven members of the family, was very common—from sixty to seventy per cent. Ofttimes it was found that the mother was working, because the father was dead or had deserted the family, and the children were thus thrown upon their own resources for head cleanliness.

The use of the common family comb, brush, towel, and wash cloth, as channels of conveyance, could easily be ascertained. Even that mighty weapon for removing nits—the fine toothed comb—was frequently old, broken, filthy, "just lost," or they "couldn't find it." Many times it seemed as if the mother did not want to learn, for it was a common observation that many mothers used a dash of kerosene in some cold water as a head wash, feeling that this was the proper and only necessary procedure. Many mothers were too lazy or too indifferent to look after the heads of the children. This was especially noticeable with the older girls, whom the mothers frequently told to look after themselves; the result was that the younger children, who were taken care of by the mothers, were found to be cleaner than the older girls, who often neglected to attend to their own scalp properly.

What therefore can one hope to accomplish with

school children, before they retire at night, and try to discover, remove, and destroy the pediculus before the ova are deposited.

In an investigation of the home conditions of sixty families in which the school child was free from pediculosis capitis (Chart X) the following facts were ascertainable: Dirty in six cases, fair in twelve, clean in thirty-four and very clean in eight. It has seemed to me that, with the large number of cases on hand, we have unwittingly and unconsciously spent too much time and energy in an effort at eradication in the school. We have "swatted" or tried to "swat" the pediculus and nit in the school, instead of beginning at the other and proper end, by "swatting" and treating the breeding place—the home. I do not know but what a more fitting title for my paper would have been "Pediculosis Capitis in the Homes of School Children."

The treatment of any individual school child, or any number of school children, is insignificant when compared with the treatment of the home—infected parents, infected brothers and sisters, infected bedding, clothing, toilet articles, *et al.* To accomplish results we must show the parents the way. We must show them that local medication of all kinds is far more difficult, and far more thankless, than they are led to believe; that the greatest hope lies in prevention, and that the entire



family and the home must be looked upon as a unit, in so far as cleanliness is concerned.

In New York city one of the most interesting observations has been the relative freedom of the colored school children from pediculosis capitis. In some schools where the majority, or a large proportion of the pupils is colored, the number of cases of pediculosis capitis among them can often be counted easily on one or both hands. Chart IX shows that of 28,791 children in sixteen public schools, 2,579 were colored and 26,212 were white, and that of this number thirteen cases of pediculosis capitis were found in the colored children and 4,340 cases in the white, a percentage of 0.5 in the colored as against 16.5 in the white. I will not say that this is due entirely to better home conditions, although, in my experience, the homes of the colored population as a class are more cleanly than those of the majority of our alien population.

In the homes of twenty-seven colored school children in whom no pediculosis capitis was present, the conditions were (Chart X) as follows: Dirty, one; fair, two; clean, twenty-two; very clean, two.

CHART VIII. CLEAN SCALP—FIRST TERM, 1913.

Public School A. Class register, 59.		Class 1A Room 230.					
Month	September.	September.	October.	October.	November.	December.	January.
Attendance	47	46	48	46	49	45	44
50							
45							
40							
35							
30							
25							
20							
15							

Of these twenty-seven children, all except three had kinky hair. In the homes of thirteen colored children in whom pediculosis capitis was present, the conditions (Chart X) were as follows: Dirty, seven; fair, two; clean, four. In three cases it was noted that "the mother is almost white and has straight brown hair" and "the children have long, curly hair, not kinky."

I have been forced to look for other reasons for this infrequency. It has seemed to me that many colored mothers realize that the color of their children is in itself a handicap to their school progress, because of aversion in some quarters to their race, and that under the best circumstances their children are apt to be laughed at and teased. It is more than likely, therefore, that they exert an unusual effort to prevent the occurrence of pediculosis by examining and combing the hair of the children daily, and thus spare them the burden of further annoyance. On the other hand, it may be that the color of the scalp or the odor of the skin, that is, the sebaceous glands, is disagreeable to, or as Fox puts it, "has a discouraging effect upon" the fastidious pediculus, or that the crispiness of the hair does not permit the glutinous material of the ova to cling fast to it. Or it may be that the custom of the girls to keep the hair tightly braided and frequently

combed, in order to straighten it, prevents the pediculi from finding a suitable lodging place.

Dr. W. L. Funkhouser, of Rome, Georgia, wrote to me: "In reply to your letter of recent date will say, that I too have been interested to know why I found so little pediculosis among the colored children. I have about 800 colored and 1,800 white; during the past month I excluded thirty-three white, and not a single colored child. The colored principals and teachers tell me that they very rarely have seen any in the colored children. I have talked to some of the old slaves. They say that long ago it looked like the 'niggers heads breeded 'em,' and gave as their reason the effort to-day to straighten the hair. I found on query that fully one half used some preparation of some kind on their hair, and spent much time combing. They will neglect their bodies for their hair."

Dr. Howard Fox, in his *Study of Skin Diseases in the Negro*, says: "Doctor Carmichael informs me that the negro women in Virginia take a special pride in keeping their heads and those of their children free from lice. Doctor Pendergast, of Mem-

phis, suggests that negro women unconsciously, and of necessity, employ one of the methods of treating pediculosis, namely, the fine tooth comb."

To me the thought that lies nearest is this, that the main reason for the infrequency among colored children is the great desire to get rid of the "kinks," and that therefore the parents and children are forever and anon combing their hair. It seems that they would rather be unwashed than uncombed, and as a result of this constant combing, the pediculus is not given an opportunity to open headquarters and rear a large family. Conversely this also explains why pediculosis capitis is more common among negroes with straight or curly hair. In these cases the quest for hair like the whites having been attained, the need for frequent combing exists no longer; the pediculi find a comfortable habitat and are undisturbed long enough to deposit and hatch out ova.

Whatever the explanation the fact remains that in colored school children the occurrence of pediculosis capitis is very rare, and that in this race cases occur more frequently in those children with the softer varieties of hair or straight hair than in those with the "kinky" brand, and in those who have "white mothers," or "mothers almost white."

But the inspector and nurse are not the only ones

who should give individual instruction to the parents. Their hands should be upheld by the principals and teachers. This may take up a little time, but it will prove well worth while, for it is surprising to see what regard many parents have for the advice and authority of the principal. That the influence of the immediate school authorities has a pronounced and direct influence upon this condition may be seen from Chart IV, in which are listed various schools harboring the same type of children in practically the same section of the city, with

sonal and household cleanliness, lessons which they bring into their homes and help to have carried out. These exercises are furthermore controlled by the use of separate charts (Chart VII) for cleanliness of the various parts of the body (face, arms, neck, hands, nails), and for the various articles of clothing (shoes, jackets, waists, etc.). This method, this stimulus to keep clean, has reduced in several of the schools not only the number of cases of pediculosis capitis, but also the number of other communicable diseases of the skin, scalp and eyes.

CHART IX.—PEDICULOSIS CAPITIS AMONG COLORED SCHOOL CHILDREN.

School.	Class of pupils.	Register.	Total number of cases of pediculosis capitis.					Infected pupils.		Character of hair in colored.
			Number of colored.	Number of whites.	Number colored.	Number white.	Percentage in colored.	Percentage in white.		
80	Boys and girls	1,738	1,074	664	47	..	..	..	..	1 kinky; 2 straight
28	Boys and girls	1,175	130	1,045	201	3	0.33	7	..	..
100	Boys and girls	506	253	253	64	..	..	..	19.2	..
51	Boys and girls	1,073	134	1,039	113	2	0.80	24.5	2 kinky	..
110	Boys and girls	2,005	723	1,342	101	..	..	..	0.7	..
48	Boys and girls	517	60 <sup>2</sup>	457	95	3	0.40	7.5	3 straight; 0 kinky	..
30	Boys and girls	1,685	62	1,623	74	..	..	21	..	..
150	Boys and girls	2,339	37	2,302	362	3	0.13	4.5	1 curly; not kinky	..
151	Boys and girls	1,555	5	1,550	202	2	0.54	15.0	2 rather straight	..
86	Boys and girls	2,108	47	2,121	423	..	..	..	13	..
121	Boys and girls	2,173	21	2,152	415	..	..	..	10.9	..
171	Boys and girls	3,332	31	3,201	710	..	..	..	19.2	..
6	Boys and girls	1,507	24	1,483	86	..	..	..	22.1	..
37	Boys and girls	1,511	17	1,494	52	..	..	..	5.7	..
72	Boys and girls	2,045	15	2,030	1,010	..	..	..	3.4	..
100	Boys and girls	2,902	66	2,836	308	..	..	..	40.7	2 curly; not kinky
		28,791	2,579	26,212	4,353	13	4.34	0.50	10.5	3 kinky; 10 straight

<sup>1</sup>Thirteen had kinky hair—one straight hair.

<sup>2</sup>Fifty-four had kinky hair—six straight hair.

similar home surroundings, and in which the cooperation of the principal is good, or poor.

In the schools noted the nurses and inspectors are practically of equal calibre, and the methods of examination and interpretation of the findings are substantially the same.

I do not want to convey the impression that exceptions to this do not occur, and that many other factors must not be taken into consideration. But the relation between school cooperation and the percentage of pediculosis capitis is striking enough to warrant attention. Chart VI shows the well known fact that pediculosis capitis is more common among

Thus the idea—the thought of cleanliness—is kept constantly before the pupils, and where cleanliness reigns, pediculosis will eventually cease to exist.

These charts also serve to show what systematization means in any school and how despite the talk in some quarters that medical inspection of school children interferes with the regular routine of school work, a great deal can be done by the interested cooperation of the principal. I venture to suggest and advocate that we have charts in each classroom to tally the number of cases of pediculosis capitis, under the caption "Clean Scalp" (Chart VIII). As each routine inspection of the

CHART X.—HOME CONDITIONS.

WHITE CHILDREN.		COLORED CHILDREN.	
Children with pediculosis capitis.	Children free from pediculosis capitis.	Children with pediculosis capitis.	Children free from pediculosis capitis.
161 Homes.	60 Homes.	13 Homes.	27 Homes.
Filthy .....	87	Filthy .....	7
Dirty .....	29	Dirty .....	1
Fair .....	23	Fair .....	2
Clean .....	27	Clean .....	4
Very clean .....	2	Very clean .....	22

girls. I have frequently used this as an argument to awaken an increased pride in the girls of the school, by asking them if they were going to have the boys outdo them in cleanliness.

At some of our schools, in addition to the instruction and advice of the inspector and nurse, personal hygiene of the mouth, eyes, scalp, body, shoes, and clothing is taught and controlled systematically by means of daily classroom inspection and daily drills conducted by the teacher, and supplemented by a monitor or captain for each class. In addition to this the principals interview not only the pupils, but the parents as well, and impress upon them the need and importance of cleanliness. These exercises or drills stimulate in pupils lessons of per-

classroom is made by the inspector or nurse, whether it be weekly or monthly, the number of clean heads and the attendance should be noted and the curve of clean scalps for each class thus formed. It may be criticised that displays of this kind are too public and that they will expose the affected pupils to ostracism at the hands of their classmates. I believe this to be exaggerated. They do not and will not single out any particular child. They will simply establish the head cleanliness of the class as a whole. They will tend to offer an impetus not only to the clean pupils, who for the record of the class will strive to keep that way, but they will have an effect upon the guilty ones to a degree which cannot be overestimated. And

if for the sake of an argument we concede that these charts would make the child "feel ashamed," or "afraid of being picked out," if they would be the means of making him "clean up," then surely these are the best arguments for their adoption. The common sense view of the matter is, that pediculosis capitis is a public danger and as such needs a public warning, "and the more public the place the more effective the warning."

Cases of direct school infection are relatively uncommon. Where pupils come in close contact during play, or where head to head contact takes place, the migration of the live pediculus does occur. Infection via the clothing, especially head gear, is more common and occurs more frequently with girls than with boys. The latter keep their hats or caps either in their coat pockets or in their desks, while the hats, capes, and cloaks of the girls are kept closely together in one closet, usually dark and poorly ventilated. Much could be done in a preventive way at school by providing separate lockers, or by having separate hooks, bags, or other compartments, for the hats and cloaks of the girls. If separate bags for all girl pupils are considered too radical or too expensive, let us have them at least for those pupils known to be infected. In schools where girls are adept at sewing these could be easily provided.

One word as to actual treatment. The destruction of the pediculus is relatively simple. When nits are numerous local medication is a thankless task. With boys the problem offers few difficulties, for clipping off the hair gives the easiest, most rapid and most satisfactory results and no opposition, as a rule will be offered. With girls, however, clipping off the hair should be the last resort. They resent any such interference. All girls should have their hair braided tightly in the classroom, and unbraided and combed at home every night, for inspection, for care, and for treatment.

After many years of experimentation with any number of drugs, I am of the opinion, that there is but one successful way of removing the nits—other than cutting the hair—and that is by mechanical means. Patient, persistent, painstaking removal of the nits strand by strand, with the hand, sand paper or a fine toothed comb is the only successful plan for pronounced cases. The various drugs may loosen a few nits, but the majority will succumb only to forcible eviction. This is something that must be taught, explained, and shown to the parent.

#### CONCLUSIONS.

The conclusions which have been forced upon me, as a result of some eleven years of personal observation and experience with pediculosis capitis among school children, are as follows:

1. The severity of the cases and the number of children excluded from school have been materially influenced for the better, by the methods used—morning inspection, periodic classroom examination, individual and group instructions of pupils at school, braiding of hair at school and unbraiding at home, consultation with parents at school and at home, practical demonstrations in the house, exclusion of children with live pediculi, aggravated cases, and those who persistently refuse treatment, co-

operation of principals and teachers, mothers' meetings, distribution and explanation of circulars of information, and instruction in personal and home hygiene and in cleanliness.

2. Pediculosis capitis is of importance from the standpoint of general cleanliness, disturbance of the general health, transmissibility of disease, interference with school attendance, production of secondary infections, and lowering of the child's mental equilibrium.

3. The more stationary and the more homogeneous the population and the less the influx of immigration, the easier and more successful the control of this condition.

4. While the number of other communicable diseases of the scalp, skin, and eyes has gradually diminished from year to year, the number and percentage of cases of pediculosis have practically remained stationary. This is accounted for by the fact, that the tenement population consider pediculosis of little import, not dangerous, and frequently a sign of good health, while they fear the other forms of contagion, and take all precautions to prevent their spread and to effect their prompt cure. The other communicable scalp, skin, and eye diseases are frequently treated and controlled at the school, and are more localized, and more readily accessible, and responsive to treatment.

5. Treatment of the school child alone is of little value in the control of pediculosis capitis. Other members of the family, the clothing, bedding, combs, brushes, towels, washcloths, etc., must be kept clean. The solution of the problem is the home. The school is but a means to an end.

6. Unfavorable home conditions are often the result of poverty *per se*; quite as frequently they are due to carelessness, indifference, ignorance, irresponsibility, and neglect.

7. The destruction of the pediculus is relatively easy. The eradication of the nits by local medication is unsuccessful. Removal of nits is accomplished best by mechanical means.

8. Personal individual instruction of the mother in the home by the nurse, and practical demonstrations by her as to prevention and treatment, are the means which assure success. Mothers must be taught to look after the older school girls, as well as the younger members of the family. The common family brush and comb must be discontinued and the nurse must show parents the dangers of their use and the method of transmissibility by this and other channels.

9. Instructions *per se* even if printed in the mother tongue of the people are useless. These must be supplemented by personal instruction. Circulars printed in English are of greater value, because they are read and explained by the school child—the messenger of education for most of the households.

10. The cooperation of the principals, teachers, and of the pupils is essential to success. Individual advice to pupils and mothers, practical lessons, and drills in personal hygiene, the use of charts in order to ascertain the status of, and to inspire the thought of, cleanliness in the pupils of the class, have an effect which is difficult to overestimate.

11. In schools situated in the poorer sections of



the city, where home conditions of the pupils are the same, and where both boys and girls attend, the percentage of pediculosis capitis in those schools wherein the cooperation is good, is less than in those wherein the cooperation is poor.

12. In the schools of the better sections of the city where boys and girls attend, the percentage of pediculosis capitis is far less than in the poorer sections, irrespective of the cooperation of the school authorities, because of improved home surroundings and better financial circumstances. School cooperation here is almost an inconsequential factor.

13. The percentage of pediculosis capitis in schools harboring boys only is less than in those harboring girls only.

14. Better facilities should be provided at the schools for a separation of the clothing and head gear of the pupils, especially that of the girls. Separate lockers, hooks, bags or other containers should be installed, at least for children known to be infected.

15. Prevention of the condition is easier than its cure. Education will accomplish what drugs have failed to do.

16. The prejudices and superstitions surrounding this condition must not be laughed and scoffed at by school inspectors or nurses. This method will never win over the mother.

17. The dangers of general infection, of loss of hair, of disease of the scalp, of infected glands with resulting scars and deformity, of predisposition to tuberculous glands—in a word, all the dangers of the condition must be brought home to the parents in a quiet, and confiding, yet impressive, and firm way. Give them something to think about, and show them that the condition is not one to make light of at any time.

18. Pediculosis capitis is very infrequent among the colored school children of New York city. It occurs with greater frequency among those with soft straight hair than in those with the kinky variety and among those children born of white mothers or light colored negroes. This infrequency in my opinion is due in large measure to the constant combing to which this race subjects the hair in order to straighten the kinks.

19. And finally, with apologies to Owen Meredith:

You may talk about poetry, music, and art,  
You may talk about conscience and talk about heart,  
You may talk about knowledge and talk about wit,  
The bane of inspection is the ubiquitous NIT.

144 WEST 122D STREET.

## THE USE OF THE X RAY IN THE DIAGNOSIS OF DISEASES OF THE CHEST AND ABDOMEN.

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The limitations of this contribution I have tried to indicate in the title. The writer is not a radiologist. He approaches the subject from the clinical viewpoint and attempts to inquire in a critical spirit just the place to which the x ray is entitled in the armamentarium of the diagnostician. No consideration

is, of course, given to such diseases of the bones and joints as might come within the province of the general internist. Furthermore, we attempt here no formal review of the literature; the basis of our remarks and our conclusions is our personal experience. We have been fortunate in this work in having had the help and guidance of an experienced radiologist, Dr. E. H. Skinner, and of his constant helpfulness, enthusiasm, and courtesy we wish to make here grateful acknowledgment.

Three conditions we will not consider at all: Aneurysm of the thoracic aorta; stricture, dilatation, or diverticulum of the esophagus, including cardiospasm; stone in the kidney. In all of these the prominence of the x ray is so generally acknowledged as to need no comment.

The technic of these examinations we will only indicate in brief. Plates were used very little. The fluoroscope was used exclusively, and plates only for recording some condition permanently for reference. In the fluoroscopic method it is of the utmost importance for the operator and clinician to stay in the dark room for some time, in order to allow the eyes to accommodate and the retina to become sensitive to somewhat darkened images. The patient is stood up between a Mueller water cooled tube and the fluoroscopic screen, which is movable and provided with a shutter diaphragm, so that a small field can be studied to the exclusion of other parts, if desired. This gives the effect of a higher power of the microscope upon a slide. (Fig. 1.)

Every clinician should, of course, become familiar with the normal appearance of the chest in the fluoroscopic picture. The advantages of the fluoroscopic method are, first, that the patient can be turned around, and the chest examined from several elevations, in a short time; second, that a portion of the field can be minutely examined with the closed shutter; third, that the movements of the diaphragm can be observed; fourth, that the apices can be observed in inspiration and expiration, a very important consideration in early pulmonary tuberculosis; fifth, that the movements of the heart and aorta may likewise be observed. All these things are of course lost upon plates. The same general advantages hold good in the examination of the abdomen, as in plates it is impossible to see the movements of the stomach and small intestine, and certain special relations are lost.

Doctor Skinner has designed an ingenious arrangement for giving the patient three bismuth meals which will serve for one examination. The patient eats a bismuth meal (two ounces of bismuth oxychloride in twelve ounces of buttermilk, malted milk, or cream of wheat porridge) at 10 a. m. of the previous day and 4 a. m. of the day of examination, and presents himself for examination at 10 a. m., when another meal is given. Thus we are able to see a meal in the stomach and observe its contour and movements, we are able to observe where the six hour meal, which should all be in the cecum and ileum, is, and are able to see the shape and position of the large intestine from the twenty-four hour meal.

Before beginning a formal discussion of some conditions of the chest and abdomen, certain general considerations should be touched upon which would

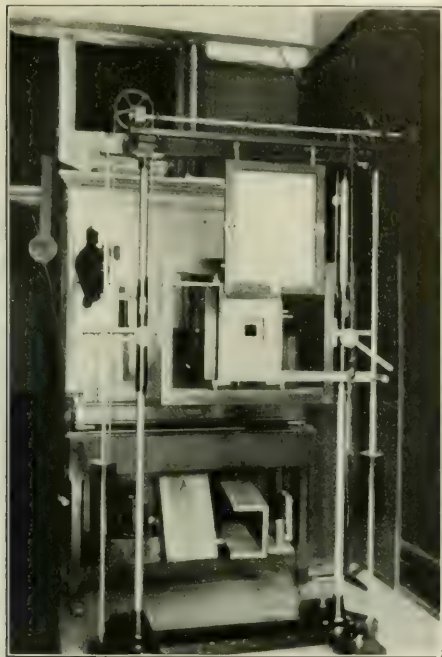


FIG. 1.—Beclère fluoroscopic apparatus.

be out of place in that review. For in what follows the point of view to be insisted upon is that we wish to inquire what things the x ray can tell us which we can find out by no other method—in what conditions it plays the rôle that the Widal reaction or blood culture plays in typhoid fever. But aside from actual diagnosis, the x ray can teach the clinician certain phases of physiological pathology, can act as an autopsy, can show him fascinating things which he can see nowhere else so graphically. The economic problem enters here. We are not justified in submitting many of our patients to the time and expense of an x ray examination just to show us living pathological anatomy; but under conditions when this consideration does not enter—as for instance in the service of a general hospital provided with adequate fluoroscopic facilities—we can recommend it to every clinician in the certainty that he will be abundantly rewarded. Merely to catalogue a list of things with which he may be perfectly familiar at the autopsy table, in the physiological laboratory, or from the literature, let us name the wave of the heart beat, the action of the auricles, the pulse of the aorta, the movements of the diaphragm, the position of the fluid in pleural effusion, the action of the remains of the contracted lung in pneumothorax, the emptying of a bronchiectatic cavity on coughing, the act of swallowing, the peristalsis of the stomach, and the method the stomach employs of emptying its contents into the duodenum, the physiology of vomiting, which we have once or twice seen, the normal anatomy of the large intestine, and the action of enemas.

In this connection it is worth recommending that plates of cases which are being examined be used in teaching physical diagnosis. The student goes over a chest and reports his findings, say in a case of pulmonary tuberculosis; he is then shown the plate of that case and allowed to draw his own conclusions. It is a vast improvement over the mere statement of the instructor that such and such conditions are present which he did not find.

#### DISEASES OF THE CHEST.

The orthodiagraph is an instrument for accurately measuring the size of the heart. In order to do this a parallel ray must be thrown, by means of a small opening from the x ray tube, through the chest, and be received by the operator, so that the shadow of the heart can be outlined. The ingenious instrument of Groedel is satisfactory for this purpose. Comparisons of orthodiagrams with the percussion boundaries of the heart, made by careful and competent percussors, have demonstrated that in normal hearts the percussion outline is surprisingly exact. In hypertrophied hearts, however, the percussion is in most cases very far wrong, especially on the right side. These things, though, are of somewhat academic value. By the ordinary methods of heart examination we can learn very well what is essential to learn about the case. To our physical examination of the heart, at any rate, the x ray can add little of real value in any given case. (Fig. 2.)

It is true that when one sees a few cases of enormous dilatation or hypertrophy on the fluoroscope screen, when one sees, let us say, mitral insufficiency and then a mitral stenosis, he obtains an idea of their anatomy and physiology more graphically than in any other way. But this belongs more to the study of pathological physiology with the x ray referred to above than to real help in a diagnostic problem.



FIG. 2.—Normal chest.



FIG. 3.—Early pulmonary tuberculosis, right apex: dense hilus shadows.

To this category, too, we believe, belong the studies on mitral stenosis of Vasquez and Bordet (5) in which they describe the small left ventricle and large left auricle. Here also belongs Beck's (6) interesting study of the small heart of pulmonary tuberculosis. It has been suggested that the orthodiagram may give us the earliest indication of beginning loss of compensation. Some radiologists once believed that it might be used to determine auricular fibrillation and heart block. We have no experience here, and have no inclination to gain any. We have a far more likely method of determining the condition of the myocardium (bundle of His, etc.) by the use of the polygraph, and this, combined with our methods of physical diagnosis, gives us so much information that the use of the orthodiagram is not essential. In pericarditis, however, and especially pericarditis with effusion, it may be absolutely diagnostic. All know the doubtful value of percussion in these cases. Here the orthodiagram can give us positive information which we can obtain in no other way.

#### PULMONARY TUBERCULOSIS.

No idea of the use of the x ray in pulmonary tuberculosis is of any value unless we are careful to distinguish between early, middle, and late cases. For present purposes, we mean, by early cases, a "slight initial lesion, in the form of infiltration, limited to the apex or a small part of one lobe," a pure infection with tubercle bacilli, without mixed infection and little constitutional disturbances. (Fig. 3.) By middle cases we mean a definite, though localized, consolidation, usually confined to one or two apices, and with moderate constitutional disturbance. By late cases we mean the familiar picture of diffuse chronic caseous bronchopneumonia, with cavity formation and widespread tissue involvement.

Taking the last of these first, it has, of course,

been thoroughly established that the x ray is capable of revealing all the tissue changes present in these advanced cases. It throws a shadow of the caseous and the consolidated areas on the plate, and it reveals the presence, location, and size of cavities, often when they do not reveal their presence by the methods of physical diagnosis. In the moderately advanced cases, too, it usually shows the shadow of the consolidation in the apices. Sometimes the shadow is faint, but here we have the additional evidence of the enlargement of the glands at the hilus of the lung and their extension directly from the hilus to the affected apex. I think I have never failed to see a definite shadow cast by the x ray in any case where there were definite and unmistakable evidences of involvement, in this general type of case, and often, I may say, the x ray has revealed a greater extent of disease than the physical signs justified me in believing was present. (Fig. 4.)

In the early cases there is usually no shadow cast on the plate or fluoroscope. This is natural enough, considering the nature of the pathological anatomy of the disease at this period. Various other changes have, however, been observed. First, there is the fact that when the patient takes a deep breath the apices do not light up to the extent that they do in health. In health there is a very evident difference in transillumination between inspiration and expiration, inspiration giving a brighter appearance. Secondly, it has been pointed out that on the affected side the diaphragm does not move through so wide a space. The heart of tuberculosis is present in the early as well as the late cases. It is a small heart, hanging vertically in the chest and close to the midline. Again, a calcification of the costal cartilages has been made out, and also the tracings of the hilus shadows are of significance in these cases.

In considering the general usefulness of radiography in phthisis, then, it must be evident that it is just in the cases in which we need it the least that it gives us the most data—in the late and moderately advanced cases. It is in these cases that the diagnosis by means of physical diagnosis, sputum examination, temperature chart, etc., is in most cases quite satisfactory. In the early cases the diagnosis is usually one of great difficulty by the above mentioned methods. It is, too, most perplexing. Judgment is

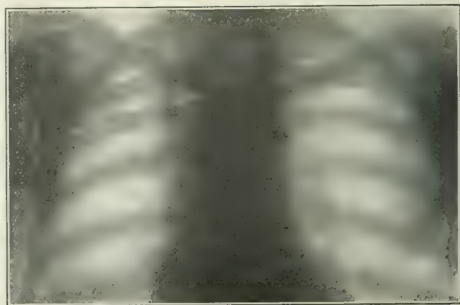


FIG. 4.—Moderately advanced pulmonary tuberculosis; both apices involved and shadows in the right lobes. The patient had only slight constitutional disturbance.





FIG. 5.—Abscess of the lung, right side.

here, if anywhere, difficult, and "experience fallacious." And as it is only in these cases that any sure prospect of cure can be held out, the importance of the diagnosis is proportionately great. The difficulty lies in this: That the gross anatomical changes in the lungs are so few as to give very slight physical signs, and those indefinite. That the x ray would reveal nothing tangible under these circumstances is perfectly reasonable. Those signs such as diminished translucency of the apices, fixity of the diaphragm, tuberculous type of heart, etc., are open to the same objection as such physical signs as Kronig's method of percussion and Phillips's tidal percussion. The objection is that in any given case it is almost impossible to say whether any one sign is of pathological significance or whether it is a deviation within the limits of the normal. The x ray should always be used in obscure causes when the possibility of early pulmonary tuberculosis is under discussion. It is the accumulation of either positive or negative evidence which counts. The diagnosis is not of equal difficulty in all cases. One single symptom or sign may throw the balance, and it is always possible that the radiological examination may furnish that last straw. Its negative evidence, too, is very comforting when we can find nothing by physical examination of the chest. The point that we wish to emphasize, however, is that the x ray is, in early phthisis, a means of diagnosis that is of use only in conjunction with the other methods employed. It does not assume the central importance that it assumes in kidney stone, for instance, or aortic aneurysm. A careful history, a temperature chart, pulse, blood pressure, and weight charts, physical examination of the chest, examination of the sputum, tuberculin reaction, and the fluoroscopic examination—these are the combined means which we must use, and, on the whole in our judgment, the last two are of the least importance.

We have just mentioned the value of the x ray

as negative evidence. In a certain group of cases this negative evidence rises to extreme importance. In a paper before the International Congress on Tuberculosis in 1908 Reynier reported eighteen cases of asthma which, in spite of the popular impression that asthmatics are relatively immune to tuberculosis, turned out to be early phthisis. Keeping this suggestion in mind, we have in the past few years found one case of bronchial asthma in which tubercle bacilli were demonstrated in the sputum. With this experience, we have naturally regarded many cases of asthma in young individuals with some suspicion. The difficulty of determining anything in them by auscultation is apparent, and the fluoroscope is here of prime importance. One such case, by way of illustration, was of a young man twenty-three years of age who presented himself at the outpatient department of the University of Kansas for attacks of wheezing, continuous expectoration of small amounts, and a gradual loss of weight of from ten to twelve pounds, extending over a period of six months. His attacks were typical attacks of bronchial asthma. But the loss of weight, the low blood pressure (from 108 to 112 mm. Hg., persisting over several examinations) temperatures of 97.4° F. and 99° F., a pulse of from 90 to 96, and his thin and anemic appearance aroused suspicion. Percussion was negative, and auscultation was sometimes negative and sometimes obscured by dry râles of various grades of intensity. The fluo-



FIG. 6.—Unresolved pneumonia, left side; small pneumothorax at the base.

roscopic examination of his chest showed no shadows, no enlarged hilus glands, and quite fair illumination of the apices on deep inspiration. In this case I regarded the negative fluoroscopic data decisive.

In connection with asthma, too, we have the records of one case of fascinating interest. In brief, the patient was a male negro, aged thirty-six, who presented himself at the outpatient dispensary of the University of Kansas, first on February 17, 1910, with extreme dyspnea, ascites, enormously enlarged liver, and evidences of fluid in the right chest; the heart and kidneys presented no evidence of disease. Our first diagnosis was cirrhosis of the liver, and the abdomen and right chest were repeatedly tapped. In the face of a history of syphilis of six years' duration and a positive Wassermann reaction we tentatively tried him on mercury and iodide of potassium. The liver began to recede and tapings became only necessary at increasingly infrequent intervals, and by the last of May he had been free of fluid for some weeks. The liver had receded somewhat, but was still down to within three fingers of the umbilicus; he went to work and we lost sight of him. He reappeared December 11, 1911, having been well up to within a week before. Since then he had had great dyspnea and wheezing spells. On examination we found sonorous and sibilant râles, almost entirely confined to the left lung. The x ray examination showed a large shadow near the left primary bronchus. With salvarsan, mercury, and iodide of potassium, his symptoms were relieved, and six weeks afterward another fluoroscopic examination showed the previous shadow to have diminished very greatly in size. We have concluded that the shadow seen on the picture was a mass of enlarged syphilitic lymph glands which compressed the left bronchus. We cannot leave this part of the subject without remarking that, from a very limited experience, in the enlarged bronchial lymph glands in children causing dyspnea, stridor, brassy cough, etc., the x ray is the only reliable diagnostic agent.

Pleural effusion casts a shadow on the fluoroscopic screen. The valuable studies of Englebach and Carmen (8) have taught us some highly important lessons in the pathological anatomy of the condition. But in ordinary clinical routine the use of radiography is not warranted, as diagnosis by simpler and easier means is thoroughly satisfactory. This is true also of hydrothorax. With new growths of the lung and tumors of the mediastinum we have had no experience. Many cases are, however, on record in which the ray revealed the condition present. In lung abscess it is of first rate importance. We have recently had a case, the plate of which is here represented in Fig. 5. The patient was a man forty years of age who presented himself with an afternoon fever and profuse expectoration which dated from a pneumonia six years before; he had had several pulmonary hemorrhages and had lost twenty pounds in weight in a year. Physical examination revealed crepitant râles and dullness confined to the lower part of the right chest. The use of the x ray in empyema is an interesting question. We have come to the following conclusions: In every case of continued fever after the crisis of a lobar pneumonia, where a diagnosis of pus in the pleural sac is not readily established, a radiograph should be

taken. This will show the cases of interlobular empyema, obscure lung abscess, and delayed resolution.

Cabot's (9) recent dictum that unresolved pneumonia usually means empyema is perfectly true. The objection to such a statement is that in the course of time one comes to think of it as meaning that unresolved pneumonia does not exist. This is distinctly not true. Cases have been found at autopsy and their pathological history described (10). The plate in a case in which the x ray proved its value is reproduced in Fig. 6. The patient was a man thirty-three years of age. On April 27, 1912, he had a chill, the advent of a lobar pneumonia. On May 4 his temperature fell to 96° F., the pulse and respirations came down, and he was considered to have passed his crisis. Four days later he began to have an afternoon temperature and sweats. From May 9th to 14th his temperature reached 102° F., or thereabouts, in the afternoon, and was between 99° and 100° F. in the morning. He did not cough. Dr. H. P. Kuhn visited him at his home in Plainsville, Kansas, found dullness in the left chest behind, and made an exploratory aspiration several times with-

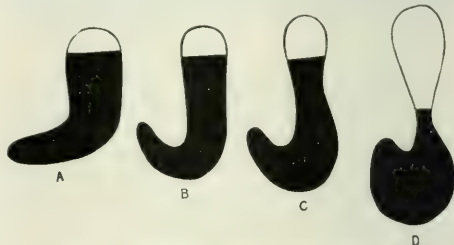


FIG. 7.—Holzknecht's types of normal stomachs

out result. I saw him on May 25. He was then expectorating large amounts of thick but not fetid pus. His temperature was 102.5° F., his pulse 128. The leucocytes were 12,000. The left chest behind moved in inspiration. There was dullness over the left chest behind, with vocal fremitus normal or slightly reduced. Breath sounds could be faintly heard, and after coughing many adventitious sounds. The problem was whether there was pulmonary abscess or gangrene, empyema ruptured into a bronchus, or unresolved pneumonia. This problem, the x ray, I think, solved. The plate shows the diffuse mottling of the lung inconsistent with anything but delayed resolution. The course of the disease confirmed this belief. The exposure of the patient for the fluoroscopic examination apparently hastened resolution. At any rate, he dated his convalescence from the day the examination was made, and June 20th found him with a normal temperature, while the x ray showed the left side, though still somewhat cloudy, markedly improved.

#### THE STOMACH.

To one who has been accustomed to thinking in terms of ordinary anatomical textbook representations, the form and position of the stomach, as seen on the fluoroscopic screen, will be quite surprising. In the erect position and with a bismuth meal, the stomach appears with the lower edge in most cases nearly on a level with the umbilicus; the pylorus ac-

usually drains the organ, it being in the great majority of cases, only a very little higher than the lowest point of the stomach; the upper pole is always occupied by an air space known as the "Magenblase." As food enters the stomach it does not, as one would expect, sink into the lowest part of the sac. The stomach wall muscle has a definite tone, and normally maintains the food mass in a vertical column. Fig. 7 is a diagram copied from Holzknecht (11) of the normal types of gastric form tonicity with the rate at which the food leaves the stomach expressed in hours. As soon as the food enters the stomach peristalsis begins, and waves can be easily seen on the greater and lesser curvatures moving pylorusward until a bolus of food is separated from the larger mass and expressed into the duodenum.

In the stomach and intestines the x ray as a means of diagnosis comes fully into its own. In a single examination we learn:

1. The shape and size of the stomach.
2. The tone of the gastric muscle.
3. The emptying rate of the stomach, whether there is stasis or not.
4. Whether there is any growth into the lumen of the stomach carcinoma.
5. Whether or not there is any constriction of the lumen hour glass stomach.

These things can be learned by no other method—even exploratory laparotomy will not tell us anything about the first three. They are easily obtained, without a tithe of the difficulty of gastric lavage. And they are the very core of the objective facts we wish to know about the stomach for diagnosis.

#### GASTRIC ULCER.

As with pulmonary tuberculosis, we must distinguish between early and late cases. In the cases of early simple gastric ulcer the Röntgen ray is merely an adjunct to the well taken clinical history. The anatomical changes and changes in the movements and emptying rate of the stomach are not notable at this stage. The standing of the ray does not suffer as much, however, in this condition as in phthisis, as the diagnosis by means of the history, the physical examination, and the chemical examination of the gastric contents is relatively satisfactory. In chronic ulcer causing stenosis of the pylorus the fluoroscope will demonstrate the stenosis and rise in importance in the individual case in direct proportion to the difficulty encountered in diagnosis otherwise. In perforating gastric ulcer with diverticula formation in the liver and lesser peritoneum Haudek (12) has described the picture which he regards as diagnostic. With it I have had no experience. I have had little radiological experience either with duodenal ulcer or the duodenal dilatation described by Jordan (13). In several cases of what we may call dyspepsia (meaning by that an alimentary disturbance in which we were able to rule out ulcer and cancer, appendicitis, gallstones, pancreatitis, high blood pressure, pregnancy, etc.), the patients were submitted to x ray examination, often with great benefit to an understanding of the case. Gastroparesis and enteroparesis have been found in this way. In two cases the tone of the gastric musculature seemed diminished.

(To be concluded.)

## CONCERNING THE ETIOLOGY OF HYPERTROPHIC PULMONARY OSTEOARTHRITIS.

*With a Report of Five Additional Cases.*

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(Concluded from page 614.)

CASE III. M. B., female, aged nine years. History No. 2,215, Montefiore Home.

*Family History:* Father, aged forty-two years; mother, aged forty-three years; three brothers and one sister all alive and well. Parents were first cousins. No tuberculosis or other familial disease present.

*Personal History:* The patient was the sixth child; birth normal. One hour after its birth mother noticed that the child breathed with difficulty, that respirations were apparently dyspneic and noisy. The attending physician stated at this time that the child had some congenital pulmonary affection. She was breast fed, but did not nurse readily and always coughed and often vomited after nursing. She slept badly and breathing continued to be peculiar. She had pneumonia three times, the first at one half year, the second one month later, and a third attack two weeks later (?). After these pulmonary attacks the mother noticed that the child was frequently blue and that her cough and breathing were worse. Aside from these attacks the child had no disease during early infancy. She walked at twenty months of age, and began to talk at about the same time. The first tooth appeared at the close of her first year; subsequent history of dentition was unsatisfactory. As far back as mother could remember the child had had frequent sweats, especially at night. Up to last winter she was apparently getting worse in so far as the respirations were concerned; and dyspnea and cough were continuously present, and she expectorated very freely after her coughing paroxysms. She complained of pain in the sides of the thorax, and last winter began to have "spells" which consisted of severe dyspnea, cough, and cyanosis, especially of the face. Had had these attacks about twice monthly. The child was always worse during the winter season. She lost several pounds in weight last winter, but gained while in the country during the past summer. The mother first noticed that the child's fingers and toes began to take on their present peculiar shape about five years ago. Last winter, from no apparent cause, the finger tips became much swollen and the thumbs began to ooze blood along the bases of the nails; this hemorrhage would continue off and on for weeks at a time. Chief complaints: Dyspnea, cough, and expectoration; pain in the left side.

*Physical Status:* The patient is a well nourished but undersized child. There are no gross skeletal deformities, and the panniculus adiposus and the skeletal musculature are well developed. Skin warm, soft, and moist; well nourished; no eruptions nor scars present. The mucous membranes are deeply colored from a not pronounced cyanosis. The head is rather large and broad, with a tendency toward the cubical type and with marked protrusion of the forehead and malar prominences. There is a flattening of the nasal bridge and the tip of the nose is cyanotic and bulbous in shape; the face is full and "bloated," especially the cheeks and lips, which are quite cyanotic, while the whole cast of the countenance, with the narrowed eye slits, is suggestive of the mongolian type, or, as expressed by a member of the house staff, like that of a "miniature squaw." Dyspnea is apparent, even when she is at rest, from the movements of the alae nasi and from the thoracic movements and posture. These become exaggerated on exercise. Vision good, and ocular movements normal; pupils are equal and normal in their reactions; conjunctivæ of good color. The tongue is rather large, flabby, and somewhat cyanosed. The teeth are in fair condition, a few are missing and the insertion mucous membrane is ulcerated in a few instances; mucous membrane of hard and soft palate and of pharynx is moderately cyanotic. The vessels of the neck show moderate pulsations. No lymph nodes in the neck are palpable; the thyroid is not readily palpable, and the neck is short



and stubby; no thymus dullness or shadow can be made out. The thorax is definitely of the rachitic and pigeon breast type; left side more prominent than the right, which is smaller and depressed anteriorly. There is a marked left shoulder drop, some dorsal scoliosis, and the scapulae are prominent; no clavicular depressions. Respirations are labored and stertorous. There is visible retraction in the clavicular and suprasternal fossae; an audible respiratory grunt, and the expansion on both sides is markedly deficient. On percussion, a general boardy quality throughout, with a small area of dullness at right base posteriorly; Auscultation shows grunting respiration with scattered rhonchi, sibilant, sonorous, and crepitant râles throughout. These latter are especially numerous over left base, front and back; inspiration is short and expiration prolonged, averaging sixty a minute. The area of cardiac dullness is distinctly enlarged; apex beat visible and feebly palpable in fifth interspace,  $2\frac{1}{2}$  inches from the median line. Right border lies  $1\frac{1}{4}$  inches beyond the mid sternal line; left border just outside the nipple line. The heart action is regular, rapid; the sounds at apex and the aortic areas are natural, and neither murmurs nor thrill can be made out, even after exercise, which seems to be well borne in so far as the heart action is concerned. The left pulse is apparently stronger than the right, rate 120 a minute, and no other abnormalities are apparent. Abdomen rigid; no pain or tenderness, no palpable masses, or abnormal pulsations. Liver dullness extends one finger's breadth below costal margin, but because of the abdominal rigidity the liver cannot be palpated; spleen and kidneys not palpable. There is marked clubbing of the finger and toe tips, with considerable cyanosis; some pain on severe palpation, but none in the wrists or ankles, which, from palpation, appear to be enlarged and roughened. The finger and toe nails are much thickened and sharply curved. No edema, although the appearance of the tissues would on inspection suggest this, as far as the extremities are concerned. The neurological status was reported as normal by the attending neurologist, Doctor Abrahamson. The child was found to be mentally bright, easily taught, friendly and affectionate. No reaction followed the injection of 0.5 milligramme of old tuberculin. Fluoroscopic examination by Doctor Gotlieb showed the right ventricle to be greatly displaced to the right so that the shadow had the appearance of a transposed heart, extending over to the periphery of the thorax on the right, apparently inducing more or less rotation of the heart from left to right. There were numerous areas of pulmonary turbidity, apparently peribronchial in location but very irregularly distributed. The hands and wrists showed epiphyseal separation of the radius and ulna (both sides), marked thickening of the distal extremities of these bones, and hypertrophy of the terminations of all the phalanges. Frequent examinations of the urine gave negative results. Examination of the blood showed hemoglobin, ninety per cent.; red blood cells, 4,960,000 a c. mm.; white cells, 12,600; polymorphnuclears, fifty-eight per cent.; small lymphocytes, fifteen per cent.; large lymphocytes, twenty-two per cent.; large mononuclears, one per cent.; basophiles, one per cent.; eosinophils, three per cent.; no normoblasts, macrocytes, nor microcytes. Examination of the very abundant sputum showed it to be mucopurulent in type and to contain many epithelial cells, occasional red blood cells, many pigmented pus cells and leucocytes, plugs of pus, and mucus; no elastic fibrils; bacteria very numerous, chiefly comprised of pus organisms; no tubercle bacilli, and no demonstrable pneumococci.

**Diagnosis:** Chronic bronchitis and bronchopneumonia, with probably pulmonary fibrosis; displaced and dilated heart (well compensated); hypertrophic pulmonary osteoarthropathy. The child remained three months in the hospital, and is still under occasional observation. During this period she made considerable progress as regards relief of the pulmonary conditions, but without apparent improvement of the bone lesions. She progressed rapidly under the instruction of the hospital school, and close observation of her case convinced us that the original assumption of a cretinoid condition was incorrect.

**CASE IV.** Mr. T. A. E., seen in consultation with Dr. E. D. Male, aged fifty-one years, descended from an ancestry distinguished for both physical and mental vigor. Family history negative as to all systemic or hereditary faults.



FIG. 3.—Pulmonary osteoarthropathy. Case III.

which he had never been accustomed. He ceased to have abnormal temperature, the cough subsided, and soon he found himself able to do a "man's work" as a cowboy. The life was extremely congenial to him, and this may in part account for some of the benefit derived from it. Later he served throughout the Spanish-American war in a volunteer cavalry troop, and though the service was almost constantly in the tropics, he was able to stand the work well, and was returned to his home station in fairly good condition. Social and business obligations recalled him to New York, where he again began to suffer from frequent attacks of bronchitis, manifested by fever, persistent productive cough, and loss of strength and weight. The patient had at times indulged unwisely in both alcohol and tobacco. He had taken drink practically only on rare social occasions, but smoked excessively. He had never suffered from any venereal infection and had lived a moderate sexual life.

**Present History:** October 23, 1912. The patient came to me having contracted a recent "cold," which had manifested itself by increased cough with profuse purulent expectoration and pain in the chest, particularly over the upper lobe of right lung. The appetite was poor, he was constipated and weak, and slight alterations in temperature caused him to sneeze and to experience chilly sensations. Temperature 98.4° F., pulse 78, respiration 20.

**Physical Examination:** The patient is a tall, large framed man. The extremities are large and powerfully muscled, but the hands and feet are disproportionately large and cumbersome, and show marked clubbing of the digits, with thickening of the nails and moderate cyanosis. The face is somewhat congested; skin thick and turbid; malar bones very prominent, tender on deep pressure, and the end of the nose is typically globular. Frontal alopecia is marked and rapidly progressing. The thorax is long, barrel shaped, considerably flattened above, immobile. Aside from moderate carination the examination of abdomen is negative. Ankles and wrists markedly enlarged and thickened; roughness and tenderness of the periosteum is apparent on firm palpation. The heart is displaced to the left, but apparently not enlarged; the muscle tone is poor, but no murmurs can be elicited, even after exercise which gives rise to considerable dyspnea. The retrosternal dullness at the base is not increased; no tracheal tug or other evidence of aneurysm, aortitis, or mediastinal growth. Examination of the lungs shows areas of diminished resonance associated with increased vocal and tactile fremitus at the apices on both sides and over the entire base on the right; the breath sounds greatly and irregularly altered over these areas, varying from frank bronchial breathing to the subdued and distant type; numerous, sonorous, and bubbling râles present, changing from time to time as the patient coughs. The sputum is purulent and abundant, and has a peculiar sweetish, though not

**Previous History.** As a child he was frail. He contracted and suffered severely from nearly all the usual infections of childhood; only constant and highly skillful supervision succeeded in bringing him to maturity. Was particularly prone to catarrhal affections of the bronchi and upper respiratory tract, and was long thought to be tuberculous, though at no time were tubercle bacilli detected in the sputum. At the age of twenty-nine years the patient suffered from a severe attack of bilateral lobar pneumonia, from which he made a slow recovery; after which, tuberculosis being suspected, he was sent West, where he embarked upon a ranching venture in Wyoming. He greatly improved under the conditions of life there, though subject to privations and exposures to

fetid odor; contains numerous pus and epithelial cells, various cocci and bacilli, a few diplococci, but no tubercle bacilli. Examination of the nervous system and of the genitourinary tract gave entirely negative findings. The von Pirquet tuberculin reaction was found negative. At times the patient complained bitterly of pains in the ankles and wrists and in the shafts of the long bones. The diagnosis was pulmonary fibrosis with chronic bronchitis, probably originating from an incomplete resolved pneumonia, and causing the development of hypertrophic pulmonary osteoarthropathy. As the patient failed to respond to the usual methods of treatment for chronic bronchitis, he was advised to go south for the winter. I was told that the bronchitis had now subsided and that the acute symptoms of cold were much relieved, though the dyspnea remained the same.

**CASE V.** M. B., laborer, aged twenty-four years, born in Russia; entered the second medical service of the City Hospital in March, 1913. The history had to be obtained through an interpreter, as the patient spoke only an unusual Russian dialect. His chief complaint on admission was sharp pain in the epigastrium and at times in the back.

**Personal History:** Had been a laborer, and had used alcohol and tobacco moderately. He had suffered from the usual diseases of childhood, and also smallpox. Had had a number of attacks of bronchitis, and at one time was quite seriously ill from such an attack; from this, however, he stated that he quickly and completely recovered. Venereal infection was denied. He had lost fifteen pounds in weight during the past year; no cough, no night sweats. The feet had been occasionally swollen and painful; the wrists had also at times been painful, though never acutely so. These bone symptoms had lasted for the past ten years. The patient stated that his father, one brother, and his son, three years of age, had all had large hands and feet similar to those which he himself had. He was unable to give an actual description of the pain in the epigastrium and back, of which he complained, but from what could be obtained through an interpreter it would seem that these pains were probably myalgic in character.

**Physical Status:** The patient is a well nourished and well developed man of about twenty-four years of age; he does not appear to be acutely or seriously ill.

**Head:** The hair is abundant and normal. The eyes are

normal, the pupils equal, regular, and react to light and accommodation; examination of ears negative; teeth and mouth in good condition; tongue clean and normal; no globular enlargement of the nose or thickening over the malar processes, as is so frequently seen in cases of this disorder.

**Thorax:** Apex beat is seen and heard in fifth interspace,  $3\frac{1}{2}$  inches to left of midsternal line. The heart rate is sixty-eight per minute; rhythm regular, and no abnormal sounds present, except that after vigorous exercise a soft systolic murmur appears both at mitral and aortic areas; no dyspnea elicited upon exercise. The respiratory movements are somewhat restricted, although the thorax is well and symmetrically developed; an area of dullness extending downward from the level of the third dorsal spine posteriorly on the right side, finally merging below with liver dullness. The respiratory sounds over this area are somewhat restricted in transmission, but there is no apparent change in fremitus; many small mucous râles found over entire thorax, particularly the bases, but frequent examinations of the chest fail to show constant signs except the flattened percussion sound mentioned. Râles are constantly present but differ very much in distribution, character, and frequency. The veins over the thorax and abdomen and those of the upper extremities in particular are somewhat congested; the feet and especially the finger and toe tips are very much cyanosed. The cyanosis is increased on exercise. The abdomen presents nothing abnormal except a few fibromata or lipomata embedded in the subcutaneous connective tissue of the wall; hepatic border lies at costal margin; spleen and kidneys not palpable on account of rigidity of the abdominal muscles.

**The Extremities:** Hands and feet very large; wrists and ankles thick and large, and periosteum apparently thickened over the distal end of each of the long bones; fingers and toes very much clubbed; nails thickened, dark blue in color, and much curved. The subcutaneous tissue of the hands and feet is apparently hypertrophied, but the bones do not appear to be. The ankles are particularly enlarged and the skin over them and the feet is chronically cyanosed and almost edematous, but pits only slightly on pressure. Patient complains that when he is on his feet for a long time considerable pain appears in the ankles, and when he is standing it would appear that a slight degree of pes planus is present.

**Examination of the Blood:** Hemoglobin, eighty-three per cent.; red blood cells, 5,700,000; white cells, 10,000; differential leucocyte count, polynuclear cells, fifty-four per cent.; lymphocytes, forty-three per cent.; mononuclears and transitionals, three per cent.

**Examination of the urine** is entirely negative. Radiographic examination of the hands and feet by Doctor Hirsch shows an enlargement of the soft tissue of these members but there is no increase in the bony structures of either hands or feet, except that exostoses of the terminal phalanges are present to some extent. The periosteum covering the distal extremities of the long bones of the leg and of the forearm shows a marked zone of proliferation. Wassermann reaction negative. Patient had no rise of temperature while in the hospital and in a short time was entirely free from pain and willing to leave for home. He was given no treatment of any definite character, it being simply designed to keep him in the hospital for observation. Considerable cyanosis was constantly present in the extremities, and on exercise it also appeared over the thorax and abdomen, but with very slight tingeing of the face. Because of the characteristic changes in the extremities the case was diagnosed as one of pulmonary osteoarthropathy, but, unlike the instances previously observed, no primary pulmonary or mediastinal lesions could be definitely made out, although they were suspected. The patient gained weight constantly while in the hospital, ate his food well, and appeared to be perfectly happy and contented.

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FIG. 4.—Pulmonary osteoarthropathy. Case V.

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44 WEST NINTH STREET.

## TWO CASES OF LUETIC KERATITIS.

By JOSEPH E. BRAUNSTEIN, M. D.,  
New York.

Clinical Assistant, Diseases of the Eye, Beth Israel Hospital; Visiting Physician to the Jewish Home for the Aged and Infirm, Mount Vernon, N. Y.

These two cases seem to bear out previous experiences as to the ages at which luetic keratitis might have been looked for in the younger ones previous to our knowledge of the Wassermann reaction and the unreliable histories given by the parents, the conditions being unknown to them, or they would not commit themselves.

While we are able at the present time through a Wassermann reaction to establish lues as the positive etiological factor, we find difficulties even at present, for the parents will not permit you to take a specimen of blood for a Wassermann test from a child as in the case of patient, B. E., aged four, and even with difficulty unless you are dealing with a very intelligent person, will the parents allow you to draw blood from their veins.

Another point of interest is the relation existing between the severity of the case and the age of the patient. If conclusions can be drawn, it appears to me that, while the virus is apparently the same, the local symptoms vary according to the age, and if we are to continue to read Wassermann reactions by the number of plusses, then the Wassermann reaction will bear out the clinical pictures of these two cases.

Case I, Wassermann reaction of mother. +++  
Case II, Wassermann reaction of patient. +++  
Father of second patient says a Wassermann test from him was negative after a course of treatment.

CASE I. B. E., little girl, aged four years, apparently in good health; the mother had two children, and had aborted once. This history I was unable to obtain from her until I induced her to have a Wassermann test taken and then she admitted that she had aborted once, saying that she could not understand how she became infected, and asserting positively that her husband was never sick as far as she knew, and I could not induce her to bring her husband in to have a Wassermann reaction taken. Wassermann reaction of mother +++.

CASE II. M. K., young man, aged seventeen years, apparently in good health, thought he had a cold in the eye when he came to see me; personal history for venereal diseases was negative; I could not get a history from his father or mother for sometime, as they never called at my office, with the boy, but he consented to have a Wassermann reaction taken, the result of which was ++++. A few days later, suffering from pain, his father came to my office with him. I then learned from his father that he had had a chancre twenty-seven years ago, and had received a course of treatment for the same; a Wassermann test had been taken from him a few years ago and found to be negative; it is evident here that the mother acquired syphilis before conception, and hence the child was syphilitic.

*Clinical picture.*—The clinical picture of each case varied and it may be correctly so if the severity of the case can be considered according to the number of plusses, and so as to prognosis of total disappearance of the local corneal infiltrations.

CASE I (O. D.), subjective symptoms; photophobia, limited lacrymation; very little pain; interference with vision present. Objective symptoms: Cornea steamy; infiltrations scattered; ciliary injections very little; pupil dilated.

CASE II (O. V.). The subjective symptoms were marked photophobia; lacrymation; severe pain, and interference with vision. The objective symptoms were steamy cornea; infiltrations of larger size; marked ciliary injection, and little dilatation of the pupil.

*Treatment.*—Case I, internally—calomel, one eighth grain was given five times a day. Locally—atropine one per cent. solution, one drop in the eye, four times a day, with calomel powder, dusted in the eye once a day; unguentum hydrargyri oxidi flavi (one per cent.) applied locally once a day. Hot applications of a teaspoonful of boric acid to a glass of water, four times a day, locally. In addition to all other treatment, unguentum dinion five per cent. was used to increase the blood supply and cause absorption of the remaining infiltrations, which had a tendency to remain as macule.

CASE II. This patient I had to keep under observation and see at my office two and three times a day, as he was careless and, probably, unable to get some one to treat him properly, and he refused to stay in a hospital. Internally, I gave him pilula hydrargyri cum creta one grain every two hours. Locally, atropine solution four times a day; unguentum hydrargyri oxidi flavi (one per cent.), once a day locally; calomel powder, dusted in eye once a day; inunctions of mercury; and hot applications four or five times a day.

I advised the patient to enter the hospital that I might give him an injection of 606, which according to experience has a great effect upon external diseases of the eye by improving the photo-



phobia and lacrymation. The patient refused to stay in the hospital, after he was admitted, and I gave him intramuscular injections of salicylate of mercury once a week.

224 EAST ELEVENTH STREET.

## Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXXVII.—How do you treat threatened abortion? (Closed August 15th.)

CXXXVIII.—How do you treat insomnia? (Closed September 15th.)

CXXXIX.—How do you treat chancroids? (Answers due not later than October 15th.)

CXL.—How do you treat the symptoms of senility, without organic disease, but showing approaching dissolution? (Answers due not later than November 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXXVII has been awarded to Dr. W. C. Hess, of Cresco, Iowa, whose article appears below.

### PRIZE QUESTION CXXXVII.

#### THE TREATMENT OF THREATENED ABORTION.

By W. C. Hess, M. D.,  
Cresco, Iowa.

Success in the treatment of threatened abortion depends, largely, upon our ability to locate the predominating cause and to direct the treatment toward removing it.

There being so many different causes of the condition, necessitates widely different treatment in the cases as they appear in the general run of the doctor's practice.

When confronted with a pregnant woman, having colicky pains which come on at frequent intervals, a frequent desire to urinate, very little if any dilatation of the os (possibly admitting one finger), slight hemorrhage and headache, I give her from one half to three quarters grain of morphine hypodermically, which usually causes the pains to cease; then follow this in a few hours with from fifteen to twenty grains of sodium bromide in one drachm of fluidextract of viburnum prunifolium every three or four hours, for several days. Absolute quiet and rest in bed are insisted upon, until there has been an entire cessation of pain and hemorrhage for four days.

This far, I think, the treatment of threatened abortion, as conducted by the medical profession in general, is largely the same, but the prevention

of the recurrence of the original symptoms is the important part of the treatment. Here is where most of the mistakes are made, "mistakes of omission," I might say, for four out of every five patients are dismissed at this time, often only to return again at a future period; at the end of seven or twenty-eight days in my experience is a favorite time for the symptoms to recur. Therefore before dismissing the patient give her a thorough examination, striving to find the cause of the trouble.

If there is local irritation treat the cause of the irritation. Correct the acidity or alkalinity of the urine as the case may be; prohibit coitus; correct constipation with mild laxatives, cascara preferred, in the smallest dose, given three times daily, that is necessary to move the bowels regularly.

Prophylactic measures during pregnancy might be mentioned, such as keeping the parts clean and healthy by the use of baths and gentle tepid (not hot) douches from a fountain-syringe, with the tag elevated not more than two or three feet.

If the uterus is retroflexed, use the mildest means possible to correct the position, postural replacement, and if it fails to remain in proper position I use a small wool tampon just large enough to hold it in this position for from twenty-four to thirty-six hours. This may be repeated every three or four days for from four to six treatments.

Up to the present time I have had no bad results from the local action of the tampon; but common sense and judgment are necessary in the use of the tampon in cases of threatened abortion.

As about fifty per cent. of the cases of abortion occur at, or near, the third month, it is wise to use special caution at this time and have the woman kept quiet and, at the least sign of anything out of the ordinary, have her go to bed and remain quiet.

We often have women with increased sensitiveness to nerve stimulation, especially at the usual menstrual time. In these I find the use of suggestion, or a good plain talk, does them good.

Mechanical or thermic irritation must receive attention. Horseback riding, dancing, railroad journeys, straining, like lifting or reaching, running the sewing machine, etc., should be prohibited; also hot douches and, if douches are used at all, use tepid water, with the syringe bag hung low. Hot sitz baths and the use of the hot water bag should be absolutely prohibited.

Toxic irritation should be kept in mind, and the use of ergot, hydrastis, stypticin, and all of this class of drugs, if used at all, should be administered with great care. Personally I think they are contraindicated in threatened abortion. Diabetes and lead poisoning should be thought of and dealt with along general lines if present, not forgetting that the woman is pregnant. Pure fresh air is essential in this condition both day and night, keeping in mind that a pregnant woman has an excess of blood to aerate.

Anemia, if present, should be treated with organic preparations of iron, and during the pregnant state I find them easily taken.

Hyperpyrexia from any cause should be guarded against, and the proper use of cold water in the form of sponge bathing, or the cool pack, is better than any of the antipyretics.

Strumous women, suggestive of the tuberculous state, are usually anemic and here I use the same treatment as in anemia, adding an extra element of nutrition, possibly some of the standard preparations of codliver oil, and advising plenty of outdoor life.

Syphilis, which I encounter very seldom in a country practice, demands the use of the iodides. Here let me state that, in women nearing the menopause, and in those with considerable sclerosis or hyperplasia of the uterus, and having threatened abortion, the use of five grain doses of potassium iodide three times a day seems to cause much improvement.

Bacterial and placental toxins may account for certain cases of threatened abortion. In chorea gravidarum, threatened abortion several days after recovery from measles (barring dead fetus), hyperemesis (where the effort at vomiting is very slight and with little if any straining), and when symptoms of eclampsia exist, treatment by elimination is indicated and, as a rule, should be followed by the use of proper tonics. I do not hesitate to give epsom salts and calomel in these cases, and often with marked benefit. A certain number will, nevertheless, go on to the stage of inevitable abortion and have to be treated as such. I have had several patients, about seventy-five per cent., go on to full term after a carefully given course of elimination.

Psychic and reflex nerve irritation, like fright, mental shock, nasal operations, extraction of teeth, etc., should be guarded against. Quiet environment and palliative remedies should be used in these cases.

The treatment of threatened abortion is not so much the proper remedy for the condition *per se*, as it is a careful study of the individual case, striving at all times to find the cause of the trouble and directing the treatment accordingly.

A large proportion of the cases of threatened abortion, spoken of by the profession as a whole, should be placed in the criminal abortion list; this would eliminate a large amount of the sepsis in the true threatened abortion statistics and lower the mortality to quite an extent.

In my experience after you have eliminated the criminal or instrumental abortions from the threatened abortion list, by following general lines of treatment, and at all times making good use of your judgment and common sense, you will have little cause for worry when it comes to treating threatened abortion.

*Dr. J. H. Pritchett, of Louisville, Ky., remarks:*

In discussing the treatment of threatened abortion it is necessary to say a few words in regard to those patients in whom abortion has occurred once or more. These patients having aborted once, are likely to do so again; for that reason we should institute measures to guard against abortion as soon as the patient comes under our care. In this class of patients abortion is threatened and prophylactic measures will be of great aid in helping the patient throughout the period of pregnancy. Coitus should be absolutely forbidden, as I believe it is an important factor in producing an abortion.

Work and exercise to the point of fatigue should be prohibited, especially during those days when the menstrual periods would normally appear.

Long motor trips and even frequent short ones should be forbidden. The patient should be advised to lead a quiet life during the first few months of pregnancy.

When the symptoms present themselves, the patient should be confined to a quiet, dark room, placed in bed and advised to limit the body movements, the patient being on her back as much as possible. In the treatment, we should have in mind the following: 1. The anxiety and excitement of the patient. 2. The pain, produced by uterine contraction. 3. The hemorrhage. 4. The sequelæ.

1. Anxiety of patients.—By posture and quiet in a darkened room we tend to obtain both physical and mental rest. The diet should be restricted to liquids, and as few people as possible should be allowed in the room. Oftentimes sedatives must be used. The bromides are useful, also virburnum prunifolium. I have obtained excellent results from the following prescription:

R	Fluidextracti viburni prunifolii, . . . . .	℥ss.
	Fluidextracti hyoscyami, . . . . .	℥ss.
	Sodii bromidi, . . . . .	℥i.
	Elixir aromatici, . . . . .	℥iii.
	M. ft. solutio.	

Sig.: A dessertspoonful in a little warm water every three hours.

This can be repeated oftener if the case demands; however, few cases will need it oftener than three hours. After the patient becomes easier, the intervals between the doses should be from four to six hours.

2. The Pain.—By the administration of this prescription we hope to lessen the force and frequency of the uterine contractions. The pain usually is not severe. Should the patient be neurotic, or should the pain be severe, one quarter grain of codeine sulphate, either by mouth or hypodermically can be given; should this be inadequate, from one sixth to one quarter grain of morphine sulphate, hypodermically given, will be sufficient.

3.—Hemorrhage.—If the hemorrhage is no greater than that lost at the normal menstrual period we need not be alarmed. The rest, quiet, and sedatives, as before mentioned, will aid a great deal in controlling hemorrhage. Elevation of the foot of the bed helps a good deal. In my opinion cold compresses to the vulva and over the region of the uterus are contraindicated, as they tend to increase the uterine contractions. This line of treatment may have to be kept up for three or four days, and in the majority of cases the patient will respond nicely; however, should the hemorrhage increase and persist, then actual abortion must be thought of, and consultation be called and treatment should be as advised.

After the cessation of the symptoms the patient should return to normal living gradually, constant watch being maintained lest any symptoms return. Light but nutritious diet should be given. No drastic purgatives should be allowed.

4. Sequelæ.—The patient will feel weak and have but little energy. She should rest a good deal of the time especially during the first few days

after getting up. Often tonics will be indicated, the bitter tonics or some iron preparation being useful, our whole aim being to get the patient back to normal gradually and safely.

*Dr. Paul F. Ela, of East Douglas, Mass., states:*

Threats are remote or immediate in their significance. The remoter threats serve to put us on guard against possible dangers. Among conditions recognized as threatening in a pregnant woman, are physical defects and deformities, chronic diseases, like syphilis, tuberculosis, cardiac or renal lesions or the development of malignant neoplasms. More regional than general are deformities of the pelvis, and disturbed anatomical relations in the pelvic organs. Still more sinister are acute intercurrent fevers, and accidents causing violence to the organs of gestation and to the fetus.

The more remotely threatening of these conditions should be corrected if possible. When deformities exist they demand rectification in proportion as they are directly influential of the region of the pregnant organs and call for the exercise of gentleness and care in the same ratio. Where chronic disease exists it must receive appropriate treatment but discussion of particulars would demand more space than can be used here.

Acute fevers in proportion to their violence are dangerous to the fetus. The more severe are practically sure to terminate the pregnancy. In any case where a fever is found in a pregnant woman if recovery from the disease follows, the convalescence should be prolonged, and the patient kept in bed until it is certain that if abortion is to follow, it will result from the fact that the fetus is already destroyed by the fever, and not by quitting bed too soon. The same is true of accidental injuries. In proportion to the severity of the original injury should be the duration of the physician's aftercare when the immediate effects have subsided without destructive effects on the fetus.

When all the physician's knowledge suggests has been done to forestall the effects he fears, and in spite of his efforts there appears one or both of the symptoms of beginning expulsion—pain and hemorrhage—the only treatment is absolute rest of mind and body, in the care of the best nurse available. In fact, rest is the first and last treatment so far as the matter of threatened abortion is concerned no matter what measures are adopted to guard against the effects of deformity or disease.

Pain calls for morphine subcutaneously in doses sufficient to stop the pain. So long as hemorrhage does not supervene—one should be sure the hemorrhage is not "concealed"—abortion is not inevitable. On the other hand if hemorrhage appears as the first symptom absolute rest, supplemented with derivative measures may forestall the onset of contractions of the uterus.

If these measures do not suffice opiates and sedatives should be used in sufficient amount to quiet the circulation.

Unless the presence of feces in the rectum seems to cause discomfort, the bowels should not be disturbed. If the rectum must be emptied, it should be by a small enema.

Visitors should be excluded, unless they are as quieting in their effect as a good nurse.

Examinations should be gentle and restricted to the fewest possible. After the first one make none unless some symptom appears, which demands knowledge that is obtainable in no other way.

The patient's clothing should be loose and arranged so that she may be cared for with a minimum of disturbance. The bed should be comfortable, a firm mattress is best, and the covering suitable to the season. The room should be the best available, well lighted and ventilated, and so situated as to exclude noise.

The diet should be suited to the demands of the patient's system. In patients well nourished in the beginning, it would be better to err in the direction of starvation than the reverse. Foods which produce flatulence or other disturbances of the bowels should be especially avoided.

(To be continued.)

## Therapeutic Notes.

### Ovarian Therapy in Pulmonary Tuberculosis.

—Jaquerod, in *Revue médicale de la Suisse romande* for May, 1913, refers to the well known prejudicial influence of the menstrual periods on the pulmonary condition in women suffering from tuberculosis. The exacerbations, with fever and sometimes hemoptysis, noted at these periods, may occur either where there is dysmenorrhea or menorrhagia, where menstruation is temporarily suppressed, or where no menstrual disturbance whatever exists.

The author has found that the administration of dried ovarian substance to these patients is sometimes remarkably beneficial. He reports ten patients in which ovarian treatment, besides more or less promptly inducing regularity of menstruation where it had been irregular, caused complete disappearance of febrile reaction and hemoptysis at the periods, and even brought the tuberculous process in general, previously progressing unfavorably, to a standstill. In but few cases other than those of this series did ovarian treatment not yield some measure of benefit, and in none did it produce any harmful effects. The author points out that Wittgenstein showed in animals that ovarian medication caused a longer survival after infection with the tubercle bacillus, and in view of his own clinical observations, believes the drug deserving of recognition as a valuable symptomatic remedy in this disease.

The initial dose of dried ovarian substance prescribed by the author is 0.2 to 0.5 gramme (three to seven and one half grains) daily, continued for a month. Thereafter the patients take the remedy only during the eight or ten days preceding menstruation. In cases with hemoptysis, however, it is best to continue the drug, in smaller doses, throughout the menstrual period. As for the total duration of treatment, no definite law can be established. As a rule, where the untoward phenomena have not recurred for two or three months, the medication



can be discontinued, to be resumed later, if necessary. If the general antituberculous action of the remedy is to be utilized, the latter will, of course, have to be continued a long time—a year, or even longer.

**Treatment of Acne Vulgaris.**—Galand, in *Quinzaine thérapeutique* for May 25, 1913, states, concerning the local treatment of acne, that the patient should be required each morning to carefully wash the affected part with hot boiled water, in which boric acid and sodium bicarbonate have been dissolved:

R Acidi borici, ..... ȳ (30 grammes);  
Sodii bicarbonatis, ..... āā ȳi (30 grammes);  
Aque bullitæ, ..... Oii (1000 grammes).  
Solve.

After wiping with a dry, clean towel, absorbent cotton pledgets dipped in the following solution should be lightly applied:

R Aque coloniensis, ..... ȳv (150 grammes);  
Resorcinolis, ..... āā gr. lxxv. (5 grammes).  
Sulphuris loti, .....  
Misce.

In the evening, if the skin shows irritation, the parts should be moistened with boroglyceride and dusted with starch powder.

Brocq enumerates the following measures:

R Sodii bicarbonatis, ..... gr. v (0.3 gramme);  
Magnesii oxidii, ..... gr. iii (0.2 gramme);  
Rhamni purshianæ, ..... āā gr. ii (0.15 gramme);  
Betanaphtholis, .....  
Fiat cacheta No. i. Da tales No. xx.

Sig.: One cachet before each meal.

In the evening the parts should be washed with a naphtholated soap, followed by spirit of camphor.

A little of the following paste should be left on the lesions over night:

R Resorcinolis, ..... āā gr. iii (0.2 gramme);  
Saponis mollis, .....  
Betanaphtholis, ..... gr. v (0.3 gramme);  
Cretæ præparatæ, ..... gr. viiss (0.5 gramme);  
Sulphuris præcipitatæ, ..... gr. xxiii (1.5 grammes);  
Petrolati puri, ..... ȳv (20 grammes).  
Misce et fiat unguentum.

The amount of petrolatum in this preparation is to be increased or diminished, according to the effects produced.

In the morning, after the ablutions, the following mixture should be applied to the face:

R Sodii boratis, ..... ȳiiss (10 grammes);  
Aetheris, ..... ȳiiss (46 grammes);  
Camphoræ, ..... ȳi (4 grammes);  
Aque rosæ, ..... ȳiii (90 grammes);  
Aque distillatæ, ..... ȳv (150 grammes).  
Fiat mistura.

Sig.: For local use.

Galand emphasizes the fact that preparations containing resorcinol or sulphur, both of which tend to produce desquamation, should be employed with some degree of caution. In the simpler forms of acne warm boric or borated lotions, or lotions containing sodium bicarbonate, are of great service.

Milk with two per cent. of aluminum sulphate added has proved curative in the author's experience.

Enucleation of the pustules and comedones is sometimes advisable.

### Treatment of Poisoning by Neosalvarsan.

H. W. Bayly, in the *Lancet* for May 24, 1913, reports the case of a young man with primary syphilis, and otherwise healthy, in whom energetic treatment with neosalvarsan and mercurial cream injections, the former given in pairs of injections at intervals of only forty-eight hours, caused a febrile reaction and obstinate vomiting. The vomitus having been tested for arsenic, which was found in it in considerable amounts, plenty of barley water was ordered for the patient, with the idea that what he absorbed would assist in washing out the kidneys and the remainder, being vomited, would remove the arsenic excreted by the stomach. After four days, however, as the vomiting persisted and the patient was becoming extremely weak, a change was made, at the suggestion of C. Ogle, to two-hourly feedings of a mixture of milk and albumin water, commencing with doses of one ounce, to be increased in frequency and quantity if the vomiting stopped. This treatment had the desired effect, and after twelve hours the vomiting had ceased.

### Treatment of Gouty Manifestations.

Debout in *Paris médical* for February 22, 1913, is credited with the following combination, to be given in gouty migraine:

R Extracti colchici cormi, ..... āā gr. xlv (3 grammes);  
Quininae sulphatis, ..... ȳiiss (1.3 grammes);  
Pulveris digitalis, ..... gr. xxiii (1.5 grammes).  
M. fiant pilulæ no. xxx.

Sig.: One pill every evening.

For the relief of acute attacks of gout, the following may be administered:

R Quininae sulphatis, ..... gr. xlv (3 grammes);  
Fluidextracti aconiti, ..... ȳiiss (1.3 grammes);  
Extracti colchici cormi, ..... gr. viiss (0.5 gramme);  
Extracti belladonnae foliorum, gr. iii (0.2 gramme).  
M. fiant pilulæ no. xx.

Sig.: From one to four pills a day.

### Treatment of Headache in Children.

Gaujoux, in *Presse médicale* for May 7, 1913, is stated to have found that obstinate headache in eleven children was due solely to insufficiency of thyroid secretion. In eight cases there were other signs of hypothyroidism, such as palpebral edema, anorexia, constipation, somnolence, and pains in the muscles and joints, but the remaining three presented a normal appearance. After a systematic study of the symptoms, with resulting exclusion of all the more usual causes of headache in children, one should without delay resort to the therapeutic test consisting in the administration of a thyroid preparation. A daily dose of from one third to three quarters of a grain (0.02 to 0.05 gramme) may be given without risk.

**Treatment of Itching in the Presence of Jaundice.**—L. Aldor, in *Nouveaux remèdes* for January 24, 1913, is credited with the following lotion, to be employed for the purpose mentioned:

R Resorcinolis, ..... āā gr. xv (1 gramme);  
Mentholis, .....  
Hydrargyri chloridi corrosivi, gr. iii (0.2 gramme);  
Glycerini, ..... ȳlxxv (20 grammes);  
Aque coloniensis, ..... ȳiii (100 grammes);  
Alcoholis, ..... ȳxv (400 grammes).

M. f. solutio.

Sig.: To be used as a wash.

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THE NEWER METHODS FOR THE DIAG-  
NOSIS OF PREGNANCY.

The classic signs of pregnancy not infrequently prove misleading and sometimes only furnish positive information late in the course of the process when, perhaps, the condition no longer requires a trained diagnostician for its determination. During the last few years, numerous methods calculated by their advocates to afford an early and certain diagnosis have been vouchsafed. The antitryptic test of Jachmann, Rosenthal, and others; the miostagmin reaction of Ascoli; the epiphanin test of Mosbacher are examples. Unfortunately, the complexity of these procedures, the inordinate cost of the apparatus required, and the skill demanded to carry them out have so far restricted their employment to too few observers to render possible a determination of their actual value in practice. Much the same drawback applies to the complement fixation test of Fieux and Mauriac, which requires, as antigen, an extract of a placenta derived from an early therapeutic abortion, a source which can only be available at best in large hospitals or maternities. Though requiring somewhat expensive apparatus, another method, that of Abderhalden, of the University of Halle (*vide Hoppe-Seyler's Zeitschrift für physio-*

*logische Chemie*, lxxvii, fasc. 4), is deemed less complicated. It is a polarimetric method applied to placental peptone which when used with adequate precautions and proper materials is said to give very satisfactory results, though, according to Bollafia (*Pathologica*, v, No. 11) it seems more reliable to affirm the existence of pregnancy than to denote its absence. A case reported by Veit (*Zeitschrift für Geburtshilfe und Gynäkologie*, lxxii, No. 2, 1913) emphasizes, however, its value on the positive side of the question, and indicates precisely where any such diagnostic method, if reliable, assumes vast importance, particularly in the protection of the innocent. In Veit's case, the patient, a young unmarried woman, presented the major signs of pregnancy, much to the detriment of her reputation. Abderhalden's test having excluded pregnancy, Veit boldly opened the uterus and found therein a large myoma, which he removed. Although with Bollafia he does not deem the test absolutely reliable, he nevertheless regards it as a distinct acquisition, not only for the diagnosis of pregnancy, but also of tubal pregnancy, chorioepithelioma, and neoplasms of the ovaries and tubes. This belief would seem to be invalidated, however, by the fact that Engelhorn (*Münchener medizinische Wochenschrift*, March 18, 1913) found that normal serum was capable of dissolving carcinomatous tissue, but Franz and Jarisch (*Wiener klinische Wochenschrift*, September 26, 1912) showed that the trypsinic digestive activity of the serum of twenty-six pregnant women was 0.8 or 0.9 as compared to 0.4 or 0.5 in nonpregnant individuals, and, moreover, that the index was also unusually high in cases of cancer. On the whole, when all possible sources of error will have been ascertained and corrected, it is probable that out of the many diagnostic methods recently proposed, one or more may prove of undoubted value.

## ORAL SEPSIS AND ITS DANGERS.

Until comparatively recently the serious consequences likely to result from septic oral conditions were not at all adequately appreciated. Thus, for instance, pyorrhœa alveolaris was generally thought of as simply an offensive local disorder, and as the not frequent source of systemic infections, sometimes mild and sometimes of the gravest character. During the past few years, however, the subject has attracted considerable attention, and various writers have shown the probable, if not positive, causal relationship of oral sepsis to irregular febrile disturbances, aural disease, serious forms of anemia, arthritic affections, and other pathological conditions. It has been asserted, on apparently reason-

able grounds, that infected teeth may be the cause of various neuroses and psychoses, and not long since Joseph Collins published some experiences which had convinced him that serious organic disease of the nervous system may originate from Riggs's disease.

The last paper written by the late Dr. Francis P. Kinnicutt, which he read at the meeting of the Practitioners' Society of New York, was on the subject of oral sepsis. In this he especially emphasized the fact that local symptoms of pain and discomfort are often insignificant, while the local signs, on superficial examination, seem inadequate to explain the systemic disturbance. The obvious local signs may consist in no more than caries of one or several teeth, a contiguous gingivitis, and not infrequently an associated diffuse pyorrhœa alveolaris of varying intensity. It has apparently been demonstrated, however, that the microorganisms of dental caries are particularly virulent, and it is only the natural resistant powers possessed by the tissues of the mouth which prevent their effects from being more commonly disastrous. His experience, he states, has been wholly in accord with that of Munter, who has published various communications upon the subject, showing that many slight, ill defined disturbances of health, as well as grave systemic disturbances, may be traced to oral sepsis. In addition to cases which he reports in detail, he refers to one of severe oral sepsis associated with grave anemia and combined sclerosis of the cord which had recently been under his observation at the Presbyterian Hospital.

Notwithstanding all that has been written in regard to the matter, it is to be feared that even now the dangers of oral sepsis are not as generally appreciated as they should be by the profession, to say nothing of the public at large. Dentists have been laying much stress upon the importance of "clean mouths," but at the same time there is reason to believe that in a considerable proportion of instances the oral sepsis is directly attributable to their own crown and bridge work, now so much in vogue; presenting, as it does, a constant *nidus* for possible infection. After all, the great point to be striven after is prevention, and the most encouraging feature of the present situation is the recognition of the detrimental effect of oral sepsis upon the physical and mental development of the child, and the consequent increasing attention which is being paid to the care of children's mouths. Thus, in New York the Bellevue and Allied Hospitals have for the past five years maintained dental departments, and there are similar departments in the various dispensaries of the city and the Health De-

partment clinics for school children in the different boroughs, while that in Richmond is dental exclusively.

#### MERCURIC CHLORIDE TABLETS.

The increase in the number of deaths due to the inadvertent use of mercuric chloride tablets has been taken cognizance of by the American Pharmaceutical Association in resolutions recommending that these tablets shall be given a distinctive color and shape and sold at retail only in glass containers. As a matter of fact there are other antiseptic agents which are fully as efficacious as this one, without being so dangerous, and there is no real need for the popular use of these tablets at all. But in this matter it is a condition and not a theory which confronts us. Whether it is right or wrong, the public does use bichloride tablets, either with or without the advice of a physician. It is well, therefore, that proper steps should be taken to minimize as much as possible the danger of their inadvertent administration.

Some months ago we pointed out the fact that a number of these accidents would probably have been prevented had the bichloride tablets been made up in some unusual form, such, for instance, as a triangle. The suggestions hitherto made for safeguarding bichloride of mercury tablets have been restricted to warning through two of the senses, the sight and the touch. The taste and the sense of smell may likewise be enlisted by the addition to these tablets of substances which are either repulsive in themselves or suggestive of danger. The addition of a small proportion of quinine would warn the innocent taker that the tablet is not an ordinary "headache" tablet, while the addition of phenol, of a cresol or of some very offensive substance such as pyridine would likewise give warning through the sense of smell. The objection to pyridine is that its presence might be offensive when the tablets are being used for legitimate purposes under the direction of a physician. Moreover, pyridine has no particular association in the public mind with poisonous qualities. Carbolic acid, or one of the phenol group, would be less disagreeable and would also have the advantage that the phenol odor is generally associated in the public mind with toxic qualities, so that the patient picking up a bichloride tablet would be at once warned by the phenol odor of its probable toxicity.

All four senses could readily be appealed to in safeguarding the public against the inadvertent use of these dangerous tablets without entailing any particular hardship upon the manufacturer. The following suggestion offered by the *American*



*Druggist* seems to furnish a combination of safeguards which would do all that is possible to prevent people from taking these tablets inadvertently. Incorporate small quantities of quinine, of pyridine or cresol, and of soluble blue, make in the form of a triangle, stamp the word "poison" on each tablet, wrap each separately in green paper, and dispense only in glass containers with a rough exterior. The adoption of the blue color is a good idea since no medicine except methylene blue and few or no confections are colored blue. By wrapping each tablet separately in paper the attention of the consumer will undoubtedly be arrested. Red would be a better color for this, however, than green, as red is already associated in the public mind with poison. We would also suggest that the word "poison," or better still, a skull and crossbones be printed on the exterior of the individual wrapper in white letters. These precautions would add to the cost of the tablets, but, since they are used in small quantities only, this would be of no great consequence. It is, of course, impossible to prevent would be suicides from resorting to the use of these tablets. No precaution can prevent this, but such precautions as are outlined above would be effective in preventing poisoning from them by inadvertence.

#### PENNSYLVANIA'S INSANE ASYLUMS.

The State and county asylums of Pennsylvania were roundly criticized by several speakers at the recent meeting of the Pennsylvania State Medical Association which took place in Philadelphia last week. Dr. William K. Walker, a prominent Pittsburgh alienist, denounced the housing and care of the insane of the State as barbarous, inhuman, and worthy of the dark ages. Under the politically controlled system to which they were subjected, the inmates were deprived of proper food, clothing, and bed covering. They were herded together under conditions which rendered the proper treatment of their mental disease impossible, while the brutality of their keepers was condoned by physicians and unpunished by the courts. Both the speaker and another alienist, Dr. Edward F. Mayer, attributed the morbid results in many of the patients, and the resulting accumulation of insane subjects, to the neglect and archaic system in vogue in these institutions, a large proportion of patients being curable under modern methods when these were judiciously utilized. An urgent plea was made to remove all institutions beyond political control, i. e., beyond the cupidity of officials.

Unfortunately, there is a material difference be-

tween denouncing and the carrying out of measures calculated to correct existing conditions. Medical men often protest but fail to act, and the morrow will efface the plea as the wind effaces initials on the sand dunes!

#### A SO CALLED SOCIOLOGICAL PLAY AND THE MEDICAL PROFESSION.

We believe that we are voicing the feelings of at least the bulk of the medical profession in protesting most emphatically against the production of a certain drama, which is asserted to have received the endorsement of medical men. The desire to produce real sociological plays before a selected audience, or even before the general public, is certainly praiseworthy, but if there is put on the stage, under the guise of such a plea, a performance which antagonizes the laws of Nature, such an action becomes criminal. Last autumn, a play was staged with the view to enlighten the public on certain sociological questions, but it fell short of its aim; we do not speak of the acting, for we are not critics of the histrionic art, but we lay claim to being judges of sociological projects. The company which first introduced that play has made public in the *New York Times* of September 29th an outline of a coming drama which seems to deal only with the question of the limitation of offspring and the legalization of illegitimate children. The example given in the play is very poorly selected, and to make this example the basis for the plea of limiting child-births shows very plainly the wrong direction which these so called eugenists seem to take. There are exceptional cases where a woman should not bear children, but these are relatively rare. A representative of the German socialistic party, Doctor Moses, proposed only lately the limitation of the number of children, but he was absolutely opposed by the saner members of his party, and by the German public. The views of the Catholic Church on this subject are beautifully expressed by Andrew Klarmann in *Crux of Pastoral Medicine*, which appeared in 1905.

Furthermore, it is not a question whether such a drama will appeal to the depraved sense of a certain class of theatergoers. The unfortunate situation is, so far as the medical profession is concerned, that the promoters of this drama assert that the play is endorsed by some of the leading men of the medical profession in America. We hope that the physicians who appear as endorsing the play will lose no time in withdrawing their names as its sponsors.

## THE NOMENCLATURE OF TUBERCULIN DOSES.

J. Alfred Codd remarks in the *Lancet* for August 30, 1913, that it is an elementary psychological fact that the human mind cannot grasp fractions so readily as it can multiples, and of all the fractions in use by the physician that of the tuberculin dose is one of the greatest difficulty, running as it does into many decimal places. As a remedy for this difficulty he suggests the resort to two new and small units. The first has been used by others and is the cubic millimetre. The second is an original suggestion of Codd's and is to designate the one thousandth part of a cubic millimetre as a *psilon*. The name may be translated as a shred, an atom, or a residue. Its initial letter (in Greek) has not already been appropriated to numerical nomenclature. Therefore we would have 1,000 *psilons* = 1 cubic millimetre, and 1,000 cubic millimetres = 1 cubic centimetre. Fractions are thus obviated, and the smallest tuberculin doses may be expressed as *psilons* or multiples of the *psilon* until the cubic millimetre is reached within this unit and its multiples are then appropriate. Codd also advocates the expression of tuberculin doses in terms of cubic centimetres or their fractions, as already indicated, rather than in terms of milligrammes of the original substance, thus further simplifying the terminology greatly and rendering it more rational.

## A CASE OF PELLAGRA TREATED WITH SALVARSAN.

D. W. Kelly, reporting in the *New Orleans Medical and Surgical Journal* for August, attributes to salvarsan the recovery of the patient, in this case a woman who had become ravingly insane, and was so emaciated that she weighed but seventy-five pounds. He gave her three grains of salvarsan intravenously June 11, 1912, and continued the administration, at intervals of ten or fifteen days, and in gradually increased doses, until August 1st, on which date he gave her the fifth and last dose, with the maximum amount—nine grains. By autumn she had completely recovered. Her mind is perfectly restored, and she now weighs 175 pounds.

## Obituary.

### WILLIAM JOHNSTON BEATTIE, M. D.,

of Littleton, N. H.

Doctor Beattie was killed on Friday, September 26th, in Bretton Woods, by an automobile, as he tried to cross the road. He was thrown several feet and his skull was fractured. He died instantly. Born in Rye Gate, Vermont, in 1865, he received his medical education at the Bellevue Hospital Medical College of New York, from which he was graduated in 1889. After two years of internship in Bellevue Hospital, he went to Littleton, N. H., where he practised during the summer, returning in the winter season to New York. During the spring of 1912 he attended clinics in Vienna and Berlin, in which latter city he studied at Piorkowski's laboratory and thus became acquainted with Piorkowski's treatment of tuberculosis with turtle vaccine. Doctor Beattie was an esteemed contributor of our JOURNAL.

## News Items.

**Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.**—Monday, October 6th, Will's Hospital Ophthalmic Society, Academy of Surgery, and the Philadelphia Clinical Association; Tuesday, October 7th, Aid Association of the County Medical Society, directors; Wednesday, October 8th, County Medical Society; Thursday, October 9th, Polyclinic Ophthalmic Society and the Pathological Society; Friday, October 10th, Northern Medical Association.

**Officers of the American Physicians' Study Travels.**—At the Minneapolis meeting of this organization the following officers were elected: Presidents, Dr. James M. Anders, of Philadelphia, Dr. William J. Mayo, of Rochester, Minn., Dr. Llewellyn F. Barker, of Baltimore, and Dr. Rudolph Matas, of New Orleans; secretary general, Dr. Albert Bernheim, 1225 Spruce Street, Philadelphia; department directors: Finance, Dr. L. Webster Fox; travel recorder, vacant; publicity, Dr. Alfred Stengel; postgraduate work, vacant; travel manager, Dr. E. E. Montgomery.

**Missouri Valley Medical Society.**—At the twenty-sixth annual meeting of this society, held in Omaha, Neb., on Thursday and Friday, September 18th and 19th, the following officers were elected to serve for the ensuing year: Dr. Flavel B. Tiffany, of Kansas City, Mo., president; Dr. Granville Ryan, of Des Moines, Iowa, first vice-president; Dr. Austin McMichael, of Rockport, Mo., second vice-president; Dr. O. C. Gebhart, of St. Joseph, Mo., reelected treasurer; Dr. Charles Wood Fassett, of St. Joseph, Mo., reelected secretary. The next meeting of the society will be held in Lincoln, Neb.

### The Reporting of Venereal Diseases in Pennsylvania.

—The House of Delegates of the Medical Society of the State of Pennsylvania, at the annual meeting of that organization held in Philadelphia last week, adopted a resolution endorsing a proposition presented by Dr. Edward Martin, of Philadelphia, to make venereal diseases reportable to the health authorities of the State in the same manner that other communicable diseases are reported. The resolution was adopted without a dissenting vote, and the action of the governing body was communicated to the members of the society at a later session.

**New York Neurological Society.**—The next regular meeting of this society will take place at the Academy of Medicine, on Tuesday evening, October 7th. Clinical cases will be presented by Doctor Karpas, Doctor Klimenko, and others, and there will be a discussion on the intraspinal (Swift and Ellis) method for the treatment of metasyphilis (paresis) by Dr. W. Hough, clinical pathologist to the Government Hospital for the Insane, Washington, D. C., Dr. J. A. Fordyce, of New York, Dr. Henry Cotton, of Trenton State Hospital, Dr. Homer Swift, Dr. A. W. N. Ellis, and others. Dr. Smith Ely Jelliffe is president of the society, and Dr. C. E. Atwood is secretary.

**In Honor of the Late Doctor Leonard.**—Out of respect for the memory of the late Dr. Charles Lester Leonard, of Philadelphia, who died in Atlantic City on Monday, September 22d, a martyr to his devotion to science, the Medical Society of the State of Pennsylvania, which met in annual session in Philadelphia last week, adjourned for thirty minutes on Thursday afternoon, at the time when the body of Doctor Leonard was being carried to its last resting place. In presenting the resolution to adjourn, Dr. Lawrence Litchfield, of Pittsburgh, characterized Doctor Leonard as the most prominent member of the association. Formal resolutions on his death were adopted by the society.

### A Course in Sex Hygiene at New York University.

—Announcement is made by the chancellor of New York University that on October 10th a course in sex hygiene for teachers will be inaugurated at the School of Pedagogy of the institution. The course will consist of ten one hour lectures, given on alternate Saturdays at 11:15 a. m. The aim of the course will be to give teachers a knowledge of the facts and principles constituting the matter of such instruction. The question of method will be treated only incidentally, and will form the special topic of a similar course to be given next year. Dr. Edward L. Keyes, Jr., Dr. Rosalie Slaughter Morton, Dr. George W. Hunter, and Dr. Thomas M. Balliet will be the lecturers.

**Examination of Candidates for Assistant Surgeon United States Public Health Service.**—Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, Washington, D. C., and at the Marine Hospitals of Boston, Mass., Chicago, Ill., St. Louis, Mo., New Orleans, La., and San Francisco, Cal., on Monday, October 20, 1913, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the United States Public Health Service, when applications for examination at these stations are received at the bureau. Candidates must be between twenty-three and thirty-two years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character.

**Society of Sanitary and Moral Prophylaxis.**—The first regular meeting of this society for the season of 1913-1914 will be held on Thursday evening, October 9th, at 8:30 o'clock, at the New York Academy of Medicine. Dr. Edward L. Keyes, Jr., president of the society, will present a report of progress, and a report of the lecture work done under the auspices of the society will be presented by the secretary, Dr. Henry P. de Forest. A brief financial statement will be submitted by the treasurer, Dr. Andrew J. Gilmour. The paper of the evening will be read by Dr. Richard C. Cabot, of Boston, his subject being *Are Sanitary and Moral Prophylaxis Natural Allies?* A discussion will follow, among those who will participate being Mr. Robert Fulton Cutting, president of the New York Association for Improving the Condition of the Poor, Professor Maurice A. Bigelow, of Teachers College, Columbia University, and Dr. Luther H. Gulick, secretary of the Camp Fire Girls' Association. The meeting is open to the public.

**The Medical Society of the State of Pennsylvania.**—The sixty-third annual meeting of this society was held in Philadelphia on Tuesday, Wednesday, Thursday, and Friday, September 23d, 24th, 25th, and 26th, under the presidency of Dr. Lewis H. Taylor. The first three days were devoted to the transaction of business and the reading and discussion of scientific papers, Friday being devoted to clinics and social pleasures. The papers presented were of an unusually high order of excellence, and many interesting and important points were brought out in the discussions. There was a large attendance and the meeting was in all respects a very successful one. Officers for the ensuing year were elected as follows: President, Dr. E. B. Heckel, of Pittsburgh; first vice-president, Dr. Henry D. Jump, of Philadelphia; second vice-president, Dr. J. B. Amberson, of Pittsburgh; third vice-president, Dr. J. H. Wilson, of Philadelphia; fourth vice-president, Dr. J. H. B. McMurray, of Washington; secretary, Dr. C. Lee Stevens, of Athens; assistant secretary, Dr. William H. Cameron, of Pittsburgh; treasurer, Dr. George W. Wagoner, of Johnstown. Next year's convention will be held in Pittsburgh.

**Personal.**—Professor Morris Jastrow, of the University of Pennsylvania, sailed for England on Saturday, September 27th, in response to an invitation from the Royal Society of Medicine of England to deliver a lecture on the History of Early Medicine.

Dr. M. B. Hartzell succeeds Dr. Jay F. Schamberg, resigned, as assistant diagnostician and consultant to the Bureau of Health of Philadelphia.

Dr. Walter Benschel retired on October 1st as sanitary superintendent of the Department of Health of the City of New York, after occupying that post for five years, and after a total of twenty-one years' service in the department. Doctor Benschel retires on a pension.

Dr. Robert C. Parrish, of Philadelphia, has been appointed successor to Dr. Ralph H. Spangler as medical supervisor of the public schools of Philadelphia.

Dr. Leonard W. Ely, of Denver, has been appointed associate professor of orthopedic surgery at Stanford University, and Dr. Ralph W. Majors, instructor in pathology at the same institution.

Sir James Grant, of Ottawa, was made an honorary life member of the Canadian Medical Association, at its recent annual meeting held in London, Ontario.

Dr. Charles F. Nassau has been appointed professor of applied anatomy at the Jefferson Medical College, Philadelphia, succeeding the late Dr. George McClellan.

## Pith of Progressive Literature.

### CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE.

August 2, 1913.

**Diagnosis of Sudden Perforation of a Gastric Ulcer.**—Hans Ryser reports six cases of this nature, three in men and three in women. The first symptom in all was sudden, intense pain, with actual collapse in only two. The pain and tenderness was referred by most of them to the site of the perforation, but some referred it to the ileocecal region, especially when some of the contents of the stomach had escaped through the perforation. The physician usually finds the patient on his back in bed, complaining of very severe pain in his abdomen. His great suffering is mirrored on his face, which is pale and covered with a cold sweat. A few hours later spots of red appear on his face, indicating a commencing peritonitis. When the face and extremities are very cyanotic we know that the intoxication of the body is far advanced. The pulse may be good and strong for several hours, or it may become rapid and small at once. The temperature likewise exhibits nothing characteristic, within the first twenty-four hours it may be subnormal, normal, subfebrile, or febrile. The breathing is rapid and shallow, almost wholly costal, for deep respiration is very painful, hiccough generally appears later, but it was observed within a few hours in one case. A history of gastric trouble is of great assistance in making the diagnosis, especially when typical symptoms of gastric ulcer have been present; the situation is much more difficult when no such history can be obtained. The principal diagnostic signs are therefore the sudden, unexpected onset of severe pain in the region of the stomach, the dangerously ill expression of the countenance, the rapid costal respiration, together with the history of symptoms of a gastric ulcer.

August 5, 1913.

**The Medicamental Treatment of Diabetes Mellitus.**—Adolf Preiswerk finds by experimental research that the tincture of opium reduces the excretion of sugar and of acetone in the ordinary diabetes of men, in the phloridzin diabetes, and in the experimental pancreas diabetes.

August 20, 1913.

**A Case of Acute Dilatation of the Stomach.**—R. Stierlin reports the case of a ten years old boy who had been under observation for three years. Finally his stomach became enormously dilated with extremely threatening symptoms, and laparotomy was performed. The stomach was enormously dilated, but otherwise nothing wrong with it was found; the pylorus was fairly wide and so was the beginning of the duodenum. The jejunum on the contrary was much contracted, the ileum very thin and empty. Some adhesions were found in the region of the hilus of the liver, the apex of the gallbladder was adherent to the duodenum. In the mesojejunum were two cheesy glands as large as hazel nuts. During the various manipulations the jejunum began to fill, but gastroenterostomy was performed for fear of a relapse. The result



was excellent. The vomiting ceased, the stomach regained its normal size, and the patient recovered rapidly.

#### DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

August 7, 1913.

**Dietetic Treatment of Constipation and Diarrhea.**—H. Strauss presents an outline of two kinds of diet, one free from cellulose suited to inflammatory conditions and the other rich in cellulose for the asthenic or torpid form of constipation. A diet for constipation should have for its object the bringing about of mechanical irritation, to increase peristalsis, and at the same time possess the property of increasing the watery content of the feces. Foods which give rise to fermentation of carbohydrates, as purée of apples, prunes, fruit juices, stewed fruit, fruit jellies, buttermilk, milk sugar for sweetening lemonade and fruit juices, honey, lenulose, and a certain quantity of fat, cream, or sauce, mayonnaise, etc. To increase the fluid content, agar is suitable. Agar diet in the form of jellies as wine, lemon, coffee, cream, chocolate, etc. The preparation of agar combined with cascara, called regulin, is a suitable cathartic. Rye bread, graham bread, Tyrol fruit bread, salads, coarse vegetables, marmalades, cucumbers, tomatoes, celery, beans, vegetables as cabbage, which cause flatulence, are to be omitted. Cold water on an empty stomach is of advantage; waters rich in carbonic acid, unfermented grape juice, and light beer are useful. The author believes that for constipation, due to neurasthenia, the withholding of meat for a time is a benefit. Nourishment possessing astringent qualities should be omitted. On the other hand, a diet with astringent properties is desirable for the treatment of chronic diarrhea. It must be nonirritant and yet sufficiently nourishing. No cellulose, nor coarse fibred food, nor elastic tissues, should be used for the irritated intestines of chronic diarrhea. Articles allowed are chocolate, claret, whortleberry wine, tender meats, as birds and chicken. Butter is valuable where there is no pancreatic disturbance or fat indigestion. Patients with diarrhea are usually sensitive to cold, therefore attention should be given to the temperature of the diet.

**Pineal Gland Extract in Country Practice for Obstetrics.**—K. Wolf asserts that in from three to five minutes after an injection of pineal gland extract, strong pains with sufficient intermissions ensue, and that these pains are more easily borne than those which occurred before the injection. The pineal gland extract is not capable of furnishing new muscle tissue, and for this reason there will always be patients for whom forceps will be indicated. It corrects a functional disturbance of the organ and spurs the muscle tissue to the extent of its action. Injurious or unpleasant after effects are probably rare. The use of pineal extract is therefore to be recommended.

August 14, 1913.

**Hydrotherapeutic Treatment of Lung Tuberculosis.**—F. Köhler summarizes his treatment as follows: Contrary to cold water treatment as has been practised, hot water applications, recommended in tuberculosis and also for patients with fever, have been neglected. Hot water bandages, hot sitz

baths and full baths of five minutes duration, are indicated in pulmonary tuberculosis, where there are no pronounced hemorrhages. Especially in anemia and rheumatic tendencies they prove most grateful. They also make expectoration easy and often abort fever. They may be used as an alternating treatment to the giving of antipyretics and dry, hot packs where weakness and tuberculosis have not advanced too far.

**Secalysatum.**—Brömel states as a result of his experience and that of A. Loewy that secalysatum has not only all the beneficial constituents of ergot contained in one fourth of the volume of ergot, but in addition it contains a certain proportion of cotarninum hydrochloratum. The combination is palatable and easily taken. Some of the poisonous constituents are removed from the secale. The author testifies to its ability to stop bleeding and prevent hemorrhages due to inadequate contractions of the uterus.

August 21, 1913.

**Epiphysitis Tibialis Dissecans Traumatica Adolescentium.**—Ebbinghaus concludes as follows: A traumatic ailment of one or both knees may arise during adolescence in otherwise healthy children of both sexes. The affection is more frequent than is generally supposed. A better and more intimate acquaintance with this ailment is urged. The possibility of its presence up to the sixteenth year should be borne in mind. Since its presence can only be positively diagnosed by the Röntgen ray, this should be applied in all doubtful cases. The ailment is anatomically and pathologically designated as epiphysitis. It is best treated surgically by removing the inflamed part of the epiphyseal prolongations and treating the loose separated parts of the same. This procedure is not serious when performed under local anesthesia. Healing is accomplished in about three or four weeks, when, as shown by the Röntgen ray, anatomically, normal conditions ensue. In spite of the usefulness of gymnastics and sports for the bodily and mental development of youth, the author does not consider force jumping of distances, excessive mountain climbing, especially in very great altitudes, nor football playing, etc., desirable between the ages of twelve and sixteen years. All training in these sports should be omitted during the adolescent period.

**Experience with New Borneval.**—Engelen states from his clinical experience the effects of new borneval, that the new form of the remedy is more easily assimilated; its sedative effects are as marked as those of the older preparation, in hysteria, neurasthenia, or nervous restlessness, as a result of overexertion, etc. The author found that it had a decided influence over cardiac neuroses, especially the subjective symptoms of palpitation, fear, etc. One can easily confirm the decrease in nervous heart excitation by simply palpating the pulse. The volume pulse curves recorded by means of a pneumatic apparatus show that new-borneval acts most favorably on nervous circulatory disturbances.

August 28, 1913.

**A Contribution to the Rhachitis Question.**—M. Kassowitz speaks of the nervous irritability of children of the present day. Although the ailment of

spasmophilia is proclaimed as being independent of rickets, both are said to arise from imperfect lime assimilation which brings about either an oversupply or just the reverse—a deficiency of lime in the body fluids. These directly opposite anomalies are supposed to have the same effect; namely, an increased irritation of the muscle nerve apparatus. The author emphasizes that the most frequent developments of excessive nerve excitation—namely, excessive diaphoresis and sleeplessness in spasmophilia—are not to be controlled, while neither one nor the other can be designated as a spasmodic symptom. For this reason there is nowhere in the voluminous literature on spasmophilia any mention of the excessive diaphoresis or of sleeplessness in rickets. Under treatment by phosphorus emulsion (not codliver oil) the bones became hard and the nervous disturbances quickly disappeared.

**Increased Glycuronic Acid Excretion in Infantile Tetanus.**—Paula Freund reports a case of spasmophilic diathesis in an infant, five months old. There were typical spasms of feet and hands, facial phenomena, a feeling of great fear, and a slight elevation of the temperature. Malt soup, in quantities, suited to its weight, was given as its diet. Milk diluted with water to one half was given for one day; the day after there was no excretion of glycuronic acid in the urine. Since glycuronic acid is probably an intermediate product in the metabolism of carbohydrate nourishment, it follows that in this patient having a pronounced spasmophilic diathesis the metabolism of a diet relatively rich in carbohydrates, as malt soup, increased the excretion of glycuronic acid.

#### ZENTRALBLATT FÜR CHIRURGIE.

August 9, 1913.

**Repair of Large Defects in the Diaphragm, Chest Wall, and Pericardium by the Transplantation of Flaps of Fascia.**—K. Henschen finds experimentally that it is possible, while working under differential air pressure, to close large defects in the places mentioned, and he believes that the same can be done clinically.

**Fixation of the Kidney with a Free Flap of Fascia.**—Ernst Cordua passed a broad strip of fascia through the capsule of the kidney, tunneling beneath it for about half the width of the organ, so as to fasten it in place without sutures. This differs from Kocher's operation in that in the latter the strip of fascia is secured to the capsule by sutures.

**Improvement of Lotheissen-Foederl's Radical Operation for Femoral Hernia by the Use of Aponeurotic Flaps.**—Rudolf Goebell passes a narrow strip of fascia through the transverse and oblique muscles about two centimetres above their lower margin to strengthen the closure of the canal. The details may be obtained best from the original article.

August 16, 1913.

**Operation for Varices with Very Minute Incisions.**—Hofelder marks with methyl blue the most prominent veins while the patient is standing. The patient is then placed on the operating table and anesthetized. The limb is rendered blood-

less. An incision only one or two centimetres long is made through which one of these veins is laid bare. It is then carefully isolated from the fascia and surrounding connective tissue, seized with two or three artery forceps and divided between them. Each stump is then drawn out until it tears across. In this way he has succeeded in pulling out pieces of vein from both legs amounting in all to eighty centimetres in length. Care must be taken to see that the vein is perfectly isolated before the forceps are applied, as otherwise a long piece of the vein will not be drawn out. As the intima rolls in when the vein is torn across secondary hemorrhages are not to be feared, and the skin wound may be closed at once with a suture. He has ligated the saphenous vein centrally and drawn out the distal portion.

#### ZEITSCHRIFT FÜR AUGENHEILKUNDE.

August and September, 1913.

**Familial Progressive Degeneration of the Macula.**—Stargardt reports another family of three children who presented the typical characteristics of this rare disease.

**Physostol.**—A. Dutoit describes physostol as a one per cent. sterilized solution of physostigmine in olive oil, to be obtained in sealed tubes containing five grammes. The clinical indications for its use are those of meiotics, to meet which it is to be preferred to aqueous solutions of meiotics because of its chemical purity and sterility, the accuracy of its dose, its strong persistent action, and the fact that it is nonirritating. It is particularly well fitted to use just before and after operations for glaucoma. He has also found it of value as a prophylactic in ulceration of the cornea, of which he gives three examples, one in a case of ophthalmoblenorrhoea in an adult, one in ophthalmia neonatorum, and one from a cause not given. In all three the ulcers healed without perforation. He also found it of value in a peculiar case of secondary increase of tension in a syphilitic iridocyclitis. It is difficult to say how far these remarkable results depended on the drug, and how far they were coincidental.

#### LYON MÉDICAL.

August 17, 1913.

**Simple Sclerectomy in Retinal Detachment.**—Aurand reports a case of detachment of the retina in which a pericorneal nonpenetrating sclerectomy, as first recommended by Bettremieux in 1910, brought about a considerable enlargement of the visual field of the affected eye and numerous retinal cicatrices denoting a permanent return of the retina to its normal position. The improvement had persisted five months at the time of writing.

**Anomalous Situation of Adrenal Glands.**—J. Rebattu and A. Goyet report having found, upon post mortem examination of a tuberculous patient, both adrenals situated within the capsules of the kidneys, with the tissues of which they appeared, even microscopically, to be completely fused. This finding is of interest in connection with the pathogenesis of hypernephromatous tumors.

## PARIS MÉDICAL.

August 9, 1913.

**Primary Pharyngeal Sporotrichosis.**—H. Gougerot and P. Quellien report a patient with extensive ulceration of the pharynx and general emaciation, in whom, after treatment for syphilis and tuberculosis had proved ineffectual, the presence of a mycotic disease was suspected and to whom potassium iodide was given internally and locally, with resulting marked improvement in two weeks and complete recovery in six. Subsequent examination of the secretions and performance of the agglutination and complement fixation tests for the *Sporotrichum Beurnmanni* showed that this organism had been responsible for the disturbance. The diagnosis of sporotrichosis can even more easily be made by placing some pus on Sabouraud's glucose peptone agar, allowing it to stand at room temperature, and later examining it with the naked eye. The case reported represents a new clinical entity, being one of primary pharyngeal sporotrichosis without simultaneous skin involvement. In such patients four grammes of potassium iodide should be given internally five days in the week and gargling with a solution containing iodine and potassium iodide ordered. This treatment should be continued until the pharyngeal mucus shows no more parasites and the agglutination and fixation tests fail, as the organism is saprophytic and recurrences can readily occur. Where the iodide treatment is badly borne the prognosis is grave, as laryngeal involvement, succeeded by lung gangrene or tuberculosis, are apt to follow.

## PRESSE MÉDICALE.

August 23, 1913.

**New Method of Applying Radium Externally.**

—E. Vallet, seeking to render less costly and hence more widely available the radium treatment of skin affections, conceived the idea of incorporating it in relatively minute amounts of a nonirritating, odorless, colorless, stable, supple, and elastic medium, "grenetine," which is then welded and melted into a film, to be cut according to the shape of the affected area of skin and allowed to remain in contact with it for a prolonged period. With this plan the prolonged action of a small amount of radium is made to take the place of the brief, more intense action of a larger quantity, and the expense correspondingly reduced. The surface of the film is slightly warmed before application, then pressed down gently on the lesion until it is cooled and adheres. Two strengths of radium are employed, the one for large areas being four times weaker than that for small. In the former case no skin reaction is expected until the film has been in contact fifty days, and depilation occurs only about the sixty-fifth day. Accurate gradation of the effect is rendered possible, owing to its slowness. The treatment is eminently suitable for nevi, angiomas, epitheliomas, lupus, and papillomas, and may also replace the x rays, hot air, etc., where these are not available, in keloids, tuberculides and tuberculous adenitis, syphilis, eczema, pruritus, and neuralgia, acne rosacea, xanthoma, exophthalmic goitre, rhinophyma, etc.

August 27, 1913.

**Symptomatic Significance of Erythema Nodosum.**—Aubert avers that in the last few years the view that erythema nodosum is a rheumatic manifestation has been seriously shaken. Tuberculosis underlies a certain proportion of cases of this condition, which should be looked upon as a symptom rather than a separate affection, and included under the term "bacillosis" which Landouzy has introduced to designate the acute inflammatory manifestations due to Koch's bacillus. Attention would thus be better called to the identity of erythema nodosum as a pretuberculous disturbance and to the necessity of applying the treatment appropriate under this condition. The ophthalmic, intracutaneous, or other tuberculin test should be employed in erythema nodosum to ascertain whether tuberculosis is the cause. If the result is positive, the usual hygienic and dietetic measures should be instituted, and preferably also the administration of Marmorek's serum, which in one of the author's cases, after four months of vesperal fever and with positive eye reaction, appeared distinctly to promote recovery. Three other cases are reported illustrating the relationship of erythema nodosum to tuberculosis and the necessity of not always relying on salicylic medication in its treatment.

## SEMAINE MÉDICALE.

August 27, 1913.

**Partial Muscular Atrophy in Myopathic Disorders.**—F. Rose reports a case of Erb's juvenile type of muscular atrophy in which the autopsy, after tuberculosis had caused the death of the patient, showed marked differences in the degree of myopathic involvement of the several portions of the same deltoid muscle, in spite of the fact that no anomaly in the distribution of the circumflex nerve could be found accounting for these differences. All nervous structures examined, including the cord, were found normal. These findings are cited by the author in support of the muscular theory of the origin of Erb's and other forms of muscular atrophy, as against the nervous theory.

## ROUSSKY VRATCH.

June 15, 1913.

**The Vindaw Sanatorium for 1900-1913 in Connection with a Sketch of the Status of the Fight against Surgical Tuberculosis at the Seashore Hospitals and Sanatoria of Western Europe.**—N. A. Veljainoff presents the results obtained in the treatment of surgical tuberculosis in children at the Vindaw Sanatorium, located on the shore of the Baltic sea. For the thirteen years of its existence the sanatorium received 514 children, of whom 425 were suffering from bone tuberculosis and the other from rickets and scrofula (tuberculous adenitis). The average length of residence of the patients was 417 days, some children remaining in the institution over four years, and one over five years; 53.7 per cent. recovered, and 28.5 per cent. improved, or a total of 82.2 per cent. of favorable results. These results compare favorably with those obtained at the seashore sanatoria of Western Europe, with the exception of tuberculous adenitis, the patients doing somewhat better at ocean resorts. Summarizing all



the available figures, the author concludes that generally more than half of the cases of surgical tuberculosis in children treated at the seashore recover, one fourth improve, and one fourth receive no benefit. The author is decidedly of the opinion that for the treatment of surgical tuberculosis the seashore sanatoria are more beneficial than the inland institutions.

June 22, 1913.

**The Effect of Malignant Growths on the Reaction and Alkalinity of the Blood.**—A. P. Konikoff found that the presence of carcinoma or sarcoma produces a marked reduction in the alkalinity of the blood. This reduction is generally in proportion to the degree of emaciation from which the patients suffer.

June 29, 1913.

**Comparative Determination of the Effect of Drugs on High Blood Pressure in Arteriosclerosis.**—K. M. Rutkevitch found by a comparative study on cases of permanent high blood pressure that the effect of the nitrites is evanescent, lasting only two or three hours. Sodium nitrite, in doses of 0.05 to 0.1 gramme, almost invariably produced unpleasant subjective and objective symptoms. Hypsin and vasotonin had no effect at all, while the iodides reduced the pressure but slightly. He explains the excellent results obtained by other observers on the ground that frequently the pressure is lowered during the first few days of hospital regimen, and this reduction was attributed to the use of the drug. In the author's experiments this possible error was eliminated by commencing the observations several days after the patients were admitted to the hospital.

**Colloidal Nitrogen in the Urine of Patients with Cancer.**—A. P. Konikoff found that Salkowsky's coefficient of colloidal nitrogen in the urine is of little diagnostic value in carcinoma. In twenty-three cases of cancer only nine showed a coefficient higher than normal. Moreover, as has been shown by other observers, a higher coefficient may occur in other diseases, such as pneumonia, tuberculosis, rheumatism, nephritis, hepatic cirrhosis, and, particularly, typhoid fever and diabetes.

#### BRITISH MEDICAL JOURNAL.

September 13, 1913.

**On Urinary Antiseptics.**—Anson Jordan's experiments lead him to conclude that: (1) The taking of acid sodium phosphate readily increases the acidity of the urine to more than double its normal acidity; the benzoates increase the acidity to a considerably less extent. Large doses of citrates easily render it alkaline. (2) Putrefaction of urine, and the growth in it of *staphylococcus aureus* is greatly aided by an alkaline reaction and is delayed by acidity in proportion to the degree thereof. With *Bacillus coli* the reverse is the case, but to a small extent only, for it grows quite luxuriantly in either acid or alkaline urines. (3) Hexamethylenetetramine is not itself antiseptic, but acts by the liberation of formaldehyde. This takes place in acid urine only, the drug being inert in alkaline urine. The degree of the antiseptic action of this drug, other things being equal, is proportionate to the acidity of the urine, and where this is normal or

above normal hexamethylenetetramine is by far the most efficient of all urinary antiseptics. In spite of its decidedly different behavior in the test tube, there is no evidence that helmitol differs in its action in the urine from hexamethylenetetramine; this statement applies also to citramine, hetraline, and cystopurin. (4) Oil of sandalwood is a poor general antiseptic, but seems to have a specific selective action upon the staphylococcus, which fact applies to cocci in general. It is of some use in alkaline urine. (5) Benzoic and salicylic acids act very similarly and both are fairly efficient urinary antiseptics, but are of little use in alkaline urine. (6) Boric acid is a very efficient antiseptic, and its action is not affected by the reaction of the urine. It is the most efficient antiseptic for cases with alkaline urine. (7) Uva ursi is a good antiseptic, but its action as such is certainly not due chiefly to the arbutin which it contains. In addition to these conclusions, Jordan feels justified in drawing some practical deductions. He says that the use of hexamethylenetetramine, together with acid sodium phosphate which should always be given along with it, is of the utmost value as a prophylactic before any operation or procedure in which the urine may become infected, since if the urine is highly acid, clean, and contains sufficient of the drug continually it becomes a powerfully antiseptic fluid and will not support the life of bacteria. Hexamethylenetetramine should be given only where the urine is or can be made acid, it is otherwise inert. It should never be given along with potassium citrate in *Bacillus coli* infections. To make the urine alkaline in this infection, use boric acid and infusion of uva ursi. In cases of ammoniacal fermentation of the urine in the bladder, some operative procedure or bladder irrigation constitutes the most important parts of the treatment. Uva ursi, boric acid, and possibly sandalwood oil are the best drugs to use in these conditions. It is always worth while to try sandalwood oil in a cystitis due to staphylococcus alone. It is advantageous, while giving hexamethylenetetramine, to occasionally test the acidity of the urine to make sure that the acidity is maintained high. A high degree of acidity is of greater importance than a large dose of the drug. As a guide to the degree of acidity, Jordan states that the normal urine of a specific gravity of 1.020 is such that ten cubic centimetres of it will exactly neutralize one cubic centimetre of decinormal sodium hydroxide solution, using phenolphthalein as the indicator. All of Jordan's experiments were carried out by infecting his own urine, previously sterilized by filtration through a Pasteur-Chamberland filter. After determining the rate of growth of staphylococci and of *Bacillus coli*, as well as the rate of putrefaction in the absence of sterilization, Jordan determined the influence upon these rates of changes in reaction. Then he proceeded to determine the antiseptic powers of the several drugs considered by taking each for several days, thus closely paralleling conditions as they might be expected to occur in the treatment of patients.—J. W. Thomson Walker contributes some further information on this subject, and, while agreeing in greater part with Jordan's findings, differs in some essential matters, and approaches the question from a more purely clinical point of view. He calls attention to the ex-

istence of some decided fallacies in laboratory studies upon the question which tend to reduce their value. In the first place, in practice the infections are very often of a mixed type; secondly, in disease bacterial toxins are constantly being formed and removed; the element of the bactericidal action of the living tissues is large; and lastly, the urine in disease often contains a large amount of protein which tends to diminish the bactericidal action of the drugs used. In addition to these there are to be considered the two unknown elements of the absorption of the drugs used and of their rate and degree of excretion into the urine. In the case of *Bacillus coli* infection, with either an alkaline or an acid urine, he finds that the primary administration of potassium citrate until the reaction of the urine is strongly alkaline promptly reduces the constitutional symptoms of the absorption of the toxins but does not destroy the organism. If, then, subsequent to the reduction of all of the symptoms by alkali, acid sodium phosphate be given along with hexamethylenetetramine until the urine is decidedly acid it may be possible to sterilize the urine completely and promptly. In a series of 230 cases receiving hexamethylenamine, thirty-four per cent., or seventy-nine cases, showed no formaldehyde in the urine; but in these seventy-nine, hexamethylenamine was being excreted as such in sixty-four. The reaction of the urine was alkaline in fifty-two of the sixty-four, and twenty-eight of these showed formaldehyde when the urine was rendered acid. Alkalinity of the urine absolutely prevents the liberation of formaldehyde, and there is little evidence for the suggestion that an inflammatory state of the mucosa has anything to do with the decomposition of hexamethylenamine.

**Continuous Antiseptic Inhalation in the Treatment of Pulmonary Tuberculosis.**—C. Muth's long experience with this method of treatment, used in combination with rest, graduated exercise, and feeding has convinced him of its great value. He has found that the most useful method is to use a series of four solutions, thus preventing the treatment from becoming irksome to the patient, and to employ increasing strengths of the antiseptics. Formaldehyde vapor is the best drug, and can usually be given; if a patient cannot stand it, however, the last two formulæ are suitable. The solutions are: (a) Formaldehyde, 2.5 per cent.; chloroform, one drachm; menthol, ten grains; pinol, ten minims; alcohol, sufficient to make one ounce. (b) Formaldehyde, five per cent.; guaiacol, one drachm; chloroform, two drachms; menthol, fifteen grains; pinol, fifteen minims; alcohol, sufficient to make one ounce. (c) Guaiacol, two drachms; terebene, one drachm; menthol, fifteen grains; pinol, fifteen minims; chloroform, two drachms; alcohol, sufficient to make one ounce. (d) Guaiacol, two drachms; iodine, one drachm; terebene, one drachm; and the remaining three ingredients as in the preceding formula. About ten drops of the solution should be sprinkled on the inhaler from every half to one hour.

**Further Investigations of the Action of Digitalis on the Blood Pressure in Man.**—Frederick W. Price has made prolonged and careful observations in thirty-seven cases, twenty-six of which

were of some form of cardiovascular disease, and eleven of which were free, clinically, from any heart or vascular disturbance. The conditions of life, including diet and rest, were maintained as nearly constant as possible in each case during the course of observation, and the blood pressure readings were always made with the same instrument and at the same time of day in each. In only one case was there a rise of pressure, in several there was a fall, and in the remaining there was no change. It seems to have been shown conclusively that the internal administration of therapeutic doses of digitalis does not cause a rise of blood pressure in man. The fear of giving the drug to patients with arteriosclerosis is unwarranted, and the use of vasodilators in conjunction with digitalis is irrational and unnecessary.

#### LANCET.

September 15, 1913.

**Remarks on the Treatment of Brain Tumor.**—Charles A. Ballance holds that brain tumor should be regarded in much the same light as any other tumor, particularly when it is malignant, except that destruction of considerable areas of brain tissue leads to more permanent and disastrous results than similar injury to neighboring tissues elsewhere in the body. Early diagnosis is the prime essential for the welfare of the patient. One important difference does exist between infiltrating tumors of the brain and infiltrating tumors in other locations due to the fact that we cannot remove large areas of the brain substance as we can remove a breast or a uterus, and we are therefore limited in our treatment in such cases to the operation of decompression. This operation should be done before the symptoms have become more than barely sufficient to enable a probable diagnosis to be made; certainly one should never wait for pressure symptoms in the eye to develop, for these symptoms are associated with lasting damage to vision. Ballance contends that the great value of radical decompression is not appreciated as it should be by the practitioner. It has given more relief from pain and distress than almost any operation in the entire realm of surgery. It should be undertaken in the very earliest stage of the disease, and the decompression should be adequate in extent. It is insufficient to do a boneflap operation; a large area of bone on one or both sides should be removed completely. It is equally essential to open the dura and relieve tension. A cerebral hernia is the result desired. This is usually the only operation which can be resorted to in cases of malignant disease of the brain.

**Anesthesia in Acute Inflammations of the Mouth and Pharynx.**—T. B. Layton warns against the use of a general anesthetic in cases of quinsy, peritonsillar abscess, retropharyngeal abscess, and diffuse cellulitis in the fascial planes of the neck and floor of the mouth, and says that most of these can be cared for without any anesthetic or with local anesthesia. The danger of inspiration of septic material and of severe cyanosis is too great under a general anesthetic to warrant its use except in the rarest cases. Most abscesses

associated with the teeth may be operated upon under gas anesthesia. Layton expresses it as his belief that the diffuse cellulitis of the neck and floor of the mouth, and the large, deep-seated abscesses of the neck in relation to the pharynx, larynx, and carotid vessels are due to the teeth, and are further stages of the abscesses internal to the lower jaw.

**Avoidance of Sudden Death from the Induction of an Artificial Pneumothorax.**—Claude Lillingston does not believe that death, or the serious accidents, such as pleural reflex, laryngeal spasm, gas embolism, aspiration pneumonia, and uncontrollable accidental pneumothorax from puncture or rupture of the visceral pleura, are unavoidable. He believes that the following "don'ts" are essential, and that if heeded there will be little tendency to accident. (1) Don't inject gas without satisfactory oscillations of the manometer, or at a pressure greater than that of the atmosphere when making the first injection. (2) Don't spare the use of local anesthetics, for both the skin and the pleura. (3) Don't create a high intrapleural pressure. A pressure of forty centimetres of water may cause no discomfort at the time of injection, but it may be more than doubled by a subsequent fit of coughing, and a leak in the pneumothorax may thus be started. The visceral pleura may thus be ruptured with a resultant accidental pneumothorax. (4) Don't induce a pneumothorax during menstruation when reflex excitability may be high. (5) Don't puncture on the first occasion in many different places in a search for free pleura. It is better to continue the search for free pleura after a day or two. (6) Don't inject gas rapidly, or at a low temperature. (7) Don't use large needles, or needles with rough surfaces; and don't allow the rubber tubing to drag upon the needle during an injection. (8) Don't inject until the patient is in a comfortable and easy position. (9) Don't hesitate to withdraw the needle at the earliest sign of collapse. (10) Don't operate without brandy and a hypodermic syringe full of either handy. The needle should be introduced, if possible, only at a point where the lung is healthy. The greatest single preventive of pleural reflex and sudden death is the proper and efficient anesthetization of the skin, and more especially, of the pleura. This has been proved on animals.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

*September 29, 1913.*

**The Added Responsibility of the Surgeon when Called on to Treat Surgical Lesions in Their Earlier Stages,** by J. C. Bloodgood.—See this JOURNAL for July 5, p. 39.

**The Mechanics of Certain Fractures (Greenstick, Buckling, and Torsion Fractures),** by E. Rixford.—See this JOURNAL for July 5, p. 37.

**Röntgenoscopy of the Liver and Biliary Passages, with Special Reference to Gallstones,** by J. T. Case.—See this JOURNAL for July 5, p. 39.

**Röntgenographic Study of the Normal Kidney, Its Pelvis and Ureter,** by S. B. Childs and W. M. Spitzer.—See this JOURNAL for July 5, p. 47.

**The External Bone Clamp versus the Internal Bone Plate in the Operative Treatment of Fractures,** by L. Freeman.—See this JOURNAL for July 5, p. 37.

**The Value and Limitations of Functional Renal Tests,** by J. T. Geraghty and L. G. Rowntree.—See this JOURNAL for July 5, p. 48.

**The Public Health Aspects of Leprosy in the United States,** by Rupert Blue.—See this JOURNAL for June 28, p. 1305.

**Clinical Aspect of Leprosy,** by E. Boeckmann.—See this JOURNAL for June 28, p. 1305.

**Dermatological Aspects of Leprosy,** by I. Dwyer.—See this JOURNAL for June 28, p. 1305.

**Postoperative Renal Infection,** by H. D. Furniss.—See this JOURNAL for June 28, p. 1306.

**A Study of the Use of Ice and Other Means of Preserving Food in Homes.**—J. R. Williams finds that the data gathered in his investigation of this subject warrant the following conclusions: 1. The temperatures of cellars or living rooms in dwelling houses are not sufficiently low during the warm months of the year to protect milk and other perishable foods from rapid bacterial decomposition. Therefore an efficient refrigerator in the home is a necessity. 2. Most of the refrigerators in common use are almost useless and grossly uneconomical. 3. There is a large field for the manufacturer who will make a properly insulated and efficient box which can be sold at a moderate price. 4. If more economical methods of ice manufacture and distribution were employed, the cost of ice to the consumer could be materially lowered. 5. If to this saving were added that which would result from proper ice box construction, refrigeration vastly superior to that now found in the average home could be had for at least one fourth the present cost.

**Morbidity Reports; Their Purpose and Present Status.**—From his study of this subject, including many statistics in Europe and America, J. W. Trask believes that, as the control of disease presupposes a knowledge of its occurrence, it is of importance that every local health officer should know of the prevalence of disease not only in his own jurisdiction, but in neighboring cities and counties as well. In this country the State health department needs to know of the prevalence of disease throughout all parts of its territory, and also in neighboring States. For the purpose of the more extensive and more efficient public health work which is much desired there is needed a carefully worked out plan whereby all health authorities can be advised currently of the existence of epidemics and the prevalence of disease throughout the country. In addition to the information this would give of the approach of extending epidemic disease, it would add immeasurably to our knowledge of epidemiology. Such a plan depends, first, on the conscientious reporting of cases by the physician, and, second, on prompt reporting by the local authorities to the State health department. The scheme is not complete, however, without the reporting by the State health authorities to some common agent that will serve as a clearing house for the State reports and publish the data at frequent intervals for the information of all. The work of such common agent is now being done, in so far as is possible, by the Public Health Service.

**Two and One Half Years' Experience with Salvarsan and Neosalvarsan.**—W. T. Corlett, in addition to giving the results met with in 220 cases



of his own, quotes largely from the published experience of others, and classifies the accidents following the use of salvarsan, according to the time of their appearance, whether shortly after the injection, from two to four days after, or from several weeks or months after. In giving his conclusions he says he does not wish to convey the idea that the use of salvarsan is to be discouraged. On the contrary, he believes that when the drug is properly employed, and by experienced persons, it is a most valuable remedy against the *Spirochæta pallida*. To insure against untoward results, however, one must exercise great care as to the selection of cases and, after ascertaining that no physical disqualification exists, one should further exercise care in not giving too large doses. From his experience, he would advise that treatment be begun with a small dose, and gradually worked up by succeeding injections, not to be given oftener than once a week. Great care should be taken as to the purity and sterility of the distilled water. The reaction of the patient should be carefully watched, and if found very severe, further injections should be given with exceeding care. In cases of cephalic chancre one should institute salvarsan therapy with the greatest caution. If these precautions are taken the result will be, with rare exceptions, most gratifying, and if the drug is used in conjunction with mercury the result will be much quicker than with either alone. Again, there are many obstinate cases which will react only to this combined line of treatment. As to the relative therapeutic value of the old and the new salvarsan, he has been unable to detect any difference. Finally, every physician having had accidents from salvarsan should consider it his duty to report them, for in this way only can we arrive at a fuller and better knowledge of this last great stride in overcoming syphilis.

#### MEDICAL RECORD.

September 25, 1915.

**Anaphylaxis and Asthma.**—J. Matthews says that in anaphylaxis has been found the explanation for not only certain phases of immunity and over-susceptibility to infections, but also for various diseases and symptoms, such as asthma, hay fever, serum disease, urticaria, etc. The so called asthmatic tendency has long been known to be marked in certain persons and families, and heredity has undoubtedly an important bearing on the etiology of the disease. There is no proof of the assumption that this predisposition is inherent in the nervous system, while it has frequently been observed that many of the individuals subject to heredity have very evident etiological factors in nasal polypi, suppurating sinuses, etc., the removal of which has relieved the asthma. From this it would appear that the essential inheritance has been an anatomical or functional predisposition to affections of the upper respiratory tract, probably associated with a susceptibility to anaphylactic sensitization. During the past four years about 300 cases of asthma have been examined in the Mayo Clinic, and in over ninety per cent. the principal lesions which might be considered etiological were in the upper respiratory tract. Vari-

ous methods of desensitizing animals have been reported, yet none of these gives a lasting immunity, and all are attended by high mortality. Until a safe and efficient method of desensitization is possible, the treatment of asthma must, therefore, be directed, as in the past, to the relief of symptoms by whatever measures are indicated in each individual case.

**The Administration of Tuberculin by the General Practitioner.**—M. Solis Cohen believes that tuberculin, given in the way he advises, is the remedy *par excellence* in nearly all forms of tuberculosis, and that it can be given fairly safely if the following rules are observed: The initial dose must be minute. No patient should be given over one millionth of a milligramme at the first, and patients with fever should not begin on more than one ten millionth. (At the present time he would advise against the general practitioner giving tuberculin in septic cases, in which the patients have high afternoon fever and very rapid pulse after prolonged rest.) The next most important thing is to observe and question closely for signs of a reaction before the second dose is administered. The interval between doses should at first be from five to seven days, but, in careful hands, after the first few doses an interval of three days may be allowed. There is no use in increasing a dose which seems to do good, unless it appears to lose its effect. A dose which causes a slight reaction, from which the patient recovers in a day, may be repeated; but must never be increased. When a dose causes a moderate reaction it should be reduced one tenth, the administration being withheld until all reaction symptoms have disappeared. Should a marked reaction occur, the treatment should be suspended for at least a week after the disappearance of the signs of the reaction, and then given in the dose of from one hundredth to one thousandth of that previously given. The increase in dose should be gradual (not exceeding 33.5 per cent. of the dose immediately preceding). The oral, hypodermic, and intramuscular methods of administering tuberculin seem equally efficacious, and the author prefers the oral. The dose by the mouth is the same as the hypodermic dose, and the reaction is the same, except for the local manifestation at the site of the injection. Finally, a repetition of caution, as a severe reaction means always damage, and sometimes death.

**The Vaccine Treatment of Typhoid Fever.**—From his personal experience in the past six years, and the statistics of others, W. M. Waters summarizes certain things he has learned and certain measures which can probably be improved as follows: 1. The best results have been attained by preparing the vaccine from an old nonvirulent culture which has been subcultured for years in connection with the Widal tests. A new culture is made from this, and incubated for twelve hours. 2. In comparing his dose with that of others it seems probable that his may be increased to 100, 200, or possibly 500 million. 3. An early diagnosis is most important; this can often be first made by blood culture, days before the Widal reaction appears. 4. The vaccines when properly used by an immunizator will not harm in any stage of the disease, or in

a relapse; but the earlier they are used, the greater the prospect of benefit. 5. A safe rule to remember is that the more severe the case, the smaller should be the dose. 6. The interval between doses is variable. A dose or two after the temperature has reached normal will render relapses less frequent.

**The Absence of the "Sausage Shaped Tumor" and the "Mass per Rectum" in Intussusception in Infants.**—L. M. Kahn states that in a recent article he called attention to the fact that these two well known signs of intussusception were often either not present or were late signs, and that, in order to decrease the mortality, it was necessary to make the diagnosis, if need be, without their presence. Additional experience has proved the correctness of this position, and it may now be confidently asserted that with a straightforward history of intussusception one may proceed to its operative reduction with security. The time lost in waiting for a sausage shaped tumor or for the intussuscepted gut to appear in the rectum may be sufficient to cost the life of the little patient. It would seem necessary to revise the teaching regarding intussusception so that with a history of sudden onset of screaming, intractable vomiting, and evidence of continuous pain and of blood and mucus in the stool, with an absence of fecal matter in the stool, a diagnosis of intussusception, particularly in infants under one year, may be safely made. There need be no great prostration at first, and this is the ideal time for operation. The x rays are now available for diagnosis in the doubtful cases, and should not be neglected.

#### ARCHIVES OF DIAGNOSIS

July, 1913.

**New Apparatus for Freezing Point Determinations.**—E. H. Bartley describes a simplified form of apparatus intended to facilitate freezing point determinations of the blood, urine, etc. Between two test tubes, one slightly smaller than and enclosed in the other, is placed a layer of alcohol. The inner tube receives the fluid to be frozen and the thermometer. Outside of the two tubes is placed another considerably larger tube, filled about one third full with ether or carbon disulphide, and so connected with an aspirator pump that when water is passed through the latter air is drawn through the ether or carbon disulphide in a series of bubbles, causing it to evaporate, cool the alcohol in the inner space, and through it, the liquid under examination. There is no necessity of adding ice to start the freezing, as is usually done in other forms of apparatus. The whole process is automatic, a simple electrically driven stirrer being used, and the observer merely regulating the flow of water through the pump and reading the thermometer. The apparatus is inexpensive.

**Prognosis of Eclampsia.**—A. Shulman asserts that the pulse is the best prognostic index in puerperal eclampsia. If it remains full and hard, and below 120, there is no immediate danger, but if it is weak, frequent, and compressible the prognosis is bad. A high temperature is not a necessarily unfavorable sign unless it exceeds 104° F., and is still ascending. It is less the frequency of the convul-

sions than the early occurrence of profound coma which may lead one to expect a fatal issue.

#### LONG ISLAND MEDICAL JOURNAL.

SEPTEMBER, 1913.

**The Rôle of Negative Currents in the Growth of Neoplasms.**—Martin J. Sgier cites the physiological fact that in nerve and in muscle, every active or injured part maintains a negative electrical relation toward every other part which at that time is at rest or uninjured; that is, is normal and not active. Sgier suggests that this negative variation in the contracting or injured muscle may be the result of chemical changes occurring within the muscle tissue. On this basis he goes a step farther and concludes that these currents are "due to the chemical dissociation of molecules and atoms into negative and positive ions and electrons, whenever the equilibrium of a resting part was disturbed, whether by injury or by action; anabolism causing a positive electrical phenomenon and catabolism, a negative condition of the parts." A muscle which is normal and at rest is isoelectric, being in electric equilibrium. Any cause which will upset this equilibrium will cause a current—any influence which lowers the vitality or in the slightest degree alters the metabolism of any portion of the muscle will create a difference of potential with reference to the undisturbed portion, and the altered portion becomes electrically negative to the normal. "The problem, therefore, resolves itself into a question of metabolism; whether it be a current caused by the perverted and consequently lowered vitality (potential) of an injured or dying part, as compared with a healthy part, or one caused by the active metabolism and higher potential of an active part, as compared with one that is at rest. The currents will continue to flow until the equilibrium is restored, in every case." As the question is one of metabolism, it is logical to believe that electric currents occur in all organs and tissues. Although none has been detected it is a reasonable supposition that currents must exist because of the vital changes (metabolism) which occur, and the consequent differences in potential which must be caused by them. In the case of a granulating wound, for example, the author believes it possible that the *vis medicatrix* is simply the electric current generated by the difference in potential between the injured and the healthy tissues. When the gap is filled up the electrical currents cease because the equilibrium is restored. Says Sgier:

Applying the foregoing to cancer or other tumors, the deduction would lead to the following conclusion or theory. A traumatism (mechanical, chemical, or thermal) exerted on a part of an organ or a tissue, devitalizes the tissue affected, lowering its vitality (altering its metabolism), and consequently generating, because of the difference in potential, an electric current or *vis conservatrix*. This electrical stimulation causes an increased growth of cells, which by their very presence further lower the vitality (by the added pressure which they exert on the blood supply, etc.) and thereby increase the electrical discrepancy (and consequently, the strength of the current) and augment or hasten the metabolism of the growth.

It is a well known fact that cancer flourishes only after forty years of age, when the vitality is beginning to wane, and when the recuperative powers are no longer far in excess of the injury, so that the part of lowered metabolism has a chance to start (and thus add its weight to the

metabolic discrepancy) at a time when any organ or tissue that has recently or even remotely been injured or devitalized in any way (whether directly by traumatism or irritation, or indirectly, by interference with its nutrition or blood supply) has a poorer chance of a *restitutio ad integrum* than in early life, because of the general senile changes in bloodvessels and tissues. Is it not possible that these senile changes may be reduced to a chemical basis, whereby new chemical combinations (ions and electrons) are formed, producing a state of metabolic equilibrium which is more readily altered or destroyed, and hence creating a condition in which these electric currents are more easily generated, and counteracted or destroyed with great difficulty, if at all?

Pursuing the same course of explanation further, Sgier regards metastasis merely as a process of auto-inoculation with the products of metabolism from the primary growth, which are taken up and transported by the lymphatics. At the point where they lodge the tissues undergo chemical alteration, with the production of lowered vitality, in turn becoming negative to their surrounding tissues and stimulating cell proliferation as at the original focus. Sgier offers the foregoing hypothesis purely as a hypothesis which may possibly offer a clue to others, or which may stimulate others to profitable research along similar lines.

### Proceedings of Societies.

#### AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

*Twenty-Sixth Annual Meeting, held at Providence, R. I., September 16, 17, and 18, 1913.*

The President, DR. MILES F. PORTER, of Fort Wayne, Indiana, in the Chair.

**The Treatment of Puerperal Streptococemia with Intravenous Injections of Magnesium Sulphate.**—DR. JAMES A. HARRAR, of New York city, stated that the use of magnesium sulphate intravenously for the treatment of puerperal infection was first proposed by Dr. R. R. Huggins in 1910. Impressed with the results obtained by Doctor Huggins and interested in any means of combating the ravages of puerperal infection. Dr. R. W. Lobenstine, upon his return from the meeting at which Doctor Huggins read his paper, tested the method at the New York Lyngin Hospital with more or less success. He effected a cure in three cases of streptococcic toxemia of the fulminating type that was so frequently fatal, and in one case of streptococcic bacteriemia. His fifth and last case, one of streptococcic toxemia, but with negative blood cultures, resulted fatally, and rather discouraged him in the efficacy of the treatment. In continuation of this work, Doctor Harrar said he had employed the salt intravenously in nine additional cases of the severer type of puerperal infection, the bacteria having been demonstrated in the blood of five. The total series of fourteen cases, with complete recovery in twelve, had prompted him to present fever charts as clinical evidence of the value of this adjunct to our present means of dealing with puerperal infection, especially of streptococcic origin. A two per cent. solution of chemically pure magnesium sulphate

was prepared with freshly distilled water. This was filtered and sterilized in half litre flasks in an autoclave. This solution would not hemolyze human red blood cells, and he had found by experience that prepared in this way it would not cause any temperature reaction in the patient. Formerly, a one per cent. solution of magnesium sulphate in physiological salt solution was employed, and a chill or sharp temperature rise frequently followed the injection. The author drew the following conclusions: 1. In the quantities and dilutions described, magnesium sulphate was absolutely harmless when administered intravenously to women suffering with puerperal infection. 2. Magnesium sulphate was of more value early in the course of the infection than after secondary localization had occurred. In the chronic cases of secondary thrombophlebitis or pyemia it did not appear to be of benefit. Its action was chiefly upon the organisms circulating in the blood. 3. It shortened the course of the bacterial toxemias in which the bacteria could not be demonstrated in the blood by culture, and anticipated the establishment of a bacteriemia, and finally it had reduced the mortality in puerperal bacteriemia, especially in streptococemia, the most fatal form of puerperal infection, from ninety-three to twenty per cent.

In the discussion that followed, Dr. ROSS McPHERSON, of New York city, said he had had very little experience with the actual treatment that Doctor Harrar had described except in watching his results. Only one case had come under his observation which was not a true bacteriemia, and this patient did very well. The results described by Doctor Harrar were nothing short of marvelous as one saw these patients improve under magnesium sulphate.

Dr. ASA B. DAVIS, of New York city, said he had watched with interest, surprise, and gratification the work which had been done by Doctor Harrar in the cases that had come in his service, and he could confirm what Doctor Harrar had said.

Dr. HERMAN E. HAYD, of Buffalo, thought the results obtained by Doctor Harrar with magnesium sulphate in puerperal infection ought to stimulate all members of this association to try this treatment and at some future meeting relate their experiences in regard to it.

Dr. GORDON K. DICKINSON, of Jersey City, said we were all interested in other types of bacteriemia, and if Doctor Harrar could give us some points in the matter of pneumococemia and the coccemias of other germs, it might instigate experimentation in different lines than those mentioned.

Dr. BUDD VAN SWERINGEN, of Fort Wayne, said that if it be true that the establishment of an abscess in the lung, as in this one case the doctor recited, was responsible for the cure brought about, it bore out the contention of a Frenchman who wrote upon the establishment of abscess in these conditions by the injection of turpentine into the tissues of the thigh or back or any available place. He imagined the good results reported by the author at that time were due to a biological process, perhaps the establishment of antibodies in this "fixation abscess," as he called it, and whatever the theory might be a number of cases of his own were



treated in that way as well as others he had knowledge of and were followed by improvement. He had had no experience with the injection of magnesium sulphate, but he would like to know whether any of the Fellows had employed this fixation abscess method in streptococcal infections, and what results they had had with it.

Dr. ROLAND E. SKEEL, of Cleveland, said that we reported our wonderful successes, but did not report our failures. These observations and investigations should be followed up until it was proved that magnesium sulphate did what was claimed for it in puerperal infections.

Dr. JOSEPH H. BRANHAM, of Baltimore, said that if all members of the association would carry out this method of treatment in cases of puerperal infection, in one year they would have absolute demonstration beyond a doubt of what there was in this treatment.

Dr. H. WELLINGTON YATES, of Detroit, said it seemed to him the essayist attached very little importance to the toxicity of magnesium sulphate. In the report of cases he found that in each instance in which the magnesium sulphate was injected, there followed a distinct chill with rise in temperature. Therefore, magnesium sulphate should be used with care.

Dr. EDWARD J. ILL, of Newark, suggested that anyone who attempted to carry on these experiments with magnesium sulphate should not attempt to improve on the method adopted by Doctor Harrar, but wait until his paper was published, study it carefully, and then carry out the method as he had described it.

Dr. E. GUSTAV ZINKE, of Cincinnati, said that this was a new method and had apparently been practised with success, and it was their duty to take it up and determine what there was in it.

Doctor HARRAR, in closing the discussion, stated that, as to the use of magnesium sulphate in other pathological conditions or infections, he had no experience with it except in one case of pneumococcal infection which occurred in the course of puerperal infection. In this case it was of no value. He did not feel prepared to make any final statement relative to the exact value of magnesium sulphate in puerperal infections, because he had not seen enough cases. However, sulphate of magnesium was certainly of value and well worthy of trial.

**Lactation Atrophy of the Uterus.**—Dr. DOUGLAS H. STEWART, of New York city, stated that with lactation atrophy the breasts either produced too much mammary extract, and the uterus wasted away as a fibroid sometimes would when powdered cow's udder was administered, or the secretion drained off in the milk, some hormone which should stimulate the circulation, nutrition, and growth of the uterus after the normal or physiological atrophy of the fifth month of lactation, and the physiological process became pathological in time. In the first case of his series he made the circulation right. After that lactation ceased, and growth and menstruation started at once.

Dr. ROSS McPHERSON, of New York city, who opened the discussion, said he had wondered after seeing the case reported by Doctor Stewart, whether the secretion which was present in the

patient's breast was not the secretion that was found in many cases of pelvic disturbance. As soon as the disturbance in the pelvis was relieved, the secretion disappeared. The condition was interesting and rather unusual. He had not before seen a case of lactation atrophy that presented such symptoms.

Dr. DAVID HADDEN, of Oakland, said in a case he operated in two years ago there was no lactation connected with the menstruation. The woman had a baby four years before the time he saw her, and had not menstruated. Her uterus was retroverted, and both ovaries were prolapsed. There was a deep laceration of the cervix and an ulcer. He corrected these conditions, and two months after operation she began to menstruate and had since menstruated every month, the flow being practically normal.

Dr. HUGO O. PANTZER, of Indianapolis, said that the paper called attention to a class of cases that were too little touched upon in medical literature. About twenty-five years ago he confined a blonde who had all her previous life been in frail health. After being married for one year she conceived and had a child at full term. It was a forceps delivery. There were no complications incident to childbirth. The child in contrast with the mother thrived wonderfully and was nursed for two years. The family was very anxious to have an offspring, and the woman came to him at about the third year. He found a small atrophic uterus and complete amenorrhea of some years' standing. It was fair to associate amenorrhea and atrophy of the uterus with excessive lactation. General remedies and the use of an intrauterine stem for a period of three or four months brought back menstruation, and the patient conceived again.

#### **A Contribution to the Serology of Pregnancy.**

—Dr. HENRY SCHWARZ, of St. Louis, said that it had been proved by the observations of many investigators that in diseased conditions of the various organs of the body, likewise in malignant disease and also during pregnancy the blood was contaminated by cell albumin from the affected organs, the malignant cells, and the chorionic villi, and that the organism responded to the entrance of this blood foreign material by the mobilization of ferments which effected the intravascular digestion of these proteins. It had also been proved that such ferments were not present in the blood of normal individuals. The protoplasm differed in these various tissues. This difference could be demonstrated by biological methods. These same methods proved that there was less difference between protoplasm from the same organs in different species than there was between the protoplasm of two different organs in the same individual. For example, there was less difference between the liver protoplasm of a dog and the liver protoplasm of a sheep than there was between the liver protoplasm of this dog and his kidney protoplasm. The protective ferments were specific. The serum of nonpregnant cancer cases would cause cleavage of cancer albumin, but not of placental albumin, and the serum from a noncancerous pregnancy case would cause cleavage of placental albumin, but not of cancer albumin. In the department of obstetrics of the Washington Uni-

versity Medical School Abderhalden's biological tests were used for the differential diagnosis of pregnancy; also for the early diagnosis of malignant disease and the control of such cases after radical operation. The biological test had been applied in more than 100 cases, partly in experimentation, and in a dozen cases as an actual and much needed help in diagnosis. Petri's assertion that re-injecting an individual with some of his own serum would cause the appearance of nonspecific ferments was tested by repeating the experiments. The result was absolutely negative. Petri's second allegation that adding the active serum to inactivated pregnant serum would not restore the cleavage power had already been disproved by Steising. Steising's experiment had been repeated four times, but always with positive results. In the service of the New York Lying-in Hospital and in the obstetrical service of the University of Pennsylvania and of Washington University, all toxic and eclamptic cases were at present examined as to the degree of cleavage power of the serum. Where such power was impaired or absent, the attempt was being made to correct the conditions by injecting normal pregnant serum. It was hoped that such cooperation would in due time furnish reliable information on this subject.

**Abdominal Cæsarean Section.**—Dr. ASA B. DAVIS, of New York city, presented the statistics with results for mother and child in the whole series of cases in which he had done this operation; likewise the indications for the operation. He described the technic of the operation by a small median incision which was made above the umbilicus.

**Treatment of Placenta Prævia by Cæsarean Section. When, If Ever, Is It Justifiable?**—Dr. ROSS MCPHERSON, of New York city, stated that since 1891, in the service of the New York Lying-in Hospital, there had occurred 470 cases of placenta prævia, and the operation of Cæsarean section had been performed for this condition nineteen times by six different operators, all since 1905. The situation of the placenta was central in nine cases, marginal in five cases, and no statement as to situation was made in the history of five cases; no case was more than two fingers dilated; all had had severe hemorrhages before entrance into the hospital, and in all it was a matter of rapid delivery being considered advisable. The patients varied from para i, to para xiv; the youngest was eighteen and the oldest thirty-eight years of age. As to the results, of the nineteen cases operated in, one mother died, a maternal mortality of 5.3 per cent., two children were stillborn, and three died before leaving the hospital, two on the first day, and one on the ninth, a fetal mortality of five or twenty-six per cent. He believed that the indication was clear, that when we encountered a primipara with a placenta prævia either marginal or central, or a multipara, with a central placenta prævia, in either case where the cervix was rigid or undilated, whether or not there was pelvic disproportion, provided the child was viable and the mother offered the ordinary safe operative risk, Cæsarean section held out a better chance of saving the lives of both mother and child with fewer complications than any other method of delivery, always provided that the opera-

tion was performed by a competent and experienced operator and amid suitable surroundings.

**The Advantage of Cæsarean Section Over Other Procedures in Border Line Cases.**—Dr. JOHN WILSON POUCHER, of Poughkeepsie, N. Y., reported five cases of Cæsarean section, and in all of them he used the high abdominal incision, opening the uterus *in situ* as often as it was exposed, carrying the uterine incision well over the fundus. With this incision the operation could be done through an abdominal opening about one half the size of the lower incision, and the abdominal and uterine wounds were separated by the contraction and involution of the uterus. Another advantage was that the uterine incision was made through a part of the organ away from the larger bloodvessels, and hence there was less danger of hemorrhage, and he believed also a portion of the uterus was less likely to rupture in subsequent labors. For protecting the intestines and to absorb any fluids which were likely to overflow, one or two gauze pads, six inches wide, six or eight feet long, were useful. It had been said that Cæsarean section had caused a considerable number of ruptured uteri. He could safely say that timely Cæsarean section would prevent most, if not all, ruptures.

In the discussion, Dr. CHARLES N. SMITH, of Toledo, said that he had done twenty-three abdominal Cæsarean sections. Two of these were done in the presence of placenta prævia centralis, one of them particularly for that sole indication and the other in the presence of transverse presentation in a woman who had lost three children previously in labor and who solicited this Cæsarean section. The first case was in a woman, twenty years of age, who was seen at St. Vincent's Hospital, having had a profuse hemorrhage. She was a primipara, with a very small vagina, long, conical, rather firm cervix, with not much dilatation, and placenta prævia centralis. He did immediately an abdominal Cæsarean section and saved the mother and child. The second case was in a woman, thirty-two years of age, on whom he did Cæsarean section last May. She had been confined previously at three different times, once with a transverse presentation and the others with breech presentations. In the transverse and one breech presentation, the child was delivered dead. In a third breech presentation, the child lived for some few moments only. If she had a head presentation, it was thought best to deliver by forceps. If she had an irregular presentation, or if there were any complications which led him to believe she could not be safely delivered of a living child, Cæsarean section must be done. Arrangements were made to take her to the hospital to have this operation done. She was taken with slight pain and profuse hemorrhage in the night, and he was quickly notified and called to see her. He found her with very little pain with dilatation of about an inch, the head in the left iliac fossa, the back and occiput anterior, and the placenta seemingly occupying the entire lower segment of the uterus. She was bleeding rather profusely, although the pains were not hard. She was taken at once to the hospital; he did a Cæsarean section, delivered her of a living child, and saved her life. He had in this particular case what he held to be the proper indications for

Cæsarean section for placenta prævia and some other indications.

Dr. JAMES A. HARRAR, of New York city, said he had had the pleasure of seeing Doctor Davis do a great many Cæsarean sections, and there was no operation that he did more smoothly than a Cæsarean section. At the New York Lying-in Hospital they all followed his technic. The speaker had operated on twenty-three cases by Cæsarean section following Doctor Davis's incision, with perfect satisfaction.

Dr. H. G. PARTRIDGE, of Providence, said he had never seen a Cæsarean section done for placenta prævia. He had seen cases of placenta prævia that showed a long rigid cervix, but these were very few. Practically all the cases he had seen had a soft, boggy, easily dilatable cervix, and within his own personal experience there had been no case which would have been suitable for Cæsarean section. Within a week they had a case in the Lying-in hospital in Providence which was ideal for vaginal Cæsarean section. This operation was done, the mother being in good condition afterward, but the baby was born dead.

Dr. E. GUSTAV ZINKE, of Cincinnati, said there was no doubt in his mind that the majority of cases of placenta prævia could be relieved successfully, both mother and child, by the Fry method or the De Lee method, by balloon dilatation, or even by metal dilatation, although he had very little use for the latter. When they were able to watch these cases and had them in surroundings that were aseptic in character, they should see what they could accomplish by way of artificial dilatation and deliver *per vias naturales*, but when they had a case of placenta prævia centralis, for instance, which was usually complicated by an oblique or transverse presentation, the tampon would do no good, and before one succeeded in dilating the uterus successfully, either by the tampon, balloon, by manual or metal dilatation, the woman was usually so exsanguinated that if she did not die during the process of delivery, she would soon die after delivery, and the child, as a rule, was lost under these circumstances because it meant version of the after coming head. Besides, in primiparous women with these oblique presentations, he would not attempt anything except a Cæsarean section. There were cases of marginal and lateral placenta prævia in which the hemorrhage was sometimes exceedingly difficult to control, and these were the cases in which a pathological condition pertained, in which the placenta was so implanted within the uterine wall that it had taken up much of the uterine musculature. Under normal circumstances the uterine wall was the same in every part, even under the placental site. Ordinarily the placenta did not occupy the muscularis at all, but only the serotina. In those cases the hemorrhage was not very excessive and it could usually be controlled; but when the placental tissue and villi had buried themselves into the musculature, then there was trouble in controlling the hemorrhage, and a timely Cæsarean section would save both mother and child, while with the other manipulations they would probably have a fatal result so far as the child was concerned, and in many instances the mother was not saved. No man had a

right to make a Cæsarean section who was not thoroughly familiar with the technic of the operation. Every case of placenta prævia was a surgical one from the start and belonged to the hospital as truly as a case of appendicitis or any other surgical case, and there was no reason why these patients should not be sent to the hospital, even though the hospital might be ten, twenty, or fifty miles away.

**Rupture of the Symphysis Pubis in Labor.**—Dr. HENRY ENOS TULEY, of Louisville, said that careful research showed that there was but one case in from 30,000 to 60,000 births, including spontaneous and traumatic varieties. While recent writers stated that there were about 150 recorded cases in literature, these figures could not be verified, and Kayser's estimate of about 130 cases, plus those since recorded, would indicate that the more correct estimate was about 140. It might be safer to state that the estimate varied from 140 to 150. It had long been the teaching that the articulations of the pelvis became softened and relaxed during gestation on account of the secretion from the synovial membrane lining their surfaces. The extent to which this softening occurred was not stated by the authors who referred to this phenomenon. He did not think it was so great as to cause difficulty in standing or walking in very many cases, at least such a condition had never been brought to his attention. The percentage of cases of ruptures which were caused spontaneously varied much according to different authors. Complications might occur in the form of rupture of the anterior vaginal wall, rupture of the bladder, severe hemorrhage from rupture of the veins about the vestibule, or suppuration of the joint or soft parts. After reviewing the literature, he reported a case of rupture of the symphysis pubis in labor occurring under his observation.

**Conditions Complicating Pregnancy, Labor, and the Puerperium.**—Dr. ASA B. DAVIS, of New York city, reported a case of threatened abortion, third month, due to myofibroma in the posterior wall of the uterus. There were uterine pain and bleeding. Myomectomy was resorted to, with uneventful recovery. Pregnancy continued, with normal delivery at term. A second case was one of acute dilatation of the stomach, in which there were great physical exhaustion, and prolonged labor due to ventral fixation of the uterus. There was low forceps delivery; marked dilatation of the stomach. Recovery followed. The third case was one of intermittent and unilateral chyluria complicating pregnancy and the puerperium. The pregnancy at the eighth month was complicated with double pneumonia; recovery. Normal delivery occurred.

(To be concluded.)

## Letters to the Editor.

CARBON, OXYGEN, HYDROGEN GROUP, PLUS NITROGEN, ETC.

311 SPRUCE STREET,  
SCRANTON, PA., September 25, 1913.

To the Editor:

Theodore W. Schaefer, M.D., of Kansas City, Mo., questions the physicochemical food metabolism of certain alkaloids mentioned in my article on Carbon, Oxygen,



Hydrogen Group, plus Nitrogen, or Nonnitrogenized and Nitrogenized Food, as published in the NEW YORK MEDICAL JOURNAL, dated AUGUST 23, 1913.

In his letter to your JOURNAL of September 5, 1913, p. 594, he says that I make "certain statements that are at variance, and in conflict, with the teachings of modern physiology and pharmacology" and that I say "among other things, that strychnine, morphine, atropine, hyosciamine, and cocaine, when introduced into the body, become food, furnishing Liebig's nitrogenized elements of nutrition." He also defines food as "A substance, which when introduced into the organism, supplies material, that renews some structure, or maintains some vital process."

And again, "It (food) is distinguished from a drug in this respect, that the latter modifies some vital action, but does not supply the material, which sustains such action." This seems to me to be rather postulatory, but the doctor may be able to explain it, at least, to his own satisfaction. As for my part, I feel that he is at variance with modern scientific, chemical, physiological, and pharmacological facts. Just how a "vital process" may be modified without giving due credit to the material which when administered becomes responsible for such modification, is beyond my deductive and inductive powers of reasoning, or how any vitality can be restored without receiving food.

He takes for his thesis practically the same ground as myself in defining the word food. I have defined food, as meaning "in the scientific sense, any substance that, being taken into the body of animal or plant, serves through organic action, to build up normal structure, or supply the waste of tissue."

Our ground for argument then becomes the same and to our further reasoning, there may creep in on one side or the other, theories, sophistry, and postulates. We can not both be right and still be opposed. Yet it is possible, and even probable, that we have both uttered truths. The doctor seems to be wedded to theory and undoubtedly thinks much of the wisdom of a certain Dr. A. M. Wilson, whom he quotes as saying:

"It is a fallacious theory, based on ignorance of physiology, that vegetable medicinal agents are tissue builders, blood makers, or reparative agents. There is not a drug of vegetable origin, that reconstitutes or vitalizes. All real drugs that act in such a manner, are either animal (e. g. pituitrin, epinephrin, thyroïdin, etc.) or mineral. The salts of lime, soda, iron, magnesia, and phosphorus in an organized state of combination together with a few from the animal kingdom are the ones to depend upon as recuperatives in all forms of tissue degeneracy."

I cannot see that Doctor Wilson's assertion proves anything except the fallacy of his hypothetical utterances. It is *ipse dixit* and not officially scientific. The first part of his assertion, in relation to "Drugs of vegetable origin etc.," was believed in by the ancients before physiological chemistry was properly and scientifically understood in the disposition, cleavage, and metabolism of the carbohydrates.

His assertion in relation to the salts, etc., in the latter half of his quotation, is sane enough.

If Doctor Wilson's assertions and Doctor Schaefer's theories were true then were the vegetarians doomed to utter extinction and the majority of those with lingering sickness as good as dead, when necessary to call a physician who depended on vegetable drug therapy to resuscitate and cure. It certainly seems to confound all my knowledge of chemical and physiological research concerning dietary metabolism to at last run up against that assertion of Doctor Wilson's, viz. "There is not a drug of vegetable origin that reconstitutes or vitalizes. All real drugs that act in such a manner are either animal or mineral." That a dying, hungry system should discriminate between the media through which it receives desired life giving food elements, and refuse those offered by the vegetable, while those offered via "animal or mineral," "robs me of all that I possess" (knowledge) and "makes me poor indeed." Yet I try to remember that the doctor's statement is *ipse dixit*.

Doctor Schaefer's vital process theory in some respects needs revision. Speaking of the alkaloids he says: "When taken internally, these alkaloids are again partly eliminated from the body as such or are partly oxidized and destroyed in the process of tissue metabolism." Now, is not that what I say in my article? That the alkaloids (carbo-

hydrates) are destroyed (consumed) in the process of tissue metabolism? Just a difference in our diction that is all. They are destroyed by being consumed as food in the process of tissue metabolism through and by oxidation. He again confirms my theory when he defines food. He states that it "maintains some vital process." Here again we are in harmony, for to maintain his "vital process" theory he must admit a "vital process" means a process of life and he cannot sustain or resustain a vital process except through food. He does not admit even that the alkaloids I have mentioned contain the "elements of nutrition" but flatly denies it. This I will not attribute to ignorance, but rather to willful determination, the better to sustain his argument.

Now Doctor Schaefer would imply in his letter that I advocate toxic drugs as a standard daily food or a prolonged dietary. Any one reading my article will give me credit for limitations. I am not advocating these drugs, I am simply stating chemical and physiological facts concerning them, which remain interpreted within the intelligence of any mind sufficiently versed in the science of modern chemistry and medicine.

We know that vitality depends on food. I define food and Doctor Schaefer defines food and the formulae are practically the same. When a sick person receives drugs and medicines, if they contain carbon, oxygen, hydrogen, any nitrogen, then they receive the elements of nutrition which will sustain life and tide them over disease until they can again eat food in larger quantities.

The doctor surely knows it is the elements in the food that vitalize and not the quantity or media. The system must have these elements to sustain life. Now why does the doctor administer drugs, but to sustain life? He may tell you he gives drugs to metabolize disease which is only another way of saying he feeds the patient to produce health.

Again Doctor Schaefer says: "From these corollaries it is apparent, that if things were different from what they are, it would be impossible for the toxicologist to detect these poisons, in cases of poisoning in the body after death." Now if the doctor would do a little self thinking on the side, he would find reason and common sense a great help when seasoned with scientific facts.

When toxic drugs are given in medicinal doses, some are accumulative and others are consumed within reasonable time, and become entirely eliminated.

If these drugs are continued indefinitely or are given in greater quantity than the system can utilize, assimilate, or eliminate, then they poison and produce death. In the last instance only would the drug be recognizable by the toxicologist. They would be utilized and assimilated by the animal economy as food in the first instance.

I repeat what I said in my article, p. 377 in the last paragraph, viz.:

"If we would prolong the life of a patient, he must be fed. Food then becomes essentially important in preserving the continuance of animal life. There are many ways to administer food. Any substance containing both a carbohydrate (carbon, hydrogen, and oxygen) and nitrogen, becomes food when assimilated by the animal economy. But such substances should be administered in the most concentrated form in order to become assimilated with the least possible exertion on the part of the patient's system. So we conclude that of the carbohydrates alcohol becomes the most available concentrated form, where quick, nutritive effect is desired. For prolonged, tonic, muscular effect, strychnine stands preeminent, and may always be relied upon to take up 'the slack' of a weak heart. In alcohol we have a nonnitrogenous food, a heat giver, which is consumed through the respiration. In strychnine we have a nitrogenous food, which furnishes tissue building material, and hence is a flesh builder.

To conclude: Flesh builders must contain nitrogen plus the carbohydrates, but the carbohydrates alone are food. Any substance containing carbon, hydrogen, and oxygen plus nitrogen will become food when introduced into the body of an animal or plant, subject to normal metabolism and assimilation, whether drugs, vegetables, animal, or mineral. It is these elements which are necessary for life and the only way to prolong life is through food. It is positively absurd to say that these elements become food only when introduced into the system through animal or mineral media, and it is still more absurd to declare that

"there is not a drug of vegetable origin that reconstructs or vitalizes." The body when hungry is no respecter of forms or media. It needs food elements and will utilize them in whatever form or media they are presented.

J. C. DENSTON, M.D.

### Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*A Clinical Manual of the Malformations and Congenital Diseases of the Fœtus.* By Professor Dr. R. BIRNBAUM, Chief Physician to the University Clinic for Women at Göttingen. Translated and Annotated by G. BLACKER, M.D., B.S., F.R.C.P., F.R.C.S., Obstetric Physician to the University College Hospital and the Great Northern Central Hospital, etc. With 58 Illustrations in the Text and 8 Plates. Philadelphia: P. Blakiston's Son & Co., 1912. Pp. xiv-379.

The translation of Birnbaum's manual puts into the hands of English speaking physicians a work which differs materially in its scope from any other similar publication. The terse descriptions not only point out the anatomical and physiological peculiarities, but always tend to emphasize the clinical relation. The book cannot help but prove valuable to the specialist, particularly in children's diseases and to the surgeon. To the general practitioner it will serve as a reference book in which he will readily find a concise statement regarding any unusual or anomalous condition which suddenly confronts him. The citations of the related literature given at the end of each section are quite complete and give an added value to the work. The author, who is a gynecologist, deems the obstetrical side of the utmost importance and deals in greatest detail with this side of the subject. The illustrations are mainly original, adding notably to the text.

*Therapeutics of the Gastrointestinal Tract.* By Dr. CARL WEGELE. Adapted and Edited, with Additions on the Diagnosis of the Diseases of the Esophagus; Diagnosis of the Diseases of the Gastrointestinal Tract; Duodenal Tube and Its Uses; Diseases of the Pancreas, and X Ray Examinations of the Gastrointestinal Tract. By MAURICE H. GROSS, M.D., Attending Gastroenterologist to the Har Moriah Hospital, and I. W. HELD, Attending Physician to the Har Moriah Hospital. With Fifty-two Illustrations in the Text and Two Figures in Colors on One Plate. New York: Rebman Company, 1913. Pp. xvi-320.

For over fifteen years Dr. Carl Wegele has been foremost in Germany in the treatment of diseases of the gastrointestinal tract. Without holding any official position, the doctor has demonstrated the value of his teachings, which he laid down a few years ago, in his well known book *Therapie der Magen- und Darm Erkrankungen*. The American edition before us is not only a translation of the German book, but Doctor Gross and Doctor Held have endeavored to add to the value of the original book by providing new parts and by making valuable addition to others. Doctor Wegele's book is acknowledged as a work of great value and we can well recommend the American edition to our readers.

### Meetings of Local Medical Societies.

MONDAY, October 6th.—Clinical Society of the New York Throat, Nose, and Lung Hospital; German Medical Society of the City of New York; Utica Medical Library Association (annual); Niagara Falls Academy of Medicine; Brooklyn Hospital Club; Roswell Park Medical Club, Buffalo; Hornell Medical and Surgical Association; Hartford, Conn., Medical Society; Practitioners' Club, Newark, N. J.

TUESDAY, October 7th.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Clinical Society of the West Side German Dispensary and School for Clinical Medicine; Buffalo Academy of Medicine (Section in Surgery); Ogdensburg Medical Association; Oswego Academy of Medicine; Syracuse Academy of Medicine; Medical Association of Troy and Vicinity; Long Island Medical Society; Amsterdam City Medical Society; Lockport Academy of Medicine; Society of Alumni of Lebanon Hospital, New York; Hudson County, N. J., Medical Association (Jersey City); Bridgeport, Conn., Medical Association.

WEDNESDAY, October 8th.—New York Pathological Society; New York Surgical Society; Medical Society of the Borough of the Bronx; Alumni Association of the City Hospital; Brooklyn Medical and Pharmaceutical Association; Richmond County Medical Society; Dunkirk and Fredonia Medical Society; Alumni Association of the Norwegian Hospital, Brooklyn.

THURSDAY, October 9th.—New York Academy of Medicine (Section in Pediatrics); Society of Sanitary and Moral Prophylaxis; Brooklyn Pathological Society; Blackwell Medical Society of Rochester; Jenkins Medical Association, Yonkers; Buffalo Ophthalmological Club; Jamestown Medical Society; Society of Physicians of the Village of Canandaigua; Auburn City Medical Club; Gloversville and Johnstown Medical and Surgical Association; West Side Clinical Society; Physicians' Club of Middletown.

FRIDAY, October 10th.—New York Academy of Medicine (Section in Otolaryngology); New York Society of Dermatology and Genitourinary Surgery; Eastern Medical Society of the City of New York; Society of Clinical Serology; Society of Alumni of St. Luke's Hospital; Society of Ex-Internes of the German Hospital in Brooklyn; Saratoga Springs Medical Society.

SATURDAY, October 11th.—Therapeutic Club, New York.

### Official News.

#### United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending September 24, 1913:

**Grubbs**, S. B., Surgeon. Authorized to proceed to Warren and Bristol, R. I., when necessary for the purpose of making quarantine inspections. **Korn**, William A., Surgeon. Relieved from duty in the Philippine Islands and directed to proceed to Hongkong, China, and assume charge of Service work at that port. **Lumsden**, L. L., Surgeon. Detailed to investigate an outbreak of typhoid fever at Martinsburg, W. Va., in cooperation with local health authorities; on rejoining station, directed to proceed to Crewe, Va., and advise with local authorities regarding the prevention of typhoid fever; then directed to proceed to Durham, N. C., to inquire into the prevalence of pellagra in that locality. **McKeon**, Frank H., Passed Assistant Surgeon. Granted one month's leave of absence from September 30, 1913. **Oleson**, Robert, Passed Assistant Surgeon. Granted three months' leave of absence from October 15, 1913. **Williams**, C. L., Assistant Surgeon. Relieved from duty on the Revenue Cutter *Tahoma* and directed to proceed to Port Townsend, Wash., for temporary duty.

#### United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Department of the United States Army for the week ending September 27, 1913:

**Armstrong**, John M., First Lieutenant, Medical Reserve Corps. Ordered to active duty for service at Fort Snelling, Minn., September 24th to 27th. **Christie**, Arthur C., and **Duncan**, William A., Captains, Medical Corps. Ordered to proceed to New York, N. Y., and Boston, Mass., on official business pertaining to



the x-ray apparatus already installed at military stations in the vicinity of those places and the inspection of new apparatus now in process of construction, and upon the completion of this duty each of the officers named will return to his proper station. **Falisi, J.**, Vincent, First Lieutenant, Medical Reserve Corps. Will remain on duty at Fort Logan H. Roots, Arkansas, until October 1st, and will proceed to his home and stand relieved from active duty in the Medical Reserve Corps. **Kennedy, J. S.**, First Lieutenant, Medical Reserve Corps. Ordered to Key West Barracks about October 3d for temporary duty. **Kilbourne, E. D.**, Captain, Medical Corps. Joined Fort Oglethorpe on September 19th. **Michie, H. C.**, First Lieutenant, Medical Corps. Left Walter Reed Hospital on September 19th on twenty-four days' leave of absence. **Quade, O. H.**, First Lieutenant, Medical Corps. Reported at Texas City from Snelling for temporary duty. **Qualls, Guy**, First Lieutenant, Medical Corps. Granted leave of absence for fifteen days. **Scott, George H.**, Captain, Medical Corps. Ordered to Watervliet Arsenal for the physical examination of officers at that arsenal and Colonel William W. Gibson, Ordnance Department. **Turner, John W.**, First Lieutenant, Medical Corps. National Guard of Missouri, and **Waring, C. H.**, First Lieutenant, Medical Corps, Mississippi National Guard. Authorized to report at the Army Medical School, Washington, D. C., on October 1st to pursue the course of instruction at that school. **Watkins, V. E.**, First Lieutenant, Medical Corps. Granted leave of absence for one month, to take effect upon the arrival of First Lieutenant Kennedy. **Whaley, A. M.**, Captain, Medical Corps. Ordered to Fort Howard about September 30th for detached service in the field.

### United States Navy Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending September 27, 1913:*

**Allen, A. H.**, Passed Assistant Surgeon. Detached from the *Connecticut* and ordered to the Navy Yard, Philadelphia, Pa. **Angeny, G. L.**, Surgeon. Detached from the Navy Yard, Norfolk, and ordered to the *New Jersey*. **Blackwood, N. J.**, Surgeon. Detached from the Naval Hospital, Canacao, and will become fleet surgeon to the Asiatic Fleet. **Freeman, G. F.**, Surgeon. Detached from the Naval Dispensary, Washington, D. C., and ordered to the *North Carolina*. **Furlong, F. M.**, Surgeon. Detached from the *New Jersey* and ordered to the *Connecticut*. **Grieve, C. C.**, Passed Assistant Surgeon. Detached from the *North Carolina* and ordered home to await orders; commissioned a surgeon from January 12, 1913. **Grow, E. J.**, Surgeon. Ordered to the Naval Hospital, Washington, D. C. **Heatley, J. E.**, Acting Assistant Surgeon. Appointment revoked. **Iden, J. H.**, Surgeon. Detached from the *Connecticut* and ordered to the Naval Hospital, Annapolis, Md. **Jenkins, H. E.**, Assistant Surgeon. Detached from the *Rhode Island* and ordered home. **Lovering, P. A.**, Medical Director. Placed on the retired list of officers of the Navy from September 29, 1913, in accordance with section 1444 of the revised statutes, aged sixty-two years. **Lynch, C. P.**, Assistant Surgeon. Detached from the Naval Recruiting Station, St. Louis, Mo., and ordered to the Naval Medical School, Washington, D. C. **McLean, N. T.**, Passed Assistant Surgeon. Detached from the Naval Hospital, Newport, R. I., and ordered to the Pacific Reserve Fleet. **Noble, D. H.**, Passed Assistant Surgeon. Detached from the Navy Yard, Philadelphia, and ordered to the *Connecticut*. **Phillips, E. W.**, Passed Assistant Surgeon. Ordered to the Marine Recruiting Station, Chattanooga, Tenn. **Shiffert, H. O.**, Surgeon. Detached from the Naval Academy, Annapolis, Md., and ordered to the Navy Yard, Portsmouth, Va. **Smith, O. G.**, Surgeon. Ordered to the Naval Hospital, Brooklyn, N. Y. **Williams, R. B.**, Surgeon. Detached from the Naval Hospital, New York, N. Y., and ordered to the Receiving Ship at Norfolk, Va.

The following acting assistant surgeons of the Medical Reserve Corps of the United States Navy have been ordered to the Naval Medical School, Washington, D. C., for course of instruction: Guthrie McConnell, H. A.

Tribou, S. E. Crawford, R. L. Crawford, A. E. Younie, W. C. Espach, Frederick Ceres, Louis Lehrfeld, C. E. Treibly, W. B. Hetfield, J. B. Helm, W. W. Hargrave, T. A. Fortescue, F. H. Haigler, H. V. Connatt, A. E. Beddoe, C. R. Baker, W. S. Wentzel, O. C. Foote, Howard Priest, J. D. Bobbitt, and C. S. Stephenson.

### Births, Marriages, and Deaths.

#### Married.

**Cepelka—Pacak.**—In Crown Point, Ind., on Thursday, September 18th, Dr. Jan Jaroslav Cepelka, of Chicago, and Miss Francis Pacak. **Cox—Burns.**—In Bangor, Me., on Friday, September 19th, Dr. James Francis Cox and Miss Mary Christie Burns. **Dew—Wise.**—In Edwardsville, Ill., on Thursday, September 18th, Dr. Walter A. Dew, of Belleville, and Miss May Wise. **Montezuma—Keller.**—In Chicago, on Friday, September 19th, Dr. Carlos Montezuma and Miss Maria Keller. **Rickert—Enterline.**—In Harrisburgh, Pa., on Wednesday, September 17th, Dr. Charles M. Rickert and Miss Sarah Enterline. **Robertson—Hosmer.**—In Youngstown, N. Y., on Wednesday, September 17th, Passed Assistant Surgeon Gardner E. Robertson, United States Navy, and Miss Louie Mandana Hosmer. **Sutherland—Ramage.**—In Hayward, Cal., on Tuesday, September 16th, Dr. Robert T. Sutherland, of Oakland, and Miss Ellen Ramage. **Woodruff—Stower.**—In Plattsburg, N. Y., on Wednesday, September 3d, Mr. John C. Woodruff, son of Lieutenant Colonel Charles E. Woodruff, Medical Corps of the United States Army, retired, and Miss Mabel Whitney Stower. **Wright—Throckmorton.**—In Burlington, N. J., on Thursday, September 18th, Dr. H. W. Wright and Miss Ellen Barbara Throckmorton.

#### Died.

**Almy.**—In Norwich, Conn., on Saturday, September 27th, Dr. Leonard B. Almy, aged sixty-two years. **Bailey.**—In Fort Smith, Ark., on Monday, September 15th, Dr. William Worth Bailey, aged seventy-three years. **Beattie.**—In Bretton Woods, N. H., on Friday, September 26th, Dr. William Johnston Beattie, of Littleton, aged forty-eight years. **Becker.**—In Mastersville, Pa., on Saturday, September 13th, Dr. Phares Nauman Becker, aged fifty years. **Birdsall.**—In Brooklyn, N. Y., on Wednesday, September 24th, Dr. Alfred Thornton Birdsall, aged forty-three years. **Cage.**—In Carmel, Tenn., on Sunday, September 14th, Dr. James Edward Cage, aged seventy-six years. **Davis.**—In East Orange, N. J., on Wednesday, September 24th, Dr. William H. K. Davis, aged fifty years. **Fahey.**—In Wilmington, Del., on Saturday, September 20th, Dr. John C. Fahey, aged fifty-three years. **Henderson.**—In Franklin, Tenn., on Monday, September 15th, Dr. Samuel Henderson. **Jones.**—In New York, on Thursday, September 25th, Dr. Roland D. Jones, aged fifty-seven years. **Leonard.**—In Atlantic City, N. J., on Monday, September 23d, Dr. Charles Lester Leonard, of Philadelphia, aged fifty-two years. **McDonell.**—In Chicago, on Thursday, September 18th, Dr. John A. McDonell, aged sixty-six years. **Neely.**—In Bainbridge, Ga., on Friday, September 19th, Dr. John C. Neely, aged forty-three years. **Peirce.**—In New York, on Saturday, September 27th, Dr. Henry Thompson Peirce. **Sanders.**—In Boston, on Thursday, September 25th, Dr. Orren B. Sanders. **Sigismund.**—In New York, on Wednesday, September 24th, Dr. James Mordaunt Sigismund, aged seventy-five years. **Smith.**—In Philadelphia, on Saturday, September 20th, Dr. F. Conrad Smith, aged forty-five years. **Stivers.**—In Brooklyn, N. Y., on Thursday, September 25th, Dr. John R. Stivers, aged forty-three years. **Thomson.**—In Philadelphia, on Sunday, September 21st, Dr. F. Frazer Thomson, aged forty-five years. **Whitacre.**—In Detroit, Mich., on Sunday, September 15th, Dr. D. Frank Whitacre, of Romulus, Mich. **Williams.**—In Pulaski, Tenn., on Thursday, September 18th, Dr. Thomas L. Williams, aged eighty-one years. **Willich.**—In Brooklyn, N. Y., on Tuesday, September 23d, Dr. Carl Willich, aged sixty-two years. **Wyman.**—In Olympia, Wash., on Friday, September 12th, Dr. Hugh Sumner Wyman.



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### Original Communications.

#### DIFFERENTIAL DIAGNOSIS OF THE APPENDIX BY AID OF THE ROENTGEN RAY.

By A. J. QUIMBY, M.D.,  
New York.

Clinical Professor of Radiography, New York Polyclinic Medical  
School and Hospital; Radiographer to the New York Foundling  
Hospital; Consulting Radiographer to the New York  
Nose, Throat, and Lung Hospital, etc.

The x ray study of the appendix has never had until now a scientific basis sufficiently strong and broad to warrant the assertion that such routine procedure is a necessary aid in separating appendicitis from the various pathological phenomena which occur in the right lower abdomen. Only occasional references have been made by several writers to the shadows formed by the appendix in radiographs.

The early experimenters in radiography of the appendix frequently met with failure because improper technic was employed. But after prolonged study of many cases and numerous examinations both fluoroscopically and radiographically, I have been able to indicate by examination of the cecum and the adjacent structures whatever condition may exist with accuracy.

In the examination of 141 cases between May 1, 1913, and September 15, 1913, data were obtained which enabled me to classify the appendix radiographically. Of this number, fifty patients had had laparotomies previous to the examination in which the appendix had been removed. Of the remainder, ninety per cent. gave sufficient data to determine the position and condition of the appendix. The remaining ten per cent. were those in whom the position of the cecum prohibited its thorough inspection.

The following classification covers the essential points in the findings of the average case, so that conclusions may be drawn that will permit a diagnosis to be made:

1. Functionating or nonfunctionating.
2. Fixed or movable.
3. Ascending, descending, or transverse.
4. Straight, kinked, curved, looped, or clubbed.

A functionating appendix is capable of receiving and discharging feces. In the human being it must be regarded as a part of the intestines and is therefore subject to the same laws. Accepting the fact of its power to receive and discharge material and

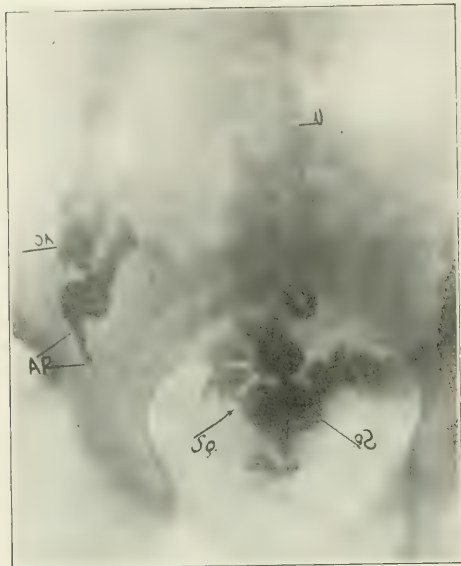
using this as a basis for an analysis of its condition, we can then turn to the known laws with regard to the motility of the colon. The colon has been found to respond to a natural mechanical stimulus which starts a peristaltic wave at intervals of about four hours each. In examining the patient for stasis I have observed when the patient ingests a quantity of food or liquid the results are a decided forward movement of the bowel contents.

Accepting these facts of the normal four hour period, modified by ingesting food, etc., we may expect the appendix to discharge its contents under similar condition. Colonic peristalsis is inhibited at any point where a pathological abnormality occurs. As a rule, if there is any adhesion or constriction of the colon the peristaltic wave starts beyond this point at approximately normal periods. The repeated attempts of the bowel to carry its contents past an obstruction usually results in dilatation and eventually loss of compensation, with disturbance of peristaltic function and if, as physiologists believe, the normal wave of peristalsis originates in the appendix then we may expect a disturbance of function to occur in it whenever obstructive phenomena of material degree are manifested.

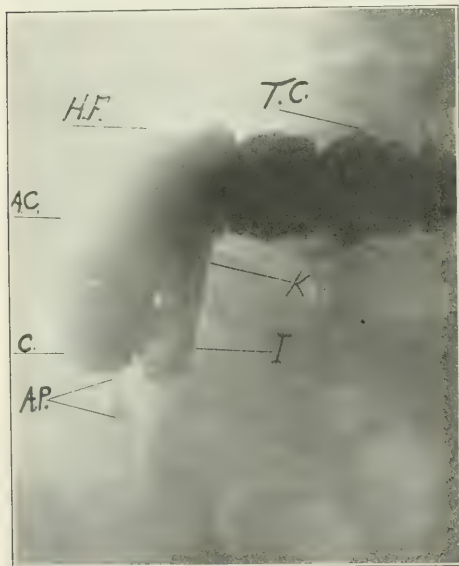
A nonfunctionating appendix may be incapable of receiving material because of the obliteration of its canal. It may receive feces and only discharge part, retaining the residue for indefinite periods. The writer has observed retained bismuth<sup>1</sup> a number of weeks following an examination. In one case referred by Dr. S. L. Cash, and recently examined, the bismuth was found in the appendix when the latter was removed at operation.

The nonfunctionating appendix is always pathological, either having changes within its walls or dense adhesions surrounding it. Chronic inflammatory processes always end in replacing the normal structures with fibrous connective tissue. In the appendix such a process involving the muscular coat ends in loss of peristaltic motility; moreover, should connective tissue form in the other layers of its structure, or adhesions extending from adjacent parts bind it down, we have a degeneration of the muscle fibre caused by direct mechanical interference, disturbance of nutrition and reflex control, thereby causing diminished peristalsis. When this

<sup>1</sup>The opaque salts used in this work are bismuth subcarbonate and barium sulphate. If administered in sufficient doses bismuth subnitrate may be poisonous. This is due to chemical decomposition resulting in nitrite poisoning. If not properly washed barium sulphate may contain barium chloride, a soluble poisonous salt. Conservatively we may estimate that in x ray examinations 60,000 patients have received bismuth and barium salts with no ill effects, except where bismuth subnitrate or impure barium sulphate was employed.



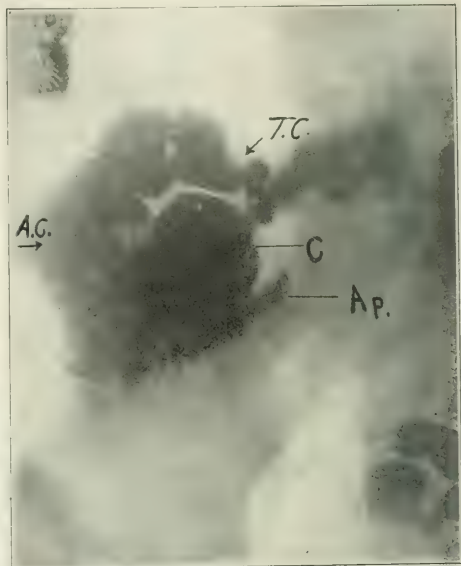
RADIOGRAPH 1—Mrs. W. Referred by Dr. E. L. Kellogg. *JA*, Appendix; *C*, ascending colon; *Sp*, sigmoid. In the radiograph this appendix is apparently straight but in reality under normal conditions is kinked. Its tip is adherent to the outer abdominal wall. Upward retraction on the cecum at the time the radiograph was taken has straightened the appendix out. The constriction observed near its tip is the point of angulation when the cecum drops. This radiograph also illustrates cecal stasis due to Jackson's membrane.



RADIOGRAPH 2—Miss M. Referred by Dr. E. L. Kellogg. *JA*, Appendix; *C*, cecum; *A.C.*, ascending colon; *T.C.*, transverse colon; *I*, ileum; *H.F.*, hepatic flexure. The appendix is functioning, fixed, and of the descending curved type. It is adherent to the outer abdominal wall throughout its entire length. The cecum and ascending colon are also tightly bound with a Jackson's membrane.

occurs feces with or without the normal food constituents may enter the appendix and be retained indefinitely.

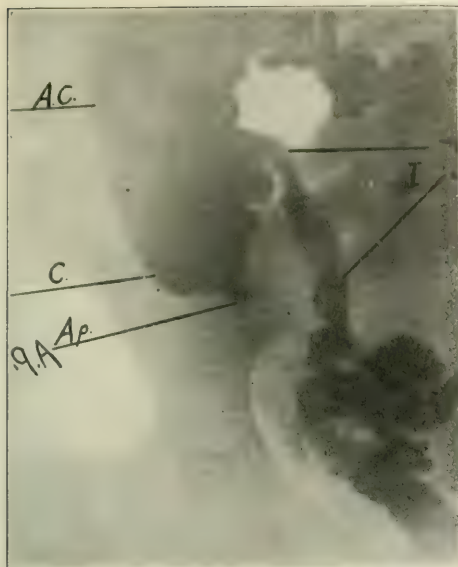
The fixed appendix is usually adherent to the abdominal wall. Otherwise it is attached to the adjacent viscera that are held by adhesions which prevent displacement by manipulation. A type of fixed appendix is illustrated in the accompanying radiograph. Palpation or pressure while examining under the fluoroscope enables one to readily determine the degree of fixation. A portion of the appendix may be fixed, especially the tip or end, as quite a number of the cases examined have an adherent tip and free shaft; this results in a movable appendix in which mobility may be deceptive when the tip of the appendix does not contain the opaque salts.



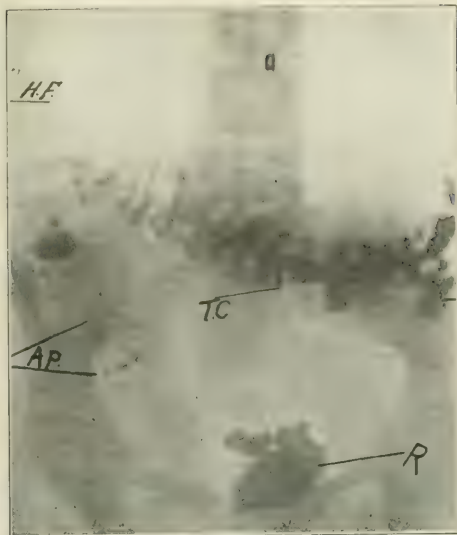
RADIOGRAPH 3—Mrs. S. Referred by Dr. Medford Runyon. *Ap.*, Appendix; *C*, cecum; *A.C.*, ascending colon; *T.C.*, transverse colon. This is a large mobile cecum which was retracted upward while the radiograph was being taken. This exposes a short kinked appendix so doubled on it-self, as to cause the two sections to appear as one.

A movable appendix may be so definitely changed in position as to delay its return to the original position or may be fixed at one segment, for instance the tip, and the remainder be readily displaced by shifting the cecum or, if of unusual length, the shaft will be readily carried to another position; if adherent to a movable structure its position can be changed by manipulation, in which instance a differentiation can be made if the attached viscera contains an opaque material. The general direction of a movable appendix can be so changed as to reverse it from the ascending to the descending type.

As a rule the ascending type is adherent; the tip may extend to the transverse colon or liver. They usually point upward and inward to the right of the umbilicus and as a rule lie between the median line and the ascending colon. Several have been ob-



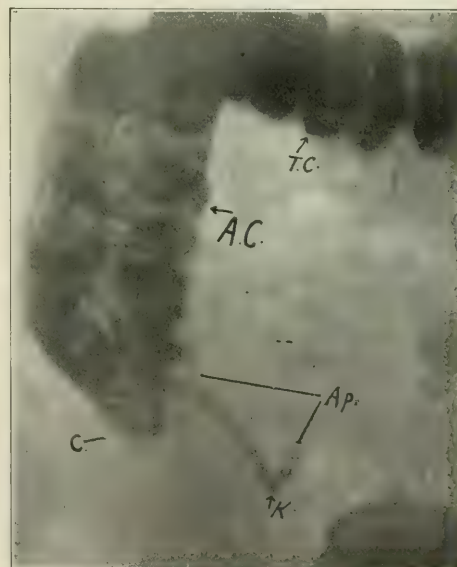
RADIOGRAPH 4.—Mrs. McL. Referred by Dr. W. B. Graves. *Ap*, Appendix; *C*, cecum; *AC*, ascending colon; *I*, ileum. This is a chronic appendix, nonfunctionating, of the knicked type, and adherent to the cecum.



RADIOGRAPH 6.—Mrs. G. Referred by Dr. H. D. Meeker. *Ap*, Appendix; *TC*, transverse colon. This is a curved nonfunctionating appendix the tip of which is adherent to the inner side of the cecum, while the shaft was firmly fixed to the ileum. This appendix under manipulation through the abdominal wall could only be displaced a very short distance, while its curved even contour could not be changed whatsoever. Careful inspection of the radiograph will show that the tip of the appendix turns downward where attached to the cecum, literally producing a kink. The sausage like sections of bismuth can be readily perceived.

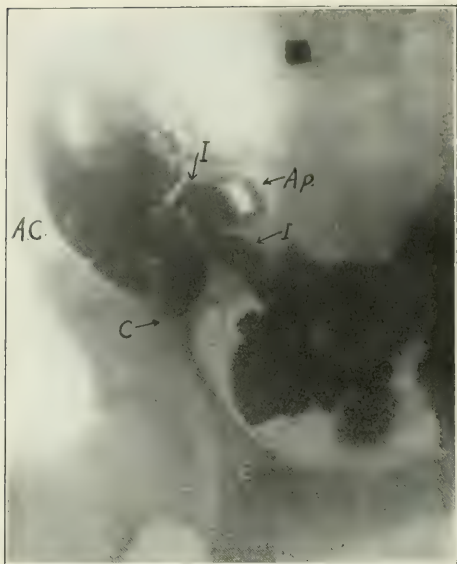


RADIOGRAPH 5.—Mr. W. Referred by Dr. W. S. Bainbridge. *Ap*, Appendix; *C*, cecum; *I*, ileum; *J.C*, ascending colon; *Sg*, sigmoid; *J.C*, transverse colon; *C*, umbilicus; *S*, stomach; *D.C*, descending colon; *R*, rectum; *Cn*, constriction. In this case the appendix is adherent to the terminal ileum, is curved, transverse, and functionating. The favorable position permits it to readily drain in spite of the fact that it is adherent. Attention is called to the constriction on the ascending colon due to a mesenteric band which is, no doubt, the point of resistance in what appears to be a normal colon.



RADIOGRAPH 7.—Mr. T. Referred by Dr. Earnest Bishop. *Ap*, Appendix; *K*, kink in the appendix; *C*, cecum; *AC*, ascending colon; *TC*, transverse colon. The tip of this appendix is attached to the sigmoid in such a position that, when the patient is horizontal, the cecum drifts upward and produces a kink at the juncture of the shaft with the adherent tip. This appendix was large, very easily palpated, and was nonfunctionating, retaining its bismuth several days.





RADIOGRAPH 8.—Mr. DeL. Referred by Dr. William Hayes. *Ap.* Appendix; *I.* ileum; *C.* cecum; *A.C.* ascending colon. This appendix was very large, easily palpated, nonfunctionating, and of the ascending type. With the patient erect it acted as a supporting ligament for the cecum. Its tip was adherent well up into the abdomen. The patient had been subjected to several years' medication for ulcer. His principal symptom was a persistent dragging pain near the median line close to the umbilicus.

served to lie anterior, others posterior or to the outer side of the ascending colon. The general complaint of these patients has been of discomfort when walking or being carried in a jolting vehicle. In the horizontal position the appendix is relaxed and looped or sometimes doubled on itself; this depends upon the degree to which the cecum recedes upward. The tip alone may be adherent or the entire shaft involved in a mass of adhesions. When these patients are in the erect position the cecum drops, traction occurs, and the appendix is extended to its full length. Difficulty is usually experienced in radiographing the patient standing, because the dropping down and inward rotation of the cecum and ascending colon causes the appendix to be overshadowed. Any attempt to displace these structures by manipulation is difficult because of the muscle tension of the abdomen and the massing together of the abdominal contents.

The descending appendices are generally found to be normal. If adherent or deformed in any way they are more easily manipulated and radiographed because of their freedom from the influence of the larger cecum and ascending colon, and the fact that the ileum posteriorly forms a firm background and decreases the anterior posterior depth of the abdominal cavity. Many of this type are found adherent at the tip, accompanied by a somewhat immobile cecum which does not descend very far; this latter condition may be accounted for in several ways, but the most rational explanation is that when the cecum is retained in a high position there is better drainage. The more abnormalities found in

connection with the inspection of the cecum, the ascending colon, and transverse colon, the greater the proportion of abnormal appendices. This is almost an invariable rule. Adhesions, mesenteric bands, and angulations involving the colon, resulting in stasis in the cecum and ascending colon, nearly always accompany the abnormal appendices and are found if the examination is complete. (Attention is called to several of the radiographs illustrating this point.)

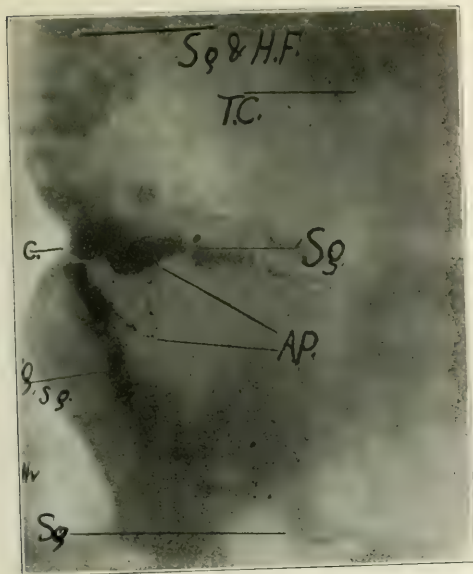
The transverse type usually points directly inward to the median line. Downward displacement of the cecum may carry it into such position that objectively it may seem to be of the ascending type and especially so if the distal end is adherent.

In this classification I am attempting to place each group with due regard to the classical McBurney's point, using this landmark as a centre of radiation and considering the appendix only as observed when the patient is lying horizontal, or in the position in which laparotomies are performed.

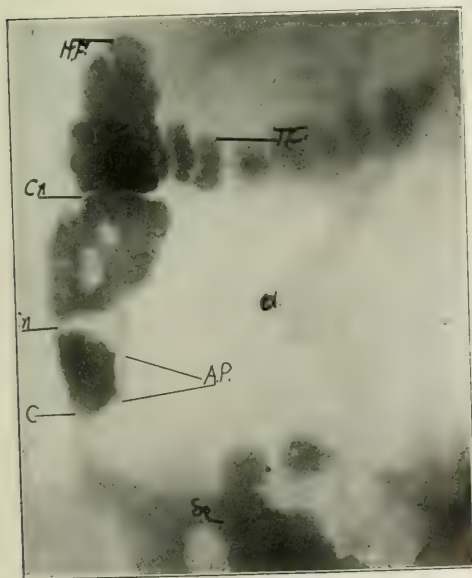
The fourth class can be broadly divided into four groups. The shape as observed with the x ray varies greatly. The radiograph is but a shadow of superimposed parallel planes and false conceptions of the shape and contour may be obtained if thorough familiarity with the relative values of the diffusion of the shadow cast by the various segments is not taken into consideration; the nearer the radiographed object is to the plate and the farther it is from the target of the x ray tube, the sharper the image, while that portion of the plate is propor-



RADIOGRAPH 9.—Mr. S. Referred by Dr. H. Austin Cossitt. *Ap.* Appendix; *C.* cecum; *A.C.* ascending colon; *Cn.* constriction; *I.* ileum. This appendix is adherent. It will be observed that there is a very small amount of bismuth distributed throughout the appendix. This is no doubt due to the appendix having been filled with feces previous to the administration of the bismuth. The day following this examination the entire appendix was very opaque. This illustrates how one superficial examination may cause us to overlook an appendix with a small quantity of bismuth within it, especially if well diluted with other material.



RADIOGRAPH 10.—Mr. A. Referred by Dr. Henry Eichorn. *Ap.*, Appendix; *Sg.*, sigmoid; *T.C.*, transverse colon; *C.*, cecum. This very long irregular appendix adherent at the tip, is nonfunctionating and of the movable descending type. The tip is adherent to the sigmoid. The sigmoid is unusually long. It passes upward to the right of the cecum to a point near the hepatic flexure, where it is adherent, then drops down and swings across the abdomen below the transverse colon to the splenic flexure. This unusual case will be reported in another group.

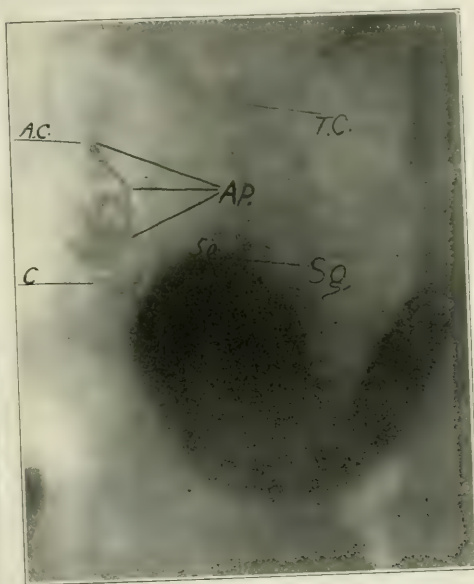


RADIOGRAPH 11.—Dr. D. Referred by Dr. William Hayes. *Ap.*, Appendix; *C.*, cecum; *Ca.*, constriction; *U.*, umbilicus. This appendix is of the ascending type, is adherent to the cecum and ileum, resting on the inner wall of the cecum to which it was firmly bound.

tionally diffused and rendered dull in contour. Stereoscopic studies of a long distorted appendix may be of material aid in determining its exact relations to the surrounding structures.

An appendix which is objectively straight when observed under the fluoroscope or by the radiograph may be kinked or partially obliterated and, unless it contains bismuth or an opaque salt throughout its length or may be moved by manipulation so as to bring the kink or curve to a right angled plane with the x rays, may be regarded as one without abnormalities.

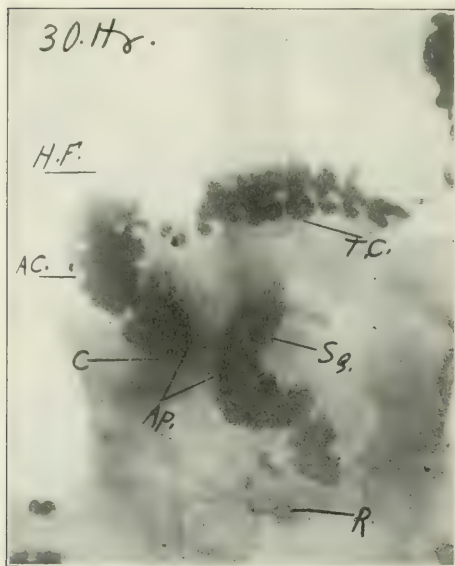
A curved appendix, if the entire length can be observed, when found to be of uniform contour and functioning, may be considered as normal, although we must keep in mind the probability of its shape being influenced by the drop of the cecum when the patient is erect; this point impresses the



RADIOGRAPH 12.—Mrs. K. Referred by Dr. Austin Cassitt. *Ap.*, Appendix; *C.*, cecum; *A.C.*, ascending colon; *Sg.*, sigmoid; *T.C.*, transverse colon. In this case several examinations were made and the position of the appendix determined, but the retention of the bismuth in the cecum and ascending colon prevented radiographing the appendix, as it was attached to the ascending colon in such a way as to fall in line with it. Following the administration of an enema containing the opaque salt the cecum and ascending colon was partially cleared of their contents, when peristalsis carried the enema into the transverse colon. It will be observed that the peristaltic wave has almost reached the splenic flexure. This permitted the appendix to come in view. As outlined it can be seen passing upward on the inner side of the cecum and only the anterior wall of the ascending colon. This appendix is a nonfunctionating, ascending, movable, and club shaped type.

fact on our mind that the posed and mobile cecum may throw an appendix into an unfavorable position or distort it and produce an acute angulation which would interfere with function.

The kinked appendix is usually pathological and appears as a short stump curling backward toward the cecum. Another type of the kinked appendix is that in which the tip is adherent in such a position that it may rest with its long axis at an angle



RADIOGRAPH 13.—Mr. A. Referred by Dr. Charles Anthony. *AP.*, Appendix; *C.*, cecum; *Sg.*, sigmoid. This appendix is adherent at the tip and is of the descending straight type. At operation the tip was found to be bulbous and adherent. The bulbous tip was not exhibited in any of the radiographs; evidently the cavity of the tip was small.

with the common position of the shaft. If this occurs a shifting of the viscera may decrease the degree of angle or straighten the kink. (A type is illustrated.)

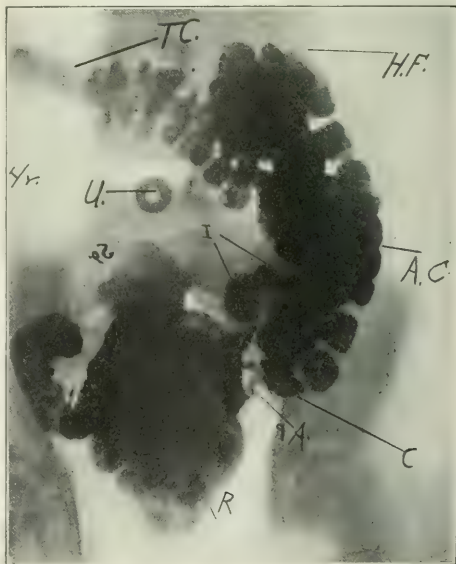
In the club shaped appendix the greater diameter of its cavity at the tip presents the appearance of a small ball of the opaque salts at the end of the shaft.

The looped appendix may be of considerable length. Several have been found with two or three loops and apparently six to ten inches in length, although the exact measurement is difficult to determine because of its numerous curves. These appendices are not necessarily diseased and their exact position is oftentimes difficult to determine. The length of time they retain the bismuth, the mobility, the diameter, and the degree of tenderness are determining factors in diagnosing their acute condition.

In all x ray examinations due allowance must be given for modifying factors such as the thickness of the abdominal wall, sensitiveness of the patient to palpation and manipulation, gaseous distention, scars, tumors, etc. One who is familiar with the physical examination of the abdomen knows well the influence that these conditions have on the manipulation of the viscera. The x ray enables us to locate the appendix and then, if permissible, aids in moving it about or placing the hand on it in such a way as to palpate its various segments. The size of the appendix naturally places restriction on the degree to which we can perceive its outline by the sense of touch. The well known skill of several able surgeons who have amply demonstrated the feasibility of palpating this structure has clearly

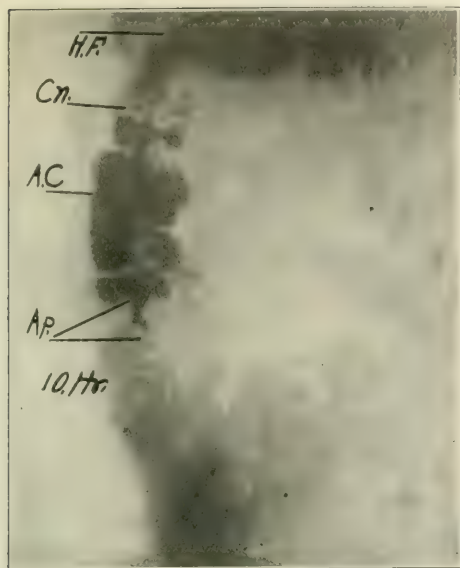
proved that this is possible under favorable conditions without the aid of the x ray. However, by its use we can promptly locate the appendix and be certain that the organ which our fingers outline is none other than what we desire to find. I have been very much impressed with the deceptive character of bands of the abdominal fascia, or bands of adhesions, and thickened intestinal walls in their tendency to give one the impression that he had his finger on what appeared to be a structure, about the size and consistency of the appendix—most deceiving unless these are excluded.

The first thing we should observe when palpating the abdomen for the appendix is the necessity of locating the cecum; this segment of the bowel in the greater proportion of cases is readily palpable and usually lies above the brim of the pelvis. We pass our hand downward until the end of the cecum slips upward under the fingers, this almost always presents us with an outline of that portion of the cecum to which the appendix is attached. Placing a finger over the sulcus which is produced by the longitudinal band of muscles we may palpate the base of the appendix. Once located at least seventy per cent. of appendices can be palpated; then if the opaque material has entered this structure we can readily see what we are hoping to find. The determination of its condition, size, and shape follows. A large number of subjects have a mobile cecum which, if not adherent up in the abdomen, drops into the true pelvis when they are erect and, even if not adherent within the pelvis, is very difficult to retract upward when the patient is placed in the Trendelenburg position. Frequently a ce-



RADIOGRAPH 14.—Miss E. Referred by Dr. Austin Cossitt. *AP.*, Appendix; *C.*, cecum; *A.C.*, ascending colon; *Sg.*, sigmoid; *R.*, rectum. This appendix is functioning, freely movable, can be readily displaced from one position to another and changed from the straight to the curved type. (Photograph has been reversed.)





RADIOGRAPH 13.—Mr. K. Referred by Dr. J. Wallace Beveridge. *Ap.*, Appendix; *A.C.*, ascending colon. This appendix is nonfunctionating, kinked, movable, and descending. Although adherent to the cecum the mobility of the cecum permits it to be classed among the movable appendices.

cum which rests in the pelvis is distended with feces and literally wedged within this cavity and all efforts to remove it are in vain, but digital pressure from below may aid us in dislodging it. Occasionally a cecum so placed may be forced upward by the administration of a small enema, the rectum becoming distended it forces the colon upward.

The movable appendix may be readily displaced over a great area; this is proportionate to the length and condition of the mesentery of the appendix, together with the mobility of the cecum. The mobility of an appendix has a certain bearing on our interpretation of its condition but does not necessarily prove that it is not pathological, although, if mobile and functioning it can then be considered normal.

If the appendix is of the chronic type the muscular coat having been destroyed by inflammatory processes leaving the remaining tissue a flexible and hollow tube not able to properly discharge its entire contents, a residue of the feces containing the opaque salt may remain even after position or other conditions have partially drained the canal.

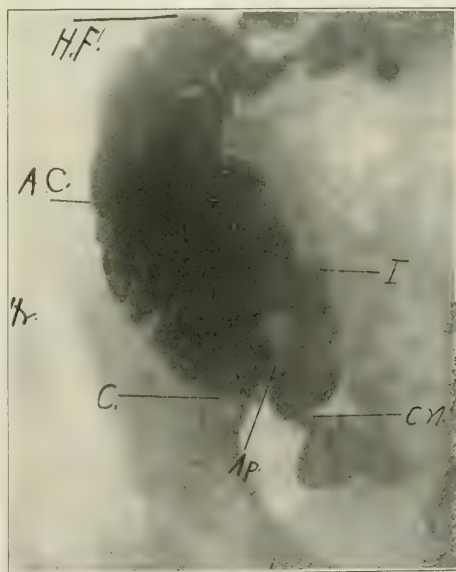
As the entire canal of the appendix is not of uniform calibre we do not expect to find on the screen or radiograph a symmetrical shadow outlining it in its due proportions. The bismuth salt may be retained in any segment of the canal. Very small particles may be distributed throughout its entire length mixed with feces which have entered the appendix previous to the administration of the bismuth; this results in small segmented shadows, the general distribution of which correspond to the location of the appendix. As observed in an accompanying radio-

graph it may be somewhat evenly distributed in segments which suggest a string of sausages. (See Dr. J. T. Case.)

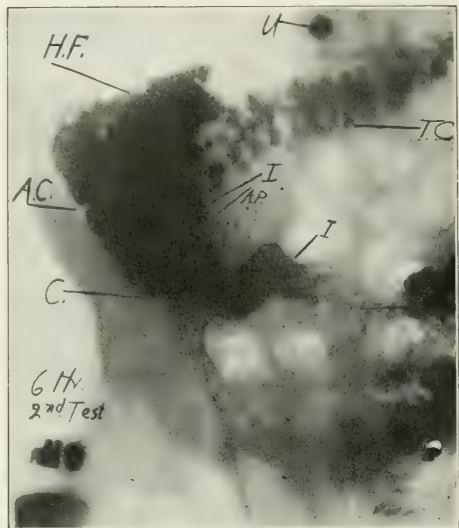
The adherent appendix is not always fixed in its position while it may be adherent to the cecum, ileum, or its mesenteries; at the same time it can be freely moved about with these structures. On the other hand a fixed appendix is adherent to the abdominal wall or bound down by numerous adhesions involving all the surrounding intestines.

The soft tissues which compose the wall of the appendix, with a few exceptions, do not cast a shadow. The writer has had two cases in which the wall of the appendix was of sufficient density to cast a shadow which could readily be seen. The difficulty of reproducing the shadow of the soft tissues in half tones prohibits demonstrating them in published radiographs. In the original radiograph it will be observed that there is a very thin line, pointing downward from the cecum, which is the opaque material. When the soft tissues can be seen in the radiograph they should be regarded as a deposit of scar tissue which has replaced the normal appendix and is evidently due to a chronic inflammation.

A number of patients with chronic appendicitis reacted very quickly to manipulation of the right side, and the abdominal wall at once became very rigid. Usually fat individuals or those with a persistently rigid abdomen are very hard to examine and, while with the fluoroscope we may see what we believe to be the appendix yet we are unable to palpate the organ.



RADIOGRAPH 19.—Mr. F. Referred by Dr. J. Wallace Beveridge. *Ap.*, Appendix; *C.*, cecum; *I.*, ileum; *Cn.*, constriction of the ileum where the tip of the appendix is adherent to it. In this case there is a marked iliac constriction which can be readily palpated. The appendix was palpable, of the nonfunctionating, movable, descending, and looped type.



RADIOGRAPH 17.—Mrs. C. Referred by Dr. Joseph McCarthy. *Ap.*, Appendix; *I.*, ileum; *C.*, cecum; *H.F.*, hepatic flexure; *U.*, Umbilicus. Appendix is nonfunctionating, movable, transverse, and looped, adherent to the ileum. The canal of this appendix is very slender rendering it difficult to outline in half tone the entire length, which can be seen on the original radiograph.

My routine practice consists in the examination of the entire alimentary canal and extends over a period of from four to six days. As a rule the appendix is found to contain bismuth on the second day or at the end of the thirty hour period. There are so many exceptions to this that we should not make it a practice to depend on the time factor. My practice is to expect the appendix to be filled with bismuth any time after six hours.

#### FILLED BY MASSAGE.

This routine examination elicits all the anomalies which occur and enables the examiner to report very definite findings especially if sufficient time is taken with each case. The total time spent by the examiner with each patient is approximately five hours. The subject is examined from seven to twelve times. This may appear to be excessive, but a correct finding can only be made by close attention to detail and inspection of each segment of the alimentary canal as the opaque salt passes from mouth to anus. At times one is tempted, and occasionally will be superficial in the inspection of a case that does not justify so much time and labor, but the valuable data obtained will reward the examiner and are a stimulus to do careful work.

The vast risk assumed by the examiner in the numerous fluoroscopic inspections that are demanded in following the bismuth meal, and especially in examining the right lower quadrant to determine the condition of the appendix and the presence of iliac kink, must always be considered.

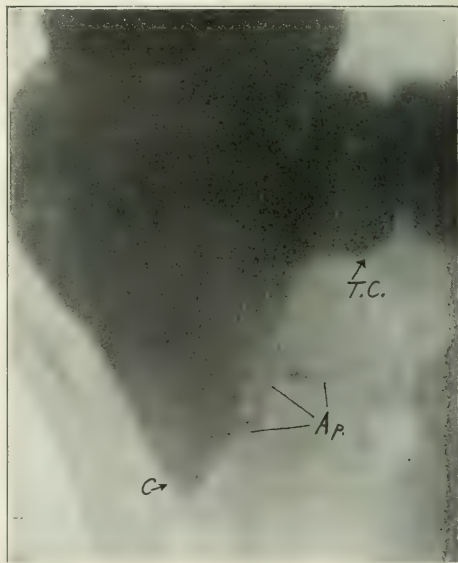
One may determine the location of an appendix and state that it contains bismuth the usual length of time, and so conclude that it is the chronic type

and, being satisfied with this, may fail to prove the presence of adhesions or other abnormalities.

The exceptional number of appendices observed in the cases examined leads the writer to believe it is very rare for an appendix to become obliterated to such an extent, as to prevent material from entering its canal. Some may take exception to this statement, but as long as an appendix contains a mucosa which secretes, drainage must be provided therefore although the canal may be very small, it exists, and is capable of receiving foreign material. Again, I have observed some appendices receive the bowel contents in but a portion of their entire length and with palpation have then demonstrated the entire canal structure. In these cases, when operated and the appendix compared with the radiograph, it will be found to be considerably longer than its shadow.

#### CONCLUSIONS.

1. When there is chronic constipation due to delayed or inhibited peristalsis the appendix is usually diseased.
2. In the differential diagnosis of the appendix the x ray is essential.
3. When the pathological condition of an appendix is suspected and there are few symptoms an x ray finding is essential.
4. When the appendix is tied up in a mass of adhesions an accurate finding of the appendix enables the operator to rapidly locate it at operation.
5. Accurate determination of conditions typifying appendicitis should be made before operation.
6. When there are obscure symptoms in the abdo-



RADIOGRAPH 18.—Mr. H. Referred by Dr. Harold Meeker. *Ap.*, Appendix; *C.*, cecum; *T.C.*, transverse colon. This appendix is very much distorted. It is adherent to the cecum and ileum. It is movable, nonfunctionating, and knicked. Although tightly bound to these structures it could be readily displaced about one inch when the cecum was manipulated.

men which cannot be traced to a definite organ an x ray examination of the appendix may show that it is adherent to some distant organ.

40 EAST FORTY-FIRST STREET.

## MOVEMENTS OF THE TWO HALVES OF THE CHEST IN DISEASE.

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The facts obtained from the physical examination of the chest in a variety of pulmonary and cardiac diseases, abnormal maladies, and cerebral lesions have for many years caused one of us (Boston) to believe that an accurate record of the movements of the two halves of the chest would furnish clinical data of special interest. Considering the work already accomplished along this particular line, we are now convinced that this field of clinical study does furnish valuable evidence in connection with selected cases as is shown by the accompanying pneumograms. The object of this preliminary report has been to determine chiefly (a) the difference in the amplitude of the curves of the pneumogram as produced by the respiratory movements of the two halves of the chest; and (b) delayed movements upon the side in which respiration was inhibited.

A correlative study of the pneumograms of the two halves of the chest, renders immediately apparent the fact, that organic lesions of the lung and pleura, and both liquid and air in the pleural cavity give unmistakable evidences through this method. Our observations have been confined to the study of patients in the Philadelphia General Hospital, where it has been possible to make a careful physical examination of each patient before employing pneumographic study; and in one case the autopsy findings were confirmatory with regards to the existence of unilateral pulmonary and pleural lesions (Case I).

Certain factors are to be taken into consideration in the application of this method of study to general clinical use; and while at present our apparatus is too cumbersome for use outside of the hospital, it is believed that this field of observations reveals sufficient definite clinical information to warrant its employment whenever possible. One of us (Ulman) is devising an instrument for this purpose.

Alterations in the pneumograms as the result of excessive or diminished muscular development of the chest, must be reserved for a later report, as must also the influences exercised by abdominal and cardiac affections and other special movements of the chest.

In the cases thus far studied (with the exception of that of hemiplegia) a variable degree of dyspnea has been present, and in consequence of this we must grant that the muscles of the glottis and those

of the nares (regarded as accessory muscles of respiration) have been active. When dyspnea obtains in man, undue movement of the alae nasi is invariably present. The glottis is dilated at each inspiration by the contraction of the posterior cricoarytenoid muscles in cases of dyspnea. Both the foregoing features provide a useful result in respiration, by a reduction in the resistance offered to the inflow of air.

The apparatus (Fig. 1) consists of (1) kymograph, (2) two Marey tambours, (3) metal stand, (4) two clamps, and (5) two pneumographs (Modified Ellis). The pneumograph consists of a rubber tube, eight inches long, distended by a spiral wire spring. One end of the tube is closed, while the other end has an opening attachment to connect with rubber tubing (6) to the tambours. A byvalve (7) is interposed between each pneumograph and tambour to prevent rupture of the rubber membrane of the tambour.

Changes in the air pressure in the pneumograph is transmitted to the Marey tambours (2), which writes the respiratory movements upon the smoked

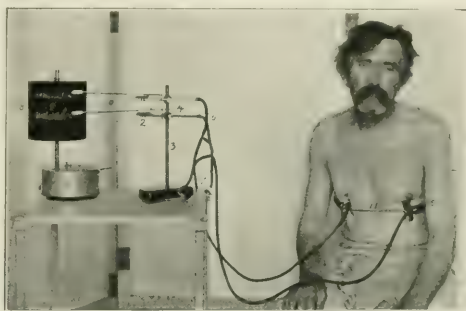


FIG. 1.—Recording movements of the two halves of the chest. Instrument in operation.

paper on the drum of the kymograph (8), and produces the pneumograms (9).

The pneumographs (5) are held in position upon the lateral parts of the chest by means of two small chains (11). One connects them across the back and the other across the front of the chest. Care must be taken not to have the chains too tight, as this will inhibit the respiratory movements of the chest. They are best applied on a level with the sixth ribs so that the anterior part of the pneumographs, which contain the opening for connections to the tambours, is situated about the nipple line. The distance separating the pneumographs over the back will vary greatly, depending upon the size of the chest.

The apparatus can be applied to the patient whether in the erect, sitting, or reclining posture. Have the small byvalves (7) open to prevent undue pressure on the tambours while adjusting the apparatus, preparatory to taking tracings. When ready to take the tracings these byvalves are to be closed. White glazed paper, six inches wide, is placed on the drum (8) of the kymograph and smoked evenly, though not too heavily, by the flame from a coal oil lamp or a gas burner.



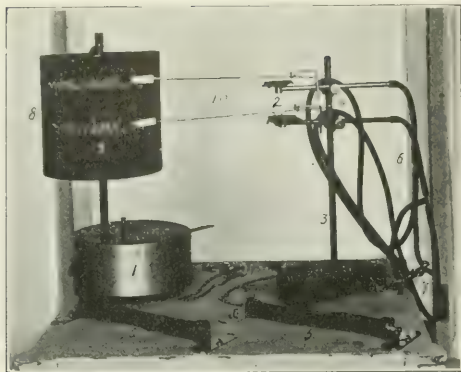


FIG. 2.—Apparatus showing separate parts. (1) Pneumographs, (11) connecting chains.

Be careful to bring the writing points of the two levers (10) of the tambours in the same vertical line, and with just sufficient pressure against the smoked paper, on the drum, to prevent binding. The distance between the two levers is not constant, but depends upon what type of tracing you desire to take. Usually from one and one quarter to two inches apart will suffice. The tension of the rubber membranes of the tambours (2) must be equal. Should the patient cough (Case V), yawn, sneeze, or laugh during the taking of the record, these acts cause undue amplitude in the curves of the pneumogram. Figure 2 shows the separate parts of the apparatus.

The time marker can be placed at the base of the drum and this record may be made at the time the respiratory movements are recorded (Fig. 6). The time record may be taken after the pneumogram, but in such cases care must be taken that the speed of the revolving drum is the same as it was when the pneumogram was made.

The degree of pressure within the pneumographs is increased by inspiration (causing the downward curve of the pneumogram), while expiration lessens this pressure and corresponds to the upward curve of the pneumogram.

CASE I. A. F., aged sixty-three years; American; plumber by occupation; was admitted to the hospital July 30, 1913.

Past Medical History: Had a chancre at the age of eighteen years, and paralysis of the right arm at fifty-five years, from which he completely recovered within a few weeks.

Present Illness: During the past four months he suffered from dyspnea on exertion. He noticed that his feet and ankles were swollen during that time. He experienced paroxysmal attacks of dyspnea which were accompanied by cough and slight expectoration. Vertigo was an annoying symptom throughout the course of his illness.

Physical Examination: The lips, ears, and extremities showed evidence of cyanosis. The respiratory movements were rapid, forty a minute. There was some edema of the ankles, and the general evidences of emaciation.

Palpation: The pulse was irregular, though full and strong at ninety. Vocal tactile fremitus was increased over the base of the left lung posteriorly.

Percussion: The note was impaired below the fifth rib posteriorly on the left. There was slight superresonance over the upper portion of the left and the entire right

lung. The area of cardiac dullness extended three fourths of an inch to the left of the left nipple, and as low as the seventh rib. The right border of the heart as shown by auscultatory percussion, extended well below the sternum and into the epigastric region.

Auscultation: At the base of the left lung posteriorly there were to be heard a few fine, crackling râles, while over the fifth rib at the posterior axillary line, distinct bronchial breathing was audible. A distinct friction murmur was audible on a level with and one inch to the outer side of the left nipple. The heart sounds were weak and irregular as to both time and force.

During the second day after admission to the hospital Cheyne-Stokes respiration developed, which type of breathing persisted until death. The pneumonic processes of the left lung spread gradually until approximately one half of the organ was involved. The accompanying pneumograms were made the second day of the patient's stay in the hospital, and when the pneumonic process involving the left lung extended to a level with the top of the fifth rib. The pneumograms (Fig. 3) illustrate the distinct differences between the movements of the two halves of the chest. The pneumographic study was made when the patient was resting upon his back, and when Cheyne-Stokes respiration was presented. A correlative analysis of these pneumograms rendered immediately apparent the great variation in amplitude of both the curves of inspiration and of expiration, and showed as it did a decided enfeeblement of the respiratory movements of the left side.

Autopsy: Right lung approximately normal. Left pleural cavity contained thirty c. c. of serous exudate. Left lung presented the characteristics of pneumonia, stage of gray hepatization. The heart was markedly dilated and showed rather extensive myocardial changes. Other autopsy findings were of such a nature as to be of little or no interest in connection with the recorded movements of the chest.



FIG. 3.—Case 1. Bilateral pneumogram from a case of pneumonia—base of left lung. Cheyne-Stokes respiration present.<sup>1</sup>

CASE II. J. Z., aged sixty-three years; Dutch Creole; admitted to the hospital March 18, 1913, for paralysis of the right arm and leg from which he had been suffering for the past two months. His mind was somewhat enfeebled and during the past few weeks he lost the power of speech. On August 20, 1913, the day on which the present study was made, the patient was able to move the right leg and arm, but was unable to walk and there was marked weakness of the right arm. The pneumogram (Fig. 4) was made with the patient sitting, and shows clearly the effect of paralysis on the respiratory movements of the right side. When directed to inspire deeply the amplitude of the downward right curve exceeds that of the left curve, a feature due apparently to relaxation of the muscles of the right side.



FIG. 4.—Case 2. Bilateral pneumogram from a right hemiplegic.

CASE III. T. R., aged thirty-seven years; white; male; was admitted to the hospital June 30, 1913, suffering from an attack of acute pleurisy involving the left side. Upon physical examination it was found that both pleural cavities contained an abnormal amount of fluid, the dullness extending on the right side as high as the fifth rib and to the top of the sixth rib on the left side. After three weeks' stay in the hospital, physical examination failed to

<sup>1</sup>The upper line in the pneumogram is from the right, the lower from the left lung. The beginning of the pneumogram is always on the right side of the cut.

reveal the evidence of fluid in the right pleural sac. At this time the left pleural sac was aspirated and thirty ounces of clear serous fluid was removed. The patient improved rapidly after aspiration and three weeks later (six weeks after admission) the accompanying pneumogram (Fig. 5) was made. The pneumogram served to show that the respiratory movements of both sides of the chest were abnormal, and that there was a decided irregularity in the respiratory curves, and further that there was appreciably more amplitude shown by the curves of the right side.

CASE VI. M. J., aged forty-seven years; male; contracted a severe cold two years ago since which time he had been losing weight, and had had a severe cough accompanied by blood tinged expectoration. Sputum contained tubercle bacilli. Physical examination revealed positive evidence of a tuberculous cavity near the apex of the left lung. An x ray study showed a cavity. The accompanying pneumogram (Fig. 8) taken with the patient standing, showed a decided lessening of the movements of the left half of the chest

FIG. 5.—Case 3. Bilateral pneumogram of left pleurisy.

CASE IV. H. S., aged fifty-six years; American; was admitted to the hospital July 23, 1913. Present illness began by chills and severe pain in the right side three days before admission. Upon entering the hospital the physical examination gave negative results except for a distinct friction murmur, heard best in the region of the right nipple.

The general symptoms, including a temperature of  $102^{\circ}$  F., were those of acute pleurisy. Three weeks after admission, and at a time when there were present physical signs indicating that a moderate amount of fluid was contained in the right pleural sac, the accompanying record was made. The pneumogram (Fig. 6) of the right side displays far less fluctuation in its curves than does that on the left, which tracing is also very irregular both as to amplitude and time. Thirty-seven ounces of fluid were removed from the right pleural sac immediately after making the pneumogram.

FIG. 6.—Case 4. Bilateral pneumogram of right pleurisy. Scale shows time record.

CASE V. J. L., aged sixty-three years; born in England; eighteen years in United States; had been admitted to the hospital several times during the past year. He stated that two years ago he had contracted a heavy cold and since that time he had had a severe cough which had been accompanied by free expectoration. Upon one occasion the sputum was blood streaked (tubercle bacilli present in sputum and feces). Physical examination disclosed the signs of a pulmonary cavity near the apex of the left lung. The breath sounds over the left half of the chest were of the so called cogwheel type. The accompanying pneumogram (Fig. 7) displayed a rather unique feature since the curves of the left side of this record never assumed the usual course, but were decidedly wavering throughout. Near the centre of the pneumogram the deep inspiratory depressions of the curves resulted from the patient's attempt to inspire deeply, and the upward amplitude of the curves, immediately following, resulted from a cough during forced expiration. It is noteworthy that after attempted deep inspiration and forced expiration the former rhythm of the respiratory movements of both sides of the chest were appreciably disturbed, and did not assume the usual course until after three or more respirations.



FIG. 7.—Case 5. Bilateral pneumogram from a patient showing cavity at the left apex. Unusual amplitude of curves resulting from deep inspiration followed by cough.

FIG. 8.—Case 6. Bilateral pneumogram from a case showing a tuberculous cavity of the left lung.

CASE VII. W. D., aged sixty-five years; male; American; was admitted to the hospital July 10, 1913, for tuberculosis. Had influenza six years ago which was complicated by left pleurisy. During the past few months he had lost twenty pounds in weight. He suffered from extreme cough accompanied by expectoration, and pain in the left apical region. Physical examination revealed the existence of a tuberculous involvement at the upper portion of the left lung, the centre of which lesion was situated at the junction of the midclavicular line and the third rib. All the classic signs of a tuberculous cavity were present. The accompanying pneumogram (Fig. 9) showed that the portion of the left lung below the nipple, which was apparently healthy, caused greater movements of the



FIG. 9.—Case 7. Bilateral pneumogram from a case showing tuberculous consolidation of the upper half of the left lung with compensatory emphysema of the right lung. Amplitude of downward curve results from deep inspiration and is followed by a succession of attempts at forced expiration. Dotted lines show that extreme expiratory effort of the right side occurred synchronously with inspiratory effort of the left side.

left half of the chest than did the right lung which was emphysematous. When the patient was directed to inspire deeply the record showed his inability to expand the left side of the chest as freely as he did the right. (Fig. 9.) In other words, a tuberculous cavity located at the apex of a lung might give a record of undue expansion of that portion of the chest not overlying the cavity, while at the same time forced inspiration and expiration showed by the pneumogram that the movements of this half of the chest were limited.

CASE VIII. T. R., aged fifty-three years; Italian; admitted to the hospital August 15, 1913. The physical examination showed marked distention of the abdomen and there were present the physical signs of ascites. The peritoneal cavity was aspirated and eight quarts of fluid removed. After the removal of the peritoneal fluid a physical examination showed the liver to be greatly enlarged; its lower border extending on a level with the umbilicus. The accompanying pneumogram (Fig. 10) was made two weeks after the aspiration, and at a time when the abdo-

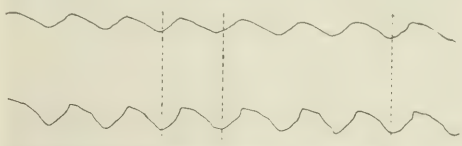


FIG. 10.—Case 8. Bilateral pneumogram showing characteristic differences in the curves from the two sides, resulting from ascites and hepatic enlargement. Dotted line shows delay in the downward (inspiratory) curves of record. "R."

men contained sufficient fluid to have given distinct fluctuation. The record showed unusual amplitude of the curves of both inspiration and expiration as the result of increased abdominal tension. The variation in the curves from the two halves of the chest probably depended upon the enlargement of the liver which will be seen to have materially altered the tracing of the right half of the chest, both as to amplitude and time.

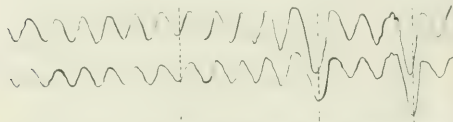


FIG. 11.—Case 9. Bilateral pneumogram showing forced inspiration and forced expiration, and showing lessened amplitude of the curves of the record from the left side. No marked delay in the movements of the left side of the chest.

CASE IX. J. O'D., aged forty-five years; American; treated in the hospital one year ago for a tuberculous lesion at the apex of the left lung. Admitted to the hospital August 3, 1913, at which time the physical examination showed impairment of the percussion note over the entire left lung, and there was distinct dullness and vocal resonance were increased above the third rib anteriorly and at the left of the spine between the scapula. The expiratory murmur was prolonged and harsh and the voice sounds markedly increased over the area of involvement. The right lung and pleura were apparently normal. The movements of the chest as recorded by the accompanying pneumograms (Fig. 11) showed a decided inhibition in the amplitude of the left side curve, designating the act of inspiration from the left half of the chest

1819 CHESTNUT STREET.

## TUBERCULAR LEPROSY IN A NEGRESS.

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This case is reported to the profession on account of the fact that it originated in a community which is practically free from leprosy infection, and in one having no history of exposure to the disease.

The accompanying photograph shows the extent of the facial involvement; the body and extremities are also involved to a considerable extent, but very few lesions show any ulcerations. Clinically the case is well developed, and typical of the more common form of leprosy, the nodular or tubercular type. Examination of the nasal secretions from superficial ulcerations in the posterior nares on two separate occasions showed the presence of the *Bacillus leprae*. The cutaneous lesions have existed for three years, the first to appear occurring on the face. In the past year they have greatly increased in numbers, and have been noticed on the body and the extremities. The following history was obtained:

CASE. A. W., negress, aged twenty-two years, married at seventeen years. Laundress. Born in Baker county, Florida, had lived in Jacksonville since a baby, and had never been out of the city. The patient stated that she always had good health, had had two pregnancies, one resulting in a miscarriage, and the other in a child which lived only three weeks. The husband of the patient was born in Georgia, and was always apparently in good health. Both parents of the patient were alive and showed no evidence of disease; both parents were born in Florida, and had never been out of the State. They had had twelve children, six of whom were alive and were apparently in good health, the others having died of ordinary causes.



Tubercular leprosy.

Treatment had not given any marked results. Chaulmoogra oil in increasing doses has been tried, i. e., thirty drops in milk three times daily. X ray exposures caused slight improvement in the lesions on the face.

ST. JAMES BUILDING.

## THE USE OF THE X RAY IN THE DIAGNOSIS OF DISEASES OF THE CHEST AND ABDOMEN.

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(Concluded.)

### GASTRIC CANCER.

In the last eight months I have had four cases of gastric cancer, examined with the x ray, which have come to operation. In three cases the diagnosis of gastric cancer could have been only tentative without the help of the fluoroscope. In every case the fluoroscope told us not only that a growth was present, but in what part of the stomach it was and its size. In all the cases the x ray diagnosis was confirmed in every detail at operation. The signs of cancer of the stomach by the x ray are "filling defects," so called, and abnormal gastric peristalsis. What filling defects signify can perhaps best be understood by the use of the diagrams in Fig. 8, which I have been using for the elucidation of the subject to students and physicians. Fig. 8IA is the diagram of a normal stomach, IB is that stomach as it appears on the fluoroscopic screen when filled with a bismuth meal. Fig. 8IIA is a stomach with a carcinoma growing into the lumen. IIB is that stom-



ach filled with a bismuth meal. The growth encroaching on the lumen of the stomach will be seen to break into the smooth contour of the normal bismuth shadow. This is called by röntgenologists a filling defect. (Fig. 9.) It seems hardly possible to me to exaggerate the importance of the fluoroscope in gastric cancer. If the early diagnosis of that condition is to be made at all at the present time, this method is by all means the most likely one to make it. It is worth emphasizing again that in most of the cases in which I have used the x ray there was no tumor, no visible peristalsis, no obstructive vomiting—they were cases in which the weight of the evidence was decidedly in favor of the gastric cancer, but which no man of experience would care to dogmatize about; yet anyone who saw the case with the fluoroscope would feel as sure that cancer was present as if he had been present at the autopsy. If there is a growth, even of small size, into the lumen of the stomach, or if there is sufficient infiltration of the stomach wall to stiffen it even over a small area, and so inhibit the passage of peristaltic waves in that area, or if there is a stenosis of the pylorus, the x ray will reveal it.

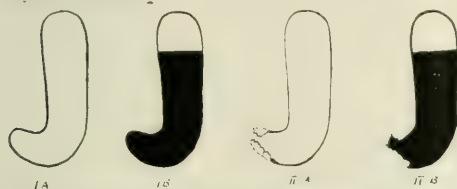


FIG. 8.—Diagram of the mechanism of the appearance of the bismuth meal in carcinoma of the stomach.

There are certain errors which may creep into the radiological examination of the stomach, as into every diagnostic method. In one case of salpingo-oophoritis many loops of small intestine had become adherent in the lower pelvis, and the pyloric end of the stomach had also been drawn down and was adherent; thus leading to the diagnosis of pyloric stenosis. In another case the diagnosis of pyloric stenosis was made because a bismuth meal remained in the stomach over eight hours, but gallstones were found at operation. On the whole, however, the x ray seems the most important means of examination we have in stomach cases. A good history is perhaps of most use, but the x ray is far superior to any other method now in use to confirm it. This does not mean, of course, that the physical examination and chemical examination of the stomach contents and stool need be discarded. We are not forced to any such choice.

Holzknicht (14), the pioneer in this work, has formulated some radiological symptom complexes of the stomach which are worth copying here. Like a good clinician, Holzknicht has not divorced the history and the physical and chemical examinations from his complexes.

*Symptom complex 1:* 1. Bismuth residue after six hours. 2. Normal stomach shadow on the screen. 3. Achylia. Diagnosis: Small carcinoma of the pylorus.

*Symptom complex 2:* 1. No residue after six hours. 2. Marked defect in the gastric shadow. 3.

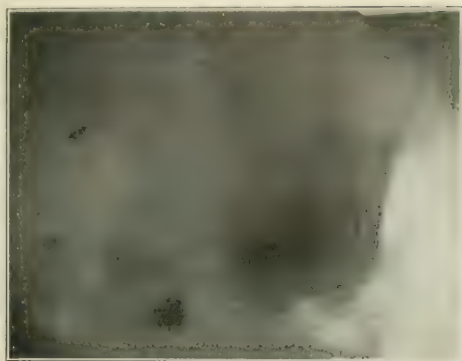


FIG. 9.—Carcinoma of the pylorus.

Horn shaped stomach. Diagnosis: Carcinoma. No stenosis. Inoperable.

*Symptom complex 3:* 1. No residue after six hours. 2. Marked defect of stomach shadow, in the pars media or pars pylorica. 3. Hook shaped stomach. Diagnosis: Carcinoma. Inoperable.

*Symptom complex 4:* 1. Small residue after six hours. 2. Sensitive pressure point over the stomach. 3. Normal stomach shadow. Diagnosis: Simple gastric ulcer.

*Symptom complex 5:* 1. Small bismuth residue after six hours. 2. Pressure point. 3. Displacement upward and to the left. 4. Snail form of the stomach shadow. Diagnosis: Old contracting ulcer on the lesser curvature of the pars pylorica.

*Symptom complex 6:* 1. Small bismuth residue after six hours. 2. Pressure point and resistance in the pars media. 3. Transverse contraction of the



FIG. 10.—Gastropexis and enteropexis.



FIG. 11.—Cecal constipation; taken one hundred and thirty hours after a bismuth meal.

pars media. 4. Diverticulum without air bubble in the smaller curvature immovable. Diagnosis: Callosus ulcer of the small curvature of the pars media.

*Symptom complex 7:* 1. Large sickle shaped bismuth residue after five hours. 2. Dilatation. 3. Loss of tone. Diagnosis: Old stenosis of the pylorus, due to ulcer.

*Symptom complex 8:* 1. Large sickle shaped residue. 2. Marked filling defect in pars pylorica. Diagnosis: Carcinoma on the base of an old ulcer with stenosis.

*Symptom complex 9:* 1. No bismuth residue after six hours; 2. Marked defect in the shadow of the pars pylorica or pars media. 3. Transverse constriction of the gastric curvature. Diagnosis: Carcinoma on the basis of an old ulcer; no stenosis.

*Symptom complex 10:* 1. Stomach empty after six hours. Head of the bismuth column at the splenic flexure of the colon. 2. Shortening of the stomach. 3. Congestion of the cardia. Diagnosis: Carcinoma of the pars cardiaca.

*Symptom complex 11:* 1. Stomach empty after six hours. Head of bismuth column in ascending colon. 2. Stomach shadow normal. 3. Pressure point moving with the duodenum. Diagnosis: Ulcer of the duodenum.

*Normal stomach:* 1. Stomach empty in six hours. Head of bismuth column in the ascending colon. 2. Stomach shadow normal. 3. No increase of peristalsis. No antiperistalsis. 4. No sensitive pressure point. 5. Hydrochloric acid normal.

#### INTESTINE.

By the use of the bismuth meal, obstruction in the intestine can perhaps be shown better than in the stomach. So, for adhesions and tumors causing chronic obstruction, it is the most reliable diagnostic method we have. Enteroptosis also can best be dem-

onstrated with the x ray. This is perhaps not the proper place to enter into a discussion of the symptomatology and significance of enteroptosis, but it is not improper to remark that the x ray studies give us some very interesting and novel sidelights on this vexed problem. (Fig. 10.)

#### CONSTIPATION.

We exclude here the cases of constipation due to adhesions and bands. These conditions sometimes cause constipation and sometimes do not. There remain for study the cases of simple chronic constipation. The rationale of the use of the x ray in the diagnosis of constipation must readily be evident to all. If in constipation there is a stasis of food in some portion of the intestine, there must be some advantage in knowing where the stasis is. To determine this we have been able to construct a sort of time table for a bismuth meal in the normal intestinal canal. We owe it to Hertz (15) of Guy's Hospital. A bismuth meal should be almost out of the stomach, except for a small residue, and in the cecum in four and one half hours; it should pass the splenic flexure in from seven to twenty-four hours; at the end of from twenty-eight to thirty-two hours every trace of a bismuth meal should be in the pelvic colon, where it stays until defecation occurs.

The average normal anatomy of the large intestine in the upright position is, as is the normal anatomy of the stomach, somewhat different from our ordinary conception. The hepatic flexure is usually a little above the crest of the ileum. The splenic flexure is in every case the fixed point of the large intestine and practically always the highest point. It is fixed just under the margin of the left ribs. From the hepatic flexure the transverse colon sweeps across the abdomen, usually sagging below the umbilicus (cases of the transverse colon above the umbilicus in the erect position are so uncommon that they always cause comment in a Röntgen laboratory), and rising sharply up to the splenic flexure.

We have studied eighteen cases of chronic constipation with the fluoroscope. In none of them was

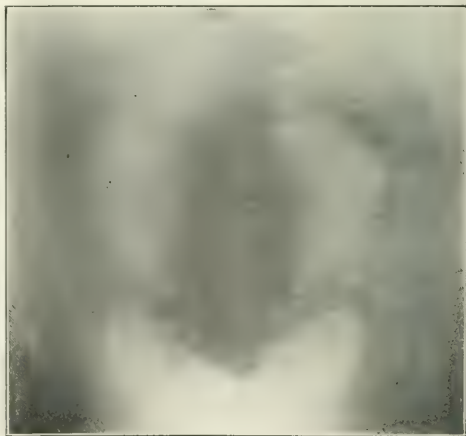


FIG. 12.—Dyschezia, a bismuth meal has remained in the lower sigmoid colon four days.

there ever any retardment in the small intestine. We know of no authentic cause on record of chronic constipation in which any stasis was present in the small intestine. The cases of duodenal dilatation described by Jordan we have seldom seen. We have twice seen some obstruction in the terminal portion of the ileum (Lane's kink), but in neither case were there symptoms analogous to chronic appendicitis. In most cases of constipation there is a stasis at some definite place in the large intestine. In about forty per cent. of the cases the stasis was in the cecum and ascending colon. The meal stays here from forty-eight to ninety hours after ingestion; in one case it remained five days. They have been described as cases of greedy colon. (Fig. 11.)

In a very small number of cases there was some obstruction in the transverse colon just before the splenic flexure was reached. Against all of one's previous conceptions of probabilities, the transverse colon seems freer from stasis than any portion of the large intestine except the descending colon. By all odds, however, the greatest number of cases show the stasis in the lower part of the sigmoid colon. The colon here dilates to enormous size and the food residue stays here for days and sometimes weeks. This is the condition described by Hertz and named by him dyschezia. The rectal mucosa loses in the course of time all sensitiveness to the presence of feces; through disuse the call to defecation no longer reaches the higher centres and the rectal and lower colonic musculature loses tone, and a pouch is formed. (Fig. 12.)

These studies are of use only to point the way to treatment. In the first place, it is worth while to consider for a moment the procedure of Sir Arbuthnot Lane. It will be noticed that the description given above of the normal large intestine in the erect position is not greatly dissimilar to his original descriptions of the anatomy of chronic intestinal stasis: its mere presence is no indication for operative procedure. The important thing, however, in considering the procedure of iliosigmoidostomy is that in a great majority of all cases of constipation the constipation is in the terminal part of the sigmoid colon. The operation of iliosigmoidostomy in these cases simply shuts off a portion of large intestine in which no constipation has ever existed, which the bismuth meal traverses in normal time, and throws the intestinal contents into the very portion of bowel which is the seat of the stasis. In a recent paper Mayo (16) states that in a number of cases of iliosigmoidostomy done for chronic constipation, the constipation was not cured. Is it not possible that some of these were cases of dyschezia? Bevan (17) in the shortest and sanest paper on the subject, warns against performing operations simply for chronic constipation alone, and strongly advises that in every case in which operation is performed definite evidence of adhesions and obstructive symptoms be produced; he feels that, for such a serious surgical operation as removal of the colon, definite evidence of organic obstruction should be demanded.

The treatment of the two main types of constipation, the cecal and the sigmoid, is relatively satisfactory. In the cecal type we have been using agar agar, one or two or three teaspoonfuls of the powder three times a day, and modifying the diet in the

classical manner. In dyschezia the main attack has been centered on increasing the sensitiveness of the rectal mucosa, so that the call to stool will be obeyed. Cathartics are interdicted except that an occasional one, every two weeks or so, may serve a purpose. It is of no use to modify the diet of these patients. The main reliance has been placed on enemas, given at first twice daily, then once daily in the evening, and then at more infrequent intervals. Thus keeping the rectum empty, we increase its sensitiveness. The education of the habit of going to stool at a regular time each day is equally important.

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RIVINGTON BUILDING.

#### VAGITUS UTERINUS.

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Vagitus uterinus is probably the rarest accident that can happen to the parturient woman. In the last ninety-eight years, there have appeared about sixty-four papers on this subject, in the majority of which the authors give a detailed account of a case that happened under their immediate supervision. Up until about ten years ago, every paper on this subject aroused a storm of criticism; sometimes ridicule. This criticism was not limited to the profession in general, the bitterest usually coming from obstetricians of wide experience. These men were frank to say they never saw a case, and did not believe any one else ever did.

An analysis of the various reasons given by these critics against vagitus uterinus resolves itself into two fundamental propositions:

First. What is supposed to be vagitus uterinus is a sound produced outside the uterine cavity. In other words the observer is mistaken in what he hears.

Second. Air cannot gain access to the uterine cavity in sufficient quantity to support respiration.

I believe that both of these criticisms can be satisfactorily met. The physiological cause of vagitus uterinus must of necessity remain problematical, so with the exception of the presentation of a clinical case, all I may hope to do, is to advance some theories as to its origin.

The following case occurred during my service as resident physician at the Lying-in Hospital, New York:

CASE. Mrs. R., aged twenty-four years, para II, previous labor easy, no miscarriages, height 156 cm., weight



fifty-nine kilogrammes. All pelvic measurements normal. Labor started December 8, 1903, at 8 a. m. Thirty-eight hours later the patient had reached a stage of exhaustion with nothing accomplished. The usual means of accelerating pains and dilation were tried unsuccessfully. Pains had practically disappeared and the cervix had dilated to about the size of a silver dollar. As the fetal heart was becoming weak and irregular, I decided to deliver by *accouchement forcé*. The cervix being soft and easily dilatable, I was able by means of my hands alone, to accomplish full dilatation in about twenty minutes. The head was in the right occipitoposterior position, unengaged; membranes unruptured. I did internal podalic version, the membranes rupturing when version was about half completed, or when the long axis of the fetus was at right angles to that of the uterus. At the time of rupture, my right arm was in the uterus up to the elbow. The left leg was brought down through the cervix, the foot projecting just outside the vulva. I had just grasped the foot loosely, preparatory to traction, when my assistant leaned over and flicked the sole of the foot sharply with his middle finger. The plantar reflex was immediately excited, and the child gave a prolonged cry. This was followed at once by two short, sharp cries. The cries sounded exactly as if the child were completely enveloped in a heavy blanket, and they were just as distinct. A hurried extraction was done at once, occupying in actual time less than a minute. The child breathed and cried normally without stimulation, and showed no signs of having inspired more than the ordinary amount of mucus. The weight of baby was 3,560 grammes. Owing to the rapid delivery, the cervix sustained severe bilateral lacerations which I repaired at once. The mother had an uneventful puerperium. The child acted normally, and on day of discharge weighed 4,000 grammes.

In a case of this kind, a subject which always arouses scepticism, corroborative evidence seems almost necessary. There were three other physicians present at the delivery, an attending physician and two of the house staff. These three men heard the cries distinctly, and no conference was necessary afterward for us to determine what they were or from whence they came. We all realized, unmistakably and at once, the source.

Before even the most superficial consideration of such a case, it is necessary to eliminate the possibility of error on the part of the attendant. Could a man of any experience mistake any other sound for the cry of a baby? Thorn, in his criticism of Sippel's case, attributed the sound to a vibrating fold of membrane in the vagina. To my mind, this does not deserve serious consideration, as may also be said of other theories advanced in explanation, such as, gas passed by the rectum, intestinal rumbling, etc. The cry of a baby is a definite thing; there is nothing that resembles it closely enough to cause confusion. For the production of crying *in utero* two things are necessary, namely, ruptured membranes and the presence of air in the uterus. In any operative procedure that necessitates the introduction of hands or instruments into the uterine cavity, it would be hard to exclude air. In the performance of low and median forceps operations, the vulva gapes, and the vagina is filled with air up to the presenting fetal part. The application of high forceps, or the performance of internal version, must necessarily be attended by the entrance of air along the side of the instrument or arm. It is not to be supposed that the tissues of the birth canal so closely approximate the arm or instrument as to prevent the entrance of air. Air having entered along the side of the arm or instrument, it would penetrate to exactly the same point as the arm

or instrument, be that point the lower uterine segment or the fundus. And air having once gained access to the cavity of the uterus, and having an avenue of communication still open between the uterus and the outer air, what is to prevent air from entering in sufficient quantity to fill all the interstices between the fetal trunk and small parts and the uterine wall. In other words the uterus is not a vacuum, and being in open communication with the outer world, the atmospheric pressure within the uterus must be the same as that of the outer air.

The argument might be advanced that in order to cause this inrush of air, there must be a time when there is a negative pressure within the uterus. There is such a time, and it is at the moment of rupture of the membranes.

With the membranes intact, and the normal amount of liquor amnii present, the uterine walls are everywhere in perfect apposition to the fetal envelopes, and there is no dead space anywhere. When the membranes rupture, the uterus contracts and readjusts itself to the shape of the fetus. After the escape of the liquor amnii, the uterus cannot so perfectly envelop the irregularly shaped fetal ovoid as it did the regularly shaped bag of waters. Between the ventral surface of the fetus and its small parts is space formerly occupied by liquor amnii. When this liquor amnii drains away, its place can be taken by but one thing and that is air.

It is not my contention that air, in this way, enters the uterus in every normal labor. I have simply endeavored to demonstrate that it is possible during operative delivery. And there are strong reasons why it should occur in operative and not in normal cases. The vertex presents in about ninety-seven per cent. of all cases at term. When the membranes rupture, the head, if not already engaged, comes down firmly into the cervix, completely filling its cavity, and preventing the escape of the after waters. It is certainly an average statement to say that when the membranes rupture, not more than half the total amount of liquor amnii escapes. The liquor that remains, must be in that part of the uterus where the uterine wall does not come in contact with fetal surfaces. This place is the space around and between the fetal extremities and abdomen. These spaces being filled by a dense medium, there is no negative pressure; no entrance of air.

Conversely, during operative delivery such as internal version, the membranes are ruptured with the hand in the uterus, the total amount of liquor amnii drains away, and that part of the cubic capacity of the uterus that is not filled by the fetus is immediately occupied by air. The presence of the hand and arm in the uterus by further separating uterine wall from fetal surface, enlarges this space. Given air in the uterus, one complete respiratory act would be sufficient to produce a cry. To provide a stimulus for that cry, it is necessary to compare the differences between intrauterine and extrauterine life. It is sufficient for the purposes of this paper to say that the principal differences are the establishment of pulmonary circulation and respiration.

There are two theories as to the causes of the commencement of respiration: the stimulus of air on the skin and changes in the placental circulation.

The latter acts by the partial separation of the placenta, the resulting accumulation of carbon dioxide in the blood stimulating the respiratory centre. Schwartz thinks that both are necessary for the establishment of respiration. Preyor maintains that stimulation of the skin only is necessary. Certainly it proved amply effectual in the case I have described, and at a time, too, when there could have been no interference with the placental circulation. The partial and complete separation of the placenta is accomplished by the marked diminution in size of the uterus which occurs immediately after the delivery of the child, and the subsequent rhythmic contractions, which by further diminishing the placental site, dissect off the placenta by the formation of a blood clot. In my case, in which one leg only was through the cervix, there could not have been enough retraction to cause any separation of the placenta. The effect upon respiration of stimulation of the skin, flagellation, etc., is too well known to be more than mentioned. While placental circulatory change may occur and be a contributing element of beginning respiration, it is not a necessary element. The same cannot be said of stimulation, for we have seen a case where a pure reflex started respiration *in utero*. Of these two elements, it is easy to say which is the stronger. A consideration of the treatment of a badly asphyxiated baby will show that stimulation often succeeds where placental circulatory change has failed. Many babies whose placenta are delivered immediately after the birth of the trunk, do not cry until spanked vigorously. Were placental change necessary, or even a contributory cause, it certainly fails signally in these cases. It seems fair to state that stimulation of the skin alone is capable of starting respiration in the delivered child. It is also reasonable to suppose that the same agency that would act on the delivered child, would be capable of the same effect upon the child *in utero*. This stimulus acting upon the child *in utero* would result in the muscular acts of respiration, and presupposing the entrance of air, in true physiological respiration. A child that breathes *in utero*, even though it be but one inspiratory effort, is capable of at least one cry.

I have attempted to explain the means by which air enters the uterus. Its actual presence in the uterus needs no proof, for it is a *sine qua non* of vagitus uterinus, a subject that has been reported by competent observers too many times to admit of any doubt of its possibility. The necessary stimulus to respiration is furnished during operative procedures, the instrument or hand of the operator being the actual medium.

Of forty-four reported cases, more than half were operative deliveries; eleven being forceps, fifteen were versions, and one replacement of arm and cord. The fetal mortality of those cases was ten per cent., many of the surviving children living only after prolonged efforts of resuscitation.

Vagitus uterinus is a possibility during any operative delivery, and once heard, the only hope of saving the child lies in a rapid extraction even at the expense of maternal lacerations and fetal injuries.

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2 MARBLE HILL AVENUE.

## INTRAVENOUS INJECTION OF SALVARSAN AND NEOSALVARSAN.\*

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The intravenous injection is now conceded by syphilographers everywhere to be the most satisfactory method of administering salvarsan and neosalvarsan. Quite recently, though, many clinicians were decidedly in favor of the intramuscular method, and were using practically no other procedure in their employment of the drugs. However, this is only one of many instances showing the almost kaleidoscopic rapidity of the changes and advancements now being made in medical thought, so that what is new and well established to-day is both old and utterly disproved tomorrow. Perhaps nowhere is this condition better illustrated than in the treatment of syphilis. Probably no other medical subject has received such an impetus for study and careful scientific investigation and experimentation as has this one, this impetus coming naturally as a result of many important discoveries relating to it, made during the last six or seven years.

Since the discovery of the *Spirochaeta pallida* and its establishment as the direct cause of syphilis by Schaudinn and Hoffman in 1905, and the finding

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of the complement fixation reaction by Wassermann in 1906, it has become possible to diagnosticate this malady more quickly and accurately, and what is even more important, we are enabled to ascertain the extent of its advance in any individual in a way that was not at all possible before. The very late work of Noguchi and others on other tests for specificity, since Noguchi's discovery of the method of cultivation of spirochetes in 1911, and especially his work on the luetin test, gives promise of yet more important and simplified means to be placed in our hands for the estimation and control of this disease. Furthermore, the discovery of salvarsan by Doctor Ehrlich in 1910, and his later modification of this dihydrochloride into the sodium salt called neosalvarsan, has given to the medical profession one of the most marvelous exhibitions of the influence of medicaments over disease. Furthermore, it has shown all men that scientists may now work in conformity with certain chemical, bacteriological, and pathological laws, so that their researches may produce certain definite results. Scientific medicine no longer depends for its progress upon accidental chance or time honored tradition. Certainly the employment of this method of arriving at conclusions from scientific deductions based on proved data is the most hopeful thing for the advance of medicine in every way. It means a yet closer revision of our therapeutic armamentarium to those agents capable of withstanding pharmacological demonstrations as to their efficiency and the discarding of hundreds of drugs now commonly used. Ultimately, empirical therapeutics will be discontinued, of course.

But as to salvarsan and neosalvarsan: Many capable workers believed these drugs to be suitable only for certain selected cases, usually those not amenable to the old treatment of mercury and iodides, or at least only those which seemed very refractory to this kind of treatment. My opinion is that salvarsan, or preferably neosalvarsan, should be given to every case of syphilis, excepting those where it is positively contraindicated by very serious organic involvement of vital tissues. These contraindications will be discussed later. And the neosalvarsan injection should be repeated until the Wassermann test is negative and remains negative for a period of one or two years or even three years. So long as the reaction is positive it is justifiable to repeat the injection every thirty days, or in severe cases even more frequently. In every case the use of mercury by inunction or hypodermically is to be advised as a succeeding treatment after the neosalvarsan. This does two things, both salutary for the patient's welfare. First it prevents his acceptance of the all too prevalent conception that one injection of neosalvarsan cures all cases of syphilis permanently. Second, it secures the really powerful action of mercury in its best forms. With this treatment always include insistent orders as to hot baths and you may serve your patient just as well as if he or she were at any famous bath resort. Finally, do not give iodides until the patient has had at least one year, or preferably two, of the arsenical and mercurial remedies. Iodides are most probably beneficial owing to their eliminative and resolvent action, and are not fitted for the begin-

ning germicidal action needed during the first stages of the disease.

In those cases in which the nervous system is involved the administration of small doses of salvarsan, cautiously administered with the patient under constant watch, and repeated frequently, has given some very satisfactory results. Fordyce has even tried seven injections in a case of general paralytic dementia, with marked improvement. If that disease, the prognosis of which Frederick Peterson characterized as "always death within a short term of years," if paresis yields, what may we not accomplish in other syphilis by a persistent and intelligent use of the drug?

It may be stated authoritatively, that occasionally a single injection of salvarsan cures syphilis absolutely. That this *therapia sterilisans magna*, which was Ehrlich's ideal, has been really accomplished, we feel sure. This is shown by clinical findings, constant negative Wassermann and other specific tests, and also reinfection of such cured patients. Under the old treatment complete immunization from a later infection of syphilis was taught. This we now believe was due to the fact that mercury only held the disease in abeyance in practically all these cases we thought cured. The luetin test, which for old longstanding cases, as in parasyphilis, with cardiovascular or nerve tissue involvements, seems even more sensitive than the Wassermann, may yet more completely prove or disprove the absoluteness of a cure in any given case.

Certain, too, it is, that the earlier neosalvarsan is administered following the initial lesion, the more thoroughly efficient is its action. This gives the greatest reason for making every effort to establish a very early differential diagnosis and the institution of treatment long before the appearance of the secondary symptoms.

CASE I. A young man, F. B., came to me on April 2, 1911, one week after inoculation with the very beginning of a chancre, the first case in my experience. Serum obtained by deep scraping showed spirochetes by the dark field condenser, and by specimens stained with Giemsa's stain. The following day, April 3, 1911, he was given 0.6 gramme of salvarsan intravenously. With the exception of one month's inunctions, he had had no treatment whatever since his injection of salvarsan, although he was urgently advised to continue mercury. He showed absolutely no clinical evidence of syphilis since, twenty-nine months following the salvarsan treatment, and his Wassermann reaction was still negative in August, 1913.

While this case illustrates the efficiency of an exceptionally early injection, the value of the drug in old cases has been demonstrated to our satisfaction nearly as well.

CASE II. G. H., male, aged forty-five years, had been treated for three and one half years with mercurial inunctions and iodides and later with intramuscular injections of salicylate of mercury up to the physiological limit. Despite the mercurial gingivitis and glossitis, severe palmar syphilides persisted on both hands. His work was that of an iron molder and the deep fissures were constantly bleeding and very painful, while the appearance was such as to bar him from the family table at mealtimes. On June 15, 1911, I gave him 0.6 gramme of salvarsan intravenously. His palms healed entirely in five or six days and had remained clinically perfect to date. He had had no Wassermann test and no subsequent treatment. Doubtless the man had established a tolerance of the organisms toward mercury, and the arsenical treatment effected a cure. At least it had held the disease in abeyance perfectly for the past twenty-five months.



CASE III. B. G., young man under my observation occasionally since November 6, 1910. After the usual course of secondary eruption, he was placed upon vigorous mercurial inunctions and hot baths, and responded perfectly. Five months later, he reappeared, however, with a relapse after discontinuance of his inunctions, saying he knew he was to blame but that he "would rather die than continue such treatment." At this time he was emaciated, had severe glandular involvements, a wellnigh universal eruption, large sized mucous patches and a hemoglobin index of sixty per cent., and an erythrocytic count of 3,200,000. This seemed an unusually severe decline, but I recalled a case under treatment in a great hospital in Philadelphia in 1908, not very dissimilar except in its greater severity, the patient actually died under the most efficient hypodermic mercurial treatment that could be administered in this institution. I was only surprised that those malignant cases of syphilis could endure the disease and the mercurial saturation so long. Immediately, on March 22, 1911, I gave him 0.6 gramme of salvarsan intravenously. He made a net increase of thirty-two pounds in weight in a short time, and all clinical evidence of the disease vanished. A few days ago this patient was in my office, stated that he had again neglected to take treatment, had had none whatever for twenty months, but that he still felt well, ate well; skin and mucous membranes were uninvolved, and his weight was normal. He stated that he "was cured" although a Wassermann test would probably have disproved his assertion.

CASE IV. C. R. V., female, aged thirty-four years, complained in July, 1912, that she had been suffering from ulcerations and a stricture of the rectum for the past four years and had been operated upon three times for this rectal condition, one such operation having been for a fistulous tract. On admission, the diameter of the rectum was about one fourth of an inch, constant bleeding and purulent discharge exuding from anus and a severe ulceration of the tract extending to the sigmoid flexure. Pain was such that it required general anesthesia for examination and on defecation the patient could be heard to scream for blocks. Weight eighty-two pounds. History of acquired syphilis fourteen years ago, with treatment by protoiodide of mercury tablets for three months, and iodides for a short time thereafter. August 1, 1912, 0.6 gramme of salvarsan was given intravenously and in three weeks patient gained fifteen pounds and the rectum improved as to discharge. By means of tallow candles inserted into rectum, patient herself dilated the stricture to three fourths of an inch diameter, and defecation became nearly painless if stools were loose in consistency. September 23d, under general anesthesia, rectal sphincters and the heavy nodulated cicatrices of the traumatic and syphilitic strictures were dilated. Since then, recovery had been uneventful except that occasionally after large hard scybala were passed slight bleeding occurred. Her weight was normal, the size of the stool normal, defecation painless, and appearance wonderfully improved. The patient continued taking large doses of potassium iodide, and mercurial inunctions with hot baths until May, 1913. After thirty days' cessation of treatment an intravenous injection of 0.9 gramme of neosalvarsan was administered. The patient had steadily improved to normal condition and weighed 118 pounds with no intestinal or rectal symptoms.

In my series of intravenous cases twelve patients have been given a second injection, and six of these, not because of recurrent symptoms but as a prophylactic measure. All patients have been advised to continue mercurial inunctions and potassium iodide following the salvarsan and neosalvarsan treatments, but I must say that many have failed to do it.

While it is undoubtedly a dangerous procedure to administer neosalvarsan to patients well saturated with mercury or iodides, and is also inadvisable to begin mercurial or iodine treatment immediately following an injection of neosalvarsan, nevertheless the combination of this new and old treatment seems to me just yet to represent the course of greatest safety for our patients.

Probably very few men are provided, as is Wechselsmann, with extensive bedridden material for careful investigation and control of cases treated only with neosalvarsan. But by this method only will the true status of neosalvarsan in the treatment of syphilis be established. In my last 120 cases neosalvarsan has been used with just as good results as the salvarsan, and certainly with much less of toxic symptoms in evidence. Since there seems to be a lack of agreement among clinics on this point, I may add that in only ten per cent. of those injected with neosalvarsan has there been nausea with emesis, and a still smaller percentage have exhibited an increase of one or more degrees in temperature. With salvarsan, it was the exception rather than the rule if a patient showed no gastrointestinal disturbance and more than fifty per cent. of the patients manifested an increased temperature. Therefore, I believe the newer remedy to be less toxic.

In three cases of tabes, each receiving two injections of neosalvarsan, marked improvement of the ataxia resulted and also improvement in general health and increase in weight. Inasmuch as intensive mercurial inunctions were instituted in each case following the second injection, it is impossible to estimate the amount of permanency of the results obtained. However, practically all writers agree that relapses within from forty to ninety days usually occur in almost all parasyphilitics who have been benefited by neosalvarsan unless subsequent treatment is instituted.

As to contraindications: Ocular dangers from neosalvarsan are nearly a negligible quantity. Even in severe chorioidoretinitis, marked improvement has followed the use of the drug. Neosalvarsan in 0.9 gramme doses has been injected by me during July and August, 1913, into two patients having acute syphilitic iritis, which is, I believe, not a well established procedure. In addition, for these cases the oculist in consultation prescribed darkness, atrophine solution, a five per cent. solution of dionin locally, and moist heat. Both patients received mercuric cyanide intravenously, seven days following the neosalvarsan. Both patients responded quickly and made perfect recoveries.

Advanced Bright's disease is prohibitive absolutely, also advanced myocarditis. The constitutional disturbances, nausea, vomiting, fever, etc., have been shown to be due mainly to protein matter in the distilled water. Therefore only freshly distilled water should be used in the making of the solution for injection. The patient will avoid these unpleasant experiences better, and it is probably safer if he or she remain in bed for from ten to twenty-four hours, and aperient waters, taken before the injection, are used freely. I have been in the habit too of occasionally administering four ounces of olive oil the night before, and have secured good results from this method.

Far advanced involvement of the nervous system means extreme caution in the use of the drug, or positive contraindication. But we must recall For-dyce's experience with his paresis patient.

#### CONCLUSIONS.

In conclusion allow me to point out that there are about 275,000 new cases of syphilis in this country

every year; and there are probably nearly three million people, here in the United States, yet untreated or only partially cured of the disease. With the wonderful achievements recently made, the important questions yet to be solved, and the superabundance of clinical material at the command of every practitioner, may we not feel that this presents to us a very alluring field for work?

323-325 ROSE DISPENSARY BUILDING.

## PHYSICIANS IN ENGLISH LITERATURE.

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In the whole realm of English literature we find many contributors who were primarily of other occupations, notably the learned professions of law, medicine, and theology, and other walks of life, including journalists, artists, and architects, and also the navy and merchant marine, together with many miscellaneous occupations.

From the earliest times the profession of medicine has contributed some of the brightest stars in this firmament.

Sir John Mandeville was one of the first contributors to English literature whose works have survived. Mandeville was born in 1300, educated a doctor of medicine, and wrote an account of his travels; first in Latin, then in French, and afterward in English, although it is doubtful whether he had visited all the foreign countries which he described.

Thomas Browne, who was also knighted, was born in London in 1605. For many years Sir Thomas was a practising physician in England. His works, *Religio Medici* and *Pseudodoxia*, treat of miscellaneous subjects in a witty and learned fashion.

There is no record that John Locke ever practised, but he studied medicine at Oxford, where he received the degree of Bachelor of Medicine. Locke was the leading philosopher of his day, and one of the greatest English philosophers of all time. His *Essay on the Human Understanding* is a profound treatise.

For his personal influence upon some of the greatest writers of his generation Dr. John Arbuthnot is remembered, rather than for his contributions to literature. He was a Scotch physician, settled in London towards the close of the seventeenth century, and devoted himself to science, literature, and the practice of his profession. Pope wrote of him with gratitude and affection and addressed one of the most famous and best epistles to him. Swift said of him, "he has more wit than we all have, and his humanity is equal to his wit." Doctor Johnson pronounced him "the first man" among the great writers of his age. He wrote several learned and scientific works, but his two works of satiric humor are best remembered. They are the *Memoirs of Martin Scriblerus*, a travesty on pedantic learning, and *The History of John Bull*.

Tobias George Smollett, whose life has raised an imperishable monument to his fame, was born in Britain in 1721, descending from an ancient and honorable family in Scotland. After pursuing his

preliminary studies with diligence and success Smollett became an apprentice to an eminent surgeon and later accepted a position as surgeon's mate and went to sea. He was present at the siege of Cartagena, lived some time in the West Indies, and then returned to London.

Doctor Anderson, his biographer, informs us that Smollett received a degree in medicine from a foreign university; however, his career as a physician in London where he settled was not a success, probably becoming discouraged and prematurely abandoning a profession in which success is proverbially slow. In his eighteenth year poverty prompted him to go to London to seek a livelihood. He failed to have accepted a tragedy of his own composition called *Regicide*. It was then that he entered the navy, where in a brief time he acquired such an intimate knowledge of the nautical world as enabled him to describe sailors with such truth and spirit of delineation, that from that time who ever has undertaken the same task has seemed to copy more from Smollett than from nature. His works, such as the *Adventures of Roderick Random*, *Peregrine Pickle*, and *Ferdinand Count Fathom*, while faithfully depicting human character, are sometimes coarse and vulgar. Doctor Smollett published books of travel, histories, and other works, but the most pleasing of his compositions is *The Expedition of Humphry Clinker*, one of the first great novels in the English language. This masterpiece was written shortly before his death, and while he was surpassed by others of his time in artistic attainment, yet his clearness and vigor of style has exerted a lasting influence on English fiction.

One of the most loved and pathetic figures in the world is Goldsmith, whose life and character seem so intensely human and companionable that we are first interested in the man who made the world better for having lived in it; and then in his literary works which have a perennial delight and freshness. To know Oliver Goldsmith is to love him, to strengthen our inclinations to goodness, to become more pitiful toward weakness and error, and increase our faith in human nature.

Oliver Goldsmith was Celtic in disposition as well as by birth; he was born in 1728. At school he was thought impenetrably stupid and grew up thickest and ugly; his face being disfigured from smallpox, and with his sensitive disposition and blundering manners he became the butt of his companions, a condition he could never entirely shake off. In his seventeenth year Goldsmith entered Trinity College, Dublin, as a sizar, or free student; and in return for tuition he had to do objectionable work which was very humiliating to his timid and sensitive nature. He found his tutor ill tempered and harsh, and some studies, especially mathematics and logic, were distasteful to him. Having once gained a prize of thirty shillings he gave a dance in his room to some young men and women of the city. This violation of the rules attracted his tutor, who hearing the sound of the fiddle rushed to the festive gathering, gave Goldsmith a thrashing and turned his guests out of doors.

After receiving his bachelor's degree he returned to his home and spent two or three years in a de-

sultory way; and while ostensibly preparing to take orders was in reality spending his time in miscellaneous reading and rustic convivialities. His fondness for gay dress was a weakness throughout his life, and more than once exposed him to ridicule. When the time for his examination to the ministry came he appeared before the bishop in scarlet breeches, and was rejected. Then followed a succession of undertakings and failures without parallel. He became tutor in a good family, and lost his position on account of a quarrel at cards. He then resolved to emigrate to America, and left for Dublin mounted on a good horse, having thirty guineas in his pocket. In six weeks he returned to his mother's door in a condition not unlike that of the prodigal son. Every penny was gone. He explained that the ship on which he had engaged passage had sailed while he was at a party of pleasure. The ship had been waiting for a favorable wind, "and you know, mother," he said, "that I could not command the elements." His uncle, one of the few that had not lost confidence in him, gave him fifty pounds with which to go to London, for the purpose of studying law. On the way he met an old acquaintance who allured him into a gambling house; he came out penniless. He then went to Edinburgh, where he remained eighteen months studying medicine, but spent most of his time in convivial habits which often brought him into financial difficulties. He next set out for a tour of the continent, with one clean shirt and no money; ostensibly to further study medicine, but in reality, it is believed, to satisfy his roving disposition.

In his wanderings he learned but little of medicine, but gained an intimate knowledge of Europe, which he afterwards made use of in *The Traveler*. He passed through Flanders, France, Switzerland, Germany, and Italy playing "merry tunes" on his flute which often set the peasants dancing, and procured for him food and lodging. At Padua he is said to have taken his medical degree. On returning to London he became usher in a school, proofreader, and afterwards an apothecary's assistant, a position he gave up to invest in a second hand velvet coat and set up as a medical practitioner and, failing as a physician, became a hack writer. From this humiliating station he was lifted by force of genius alone. He began by writing for reviews and magazines and compiling easy histories. His career as an author may be said to begin with his first serious undertaking, entitled, *An Inquiry into the State of Learning in Europe*. The gradual recognition of labors brought him more pay, and the circle of his acquaintance widened and brought him the friendship of the most distinguished contemporary literary talent, including Johnson, Reynolds, and Burke. They were original members of the celebrated Literary Club which brought into intimate fellowship the choicest minds of the English metropolis. The humor, grace, and picturesqueness of his writings, with their Celtic tone of sympathy and chivalry, attracted the attention of his associates, and the guilelessness and amiability of his character lent a charm to his personality, that triumphed over his weakness and drew the best men to him in tender friendship. That same charm

exists in his works, and with the possible exception of Addison, he is what Thackeray claims for him, "the most beloved of English writers." The lesson of economy he never learned, and in 1764 he was in the hands of the sheriff, for an overdue board bill. He then sent for his friend, the celebrated Johnson. "I sent him a guinea," says Johnson, "and promised to come to him directly. I accordingly went as soon as I was dressed and found that his landlady had arrested him for rent, at which he was in a violent passion. I perceived that he had already changed my guinea for a bottle of Madeira and a glass. I put the cork in the bottle, desired he would be calm, and began talking to him of the means by which he might be extricated. He then told me he had a novel for the press which he produced. I looked into it and saw its merit, told the landlady I would soon return, and sold it to a bookseller for fifty pounds. I brought Goldsmith the money and he discharged his rent, not without first berating his landlady in a high tone for having treated him so illy. But speedily relenting, he called her to share in a bowl of punch. The novel in question was no other than the *Vicar of Wakefield*, one of the most delicious morsels of fictitious composition," justly observes Sir Walter Scott, "on which the human mind was ever employed." The plot of this famous little classic is quite faulty, but it is unequaled for quaint humor and philosophical pathos; the purity and grace of its style and the exquisite simplicity of its delineations of simple types of rural character classes it as the most charming of those novels we call "idyllic" and assures its place in English fiction. This novel has a perennial freshness and, if read in youth, is delightful and of benign influence, and we may return to it with pleasure and for solace in maturity and old age.

Goldsmith made use of some of the knowledge he gained in his European roaming in *The Traveler*. *The Deserted Village* is a most graceful and touching poem. *The Good Natured Man*, and *She Stoops to Conquer* helped to make a new era in the English drama. There are no wittier plays, they are continually resurrected, and rank among the greatest comedies of the world. While struggling with his pen to pay his debts, and admitting that his mind was not at ease, the end came at the age of forty-six. While he lay dying, the stairs leading to his quarters were filled with poor wailing outcasts whom he had befriended. Goldsmith was buried in Westminster Abbey, where his epitaph declares that "He Touched Nothing He Did Not Adorn."

That young genius and inspired interpreter of beauty, John Keats, has enriched literature, with poems which are among the choicest productions of the English muse. Keats was a surgeon's apprentice, and afterwards continued his studies in the London hospitals, but never completed his medical course. He was twenty-three when *Endymion* was published. Other highly artistic masterpieces as *Hyperion*, *The Eve of St. Agnes*, and *Ode on a Grecian Urn* are also from his pen. He went to Rome for his health and died there in 1821 at the age of twenty-six.



In America the field of medicine has not been so prolific in giving writers to English literature as has England; but the name of Oliver Wendell Holmes, one of the best writers in the English language is inseparable from these two professions. Born in Cambridge, Massachusetts, in 1809, Holmes was graduated from Harvard Medical School in 1836, and soon after became professor of anatomy at Dartmouth College, and later filled the same chair at his alma mater. An edition of his poems appeared in 1836, to be followed by others. His *Autocrat of the Breakfast Table* abounding in witty and brilliant thoughts in prose with occasional poems, was followed by the *Professor at the Breakfast Table*, and *Over the Tea Cups*. In 1861 Doctor Holmes published *Elsie Venner*, *Guardian Angel* in 1868, and *Mortal Antipathy* in 1885.

*The Habitat*, and other poems in the Canadian dialect, are very popular. The late William Henry Drummond, the author, was for years a practising physician in Montreal.

There is a perennial delight and freshness in the hymn *Sweet By and By* that has caused it to be translated or adapted into almost every language employed in hymnody. The author was Dr. S. Fillmore Bennett; the words and music were composed in less than a half hour.

The monument contributed to Thomas Dunn English, M. D. by the Author's Club is a fitting and graceful tribute to a true poet. In the simple but touching lines of *Ben Bolt* he has written his own immortality.

Of the living medicoliterary men, Sir Arthur Conan Doyle and Silas Weir Mitchell are doubtless the most noted. The name *Sherlock Holmes* is known in about every home where the English language is spoken, and the popularity of the works of Sir Arthur Conan Doyle, its creator, is still on the increase. Several years ago in an address at the opening of a medical school in London, he related some of his earliest experiences in the field of medicine. This dates back to the days of the unqualified assistant now legislated out of existence, "which" says Doyle, "had most excellent results on the death rate." As an assistant in a country practice in rural England, serving on board ship, and military duties, especially in South Africa, are but some of his medical experiences, in fact, there are but few phases of medical life he has not tried. It was as a student in the Medical School of Edinburgh that he learned the first lessons in deduction from a teacher, who made interesting diagnoses by this method. Dr. Doyle, while the greatest writer of detective stories is also known as a playwright and traveler. Being an active practising physician and novelist has kept Dr. S. Weir Mitchell busy. He was born in Philadelphia in 1829, and is still a resident of that city. While one of the best known American novelists, he is also a neurologist of note. Despite the fact that Doctor Mitchell completed his eighty-fourth year last February his latest novel, now being published, is in the usual easy and well rounded style dear to his readers. Undoubtedly he is now the Grand Old Man of American fiction.

From a physician to a writer of successful

dramas has been the rôle of W. Somerset Maugham, the English playwright. Some of his productions have been very successful in the theatres of London and New York.

It has recently been announced that the new British poet laureate is Dr. Robert Bridges. He was born in England, and is in his sixty-ninth year. Doctor Bridges was educated at Eton and Oxford. On graduation he studied medicine at St. Bartholomew's Hospital, and has served on the medical staff of the Children's Hospital, and also of the Great Northern Hospital, London. Since 1882 Doctor Bridges has devoted himself entirely to literature, especially playwriting and poetry. His chief critical work is *John Keats, a Critical Essay*. He also published a volume on *Milton's Prosody*, and eight plays, most of them dealing with classical themes. Among literary men in England the appointment is distinctly popular.

No other class is so peculiarly adapted to depict the tragedies and comedies of real life as it is seen every day, as the medical practitioner; herein lies a fertile field the surface of which has been merely touched.

30 EAST FORTY-SECOND STREET.

## THE VALUE OF IMMUNIZED MILK AS A PROPHYLACTIC AND CURE FOR TY- PHOID AND TUBERCULOSIS INFECTION.

BY JULIUS ROSENBERG, M. D.,  
Margaretville, Delaware County, N. Y.

Typhoid fever and tuberculosis furnish the largest percentage of mortality and illness, in spite of all effort, liberal expenditure of money, and widespread knowledge of their cause and mode of infection, they present a serious economic problem to the individual, to the family, and to the State.

In this brief preliminary report of a research and investigation, I desire to call attention to results and discovered facts. I believe that their practical application will cause a decrease of mortality and illness of both diseases, especially with the cooperation of the authorities, physicians and the public.

A fair, thorough trial must demonstrate that an effective yet simple method to check the spread and reduce the mortality of tuberculosis, typhoid fever, and probably other diseases, and a valuable aid for their treatment has been found.

To discover a prophylactic or remedy for typhoid and tuberculosis was far from my mind, when about two years ago I resumed my long neglected laboratory work. I had hoped to obtain a remedy against hay fever (of which I am a sufferer), isolate the toxins from plants, which I believe to be the cause and, by inoculation, produce a protective serum.

While thus engaged I discovered that the milk of inoculated animals acquired antitoxic and bactericidal properties identical with and in no way differing from those of blood serum. The presence of agglutinins, precipitins, and bacteriolysins can be demonstrated by the usual laboratory tests. Thus it occurred to me that here was the long sought for

remedy to prevent and cure tuberculosis and typhoid infections. I am convinced that I was not mistaken, for every day I realize increasingly the importance of the discovery and that the universal immunization of milk producing animals, and the consumption of immunized milk will prove of great value.

Immunized milk, instead of furnishing a culture medium, is inimical and antagonistic to the growth of bacteria, owing to the presence of precipitins and bacteriolyins. In case of accidental contamination the bacteria will become inert, before the milk reaches the consumer. Furthermore, the use of immunized milk as a food will produce a widespread passive immunity and protection against infection from other sources than milk. I have by experiment shown the presence of precipitins in immunized milk. The precipitation of solids, inclusive of bacteria, is caused by the presence of bacteria against which the milk has been immunized. This action is certain and unailing. The practical value of the presence of precipitins in immunized milk is that it is destructive to the invading bacilli and can not carry or cause infection.

An additional proof of the bactericidal potency of immunized milk is shown by the following experiments (the details are omitted):

Five c. c. of milk, immunized against tuberculosis, to which was added a loop of tubercle bacilli, were injected into the peritoneal cavity of two guineapigs. The animals remained well after a lapse of four weeks.

That milk from immunized animals can convey passive immunity, is demonstrated by an observation upon a litter of guineapigs. The mother had been immunized against tuberculosis, receiving injections every fifth day for seven weeks. Immunity of the mother against living tubercle bacilli cultures had been shown, but the litter of five, although never inoculated, acquired resistance against infection, which could only have been conveyed by the mother's milk.

The prevalence of numerous typhoid infections in different sections of the country and the assurance that immunized milk will prove a valuable aid in treating these cases, induces me to publish this preliminary report. In the near future I will publish an extensive and detailed description of experiments, the vaccines used, and the methods of inoculation.

#### CONCLUSIONS.

In closing I will review the results of my research and their practical use and value:

1. Cows and goats can be immunized against tuberculosis and typhoid fever without any ill effects.

2. During and after immunization the milk remains wholesome, differing in no respect from other milk. My family and myself have taken for months milk immunized against typhoid and tuberculosis.

3. The milk of immunized animals contains anti-toxines and bactericidal substances, differing in no respect from those of blood serum.

4. The usual laboratory tests demonstrate the presence of agglutinins, precipitins, and bacteriolyins.

5. Immunized milk is inimical and destructive to

the microorganisms against which the animal is inoculated.

6. Immunized milk lessens the liability of infection, owing to its bactericidal properties and producing passive immunity.

7. It is useful and indicated in cases where passive immunity is desired, and subcutaneous injections are impractical and contraindicated.

8. Passive immunity and protection against infection is obtained by drinking the milk of immunized animals. The drinking of six ounces for five alternate days produces protection against typhoid and tuberculosis infection. The milk must be taken on an empty stomach.

9. The fact that immunized milk destroys the tubercle and typhoid bacilli and produces antibodies in the blood, clearly shows its indication and usefulness in cases of typhoid fever and tuberculosis. It should be used in every suspicious case, as it may abort an infection in its incipency.

Hospitals and physicians who desire to avail themselves of immunized milk and investigate its merits will be supplied by me on application.

#### Abstracts and Reviews.

#### A SHORT ACCOUNT OF THE ORIGIN AND SCOPE OF ELECTROCARDIOGRAPHY.\*

By A. D. WALLER, M. D., F. R. S.,

London,

Director of the Physiological Laboratory; Member of the Senate and of the Governing Body, Imperial College, London University.

The initial recording of the electrical action of the human heart was made nearly thirty years ago, and, while the records then obtained were in general similar to those of the present day, the interpretation which I now place upon them was not definitely formulated, though the general idea was present in my mind. We may retrace our steps to give a clear idea of the development of the present conception of the information which is to be obtained from the recording of the electrical reactions of the heart.

Working with isolated contracting hearts, it was noticed that at the inception of a contraction there was a point of high electrical potential at the base of the organ, while the apex and ventricles were electrically negative in potential to this portion. Thus a current would pass from one potential region to the other and it could be recorded by means of suitable electrometers. The current always began with the high potential area at the cardiac base and with the low at the apex region.

With the knowledge that the body tissues were electrical conductors, the next step was to record the difference of potential between the base and apex of the contracting heart *in situ*. Bearing in mind the usual idea of the anatomical position of the human heart—lying diagonally across the middle line of the body with the base directed toward the right upper extremity and the apex in the opposite direction—it seemed that the two upper ex-

\*Summary of a lecture delivered before the Harvey Society, at the Academy of Medicine, October 4, 1913.

tremities should reflect the differences in potential of the two ends of the heart. This they did strikingly.

A study of the different possible leads was then made, and many different persons and animals were examined. The body was divided into lateral halves by an imaginary line passing from the mouth to the feet, which are considered as a single point. With one pole of an electrometer in the mouth and the other at the right hand a slight difference of potential was found and the record was correspondingly weak. When the left hand was used with the mouth the record was strong, the difference in potential was great. These leads were named the right and left superior. If the foot, or the feet were taken as the central lead in place of the mouth, completing the circuit by the left hand gave a weak response, while with the right hand the response was strong, resembling the left superior. Of course the two feet, when placed separately in circuit, that is, when the circuit was made from one foot to the other, gave very little electrical reaction, being approximately in potential equilibrium. From the foot to either hand is termed a lateral lead. Now if the two hands be brought into circuit, the response is strong, like that obtained in the left superior lead, or even stronger. The three favorable, or strong leads, were then seen to be the left superior, the transverse (hand to hand), and the right inferior.

From these observations it became evident that means were at hand for the study of the angle of the current axis of the heart. Representing the middle line of the body as running from the mouth to the feet, in the case of a record giving the strong and weak leads as just described, the current axis would obviously lie along a line beginning above and at the right and crossing the middle line at an acute angle to pass downward and to the left. The term current axis is applied to this imaginary line, and represents a line connecting the initial point of high potential at the base of the heart with the point of least potential at the apex. It seemed right to suppose that the idea was correct that this electrical axis corresponded roughly to the anatomical axis of the heart, and a case of situs viscerum inversus was obtained and confirmed the belief, for the strong and weak leads were exactly the opposite of those normally found. The axis here ran from the left above to the right below, again making an acute angle with the middle line.

If one draw a hypothetical line through the point of intersection of the current axis with the middle line, and perpendicular to the current axis, this line will fall in a direction corresponding to the weak leads. It is the line of zero potential; and I have called it the equator. The superior and inferior favorable leads, on the other hand, correspond to the axis of current and have been termed the axial leads.

The electrocardiograms obtained from the strong leads give a large, positive first ventricular spike ( $q-r-s$  complex), while the first ventricular spike in the weak leads is small, or often negative. By the use of a standardized instrument—one which gives a deflection corresponding in extent to the number of millivolts of current—it is possible, by measuring the relative height of the spikes in car-

diagrams from the two superior leads, to calculate the exact angle which the current axis makes with the middle line above. The angle made below by the intersection of the axis and the middle line can also be calculated from similar data obtained from comparison of the two lateral leads. The formula for such calculation is very simple. Let the angle be  $a$ , then the tangent of the angle will be expressed by the formula:  $\tan a = \frac{L-R}{L+R}$ , in which  $L$  represents the number of millivolts of current recorded from the left lead, and  $R$  the number from the right lead. Reference to the proper table will at once give the degree of the angle in any case.

From cardiograms obtained from different persons, the angles of the current axes were calculated and it was seen that there was a wide variation from those with very acute angles, in whom the axis lay nearly vertical, to those whose axes lay nearly horizontal. The explanation of these variations in the angles from different persons was apparently readily given by supposing a difference in the position of the heart. Those giving very acute angles were thought to have hearts lying nearly perpendicular, those with obtuse angles to have hearts lying on the diaphragm. Röntgenograms have confirmed this explanation. The acute angle is found in persons who are in good physical condition and whose hearts are long and firm—*cor longum et durum*. The obtuse angles are given by persons of sedentary habits whose hearts are soft and flabby, lying on the diaphragm—*cor breve et molle*. A fallacy of the method, if applied without due consideration to other means of diagnosis, lies in the fact that displacement of the heart upward by distention of the stomach, or dilatation or hypertrophy of the left ventricle may give an angle suggestive of the *cor breve et molle*. It is to be left to the clinical observers to determine the scope and limitations of the determination of the current axis of the heart as a means of diagnosis of cardiac malpositions and diseases. My observations merely pave the way.

It has been possible to show a considerable deflection of the angle due to congestion of the auricles as the result of violent exercise. It is probable that careful studies will lead to the formation of means for determining the extent and position of dilatation or hypertrophy.

At the present time the taking of electrocardiograms is usually confined to the recording of three leads. It is my contention that one must not be content with this means, but must, in every case, take records from all five of the leads which I have described. This is a matter of but two minutes, and without the data to be derived from all of the leads one cannot make the calculations which have been described. It does not seem that the full value of electrocardiography is being obtained by the present methods of confining our efforts to the analysis of the forms of the different waves and to disturbances in rhythm alone.

While speaking of the modern methods of electrocardiography, I wish to discuss the nomenclature of the different waves, as now used, and as I prefer to have it. The use of the arbitrary alphabetic sequence of P, Q, R, S, T, and U is utterly meaningless, and calls upon the exercise of memory to



state what the significance of each letter is. I submit that the nomenclature should be to call the first wave—that due to the contraction of the auricle—the A wave, the second wave, the acute spike, the first ventricular wave or spike—V<sup>1</sup>, and the third wave the second ventricular wave—V<sup>2</sup>. By means of simultaneous records of the electrocardiogram and the heart sounds, it is possible to show that the first ventricular spike is a fraction of a second in advance of the first cardiac sound, while the second ventricular wave is likewise a fraction of a second in advance of the second cardiac sound. This nomenclature means something and does not unnecessarily tax the memory for the abstract. In the first ventricular wave should be included the entire complex now designated as the Q-R-S complex. I do not recognize the different slight deflections called Q and S as separate entities.

Before closing, it is important to indicate the effect that respiration has upon the electrocardiograms from the two types of heart so that the clinical observer may be able to discount these variations for what they are worth.

In the case of the *cor longum et durum*, with the cardiogram from the right superior lead, the amplitude of the first ventricular spikes is greatest in inspiration, and least in expiration, appearing with wavelike increases and decreases in amplitude. From the left lateral lead the cardiogram shows an effect just the opposite of that from the right. In the case of the *cor breve et molle* the entire complex of increase and decrease in the amplitude of the spikes is the exact opposite of that from the *cor longum et durum*. In both cases there are often to be noted phasic vagus alterations in the rate of the heart—slowing during expiration, quickening during inspiration.

My appeal is to the clinical observer, and I submit that the use of the electrocardiographic apparatus or of the oscillogram has become a valuable adjunct to our means of making more accurate diagnoses in cases of cardiac disease or disturbance. It is no longer a laboratory toy, or an apparatus of pure scientific physiological interest, but it is an instrument of great clinical value, and one of easy application. A last appeal for the adoption of the more rational naming of the several waves of the electrocardiogram will, I hope, bear some fruit among American physicians.

32 GROVE END ROAD, N. W.

**Treatment of Tuberculous Laryngitis.**—Castex, in *Nouveaux Remèdes* for January 24, 1913, is credited with the following mixture, to be used warm as a spray in laryngeal tuberculosis:

R Eucalypti, ..... gr. xxx (2 grammes);  
Mentholi, ..... gr. xv (1 gramme);  
Alcoholis, ..... ℥iii (78 grammes);  
Aque destillate, ..... ℥v (150 grammes).

M. ft. solutio.  
Sig.: To be used as spray.

**Treatment of Malarial Anemia.**—*Tribune médicale* for May, 1913, recommends the following pill:

R Quinine hydrochloridi, ..... gr. iss (0.1 gramme);  
Ferri citraſis, ..... gr. ss (0.03 gramme);  
Arseni trioxidi, ..... gr. 1/65 (0.001 gramme).

Fiat pilula No. i. Da tales No. c.  
Sig.: Five pills daily.

## Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXXVIII.—How do you treat insomnia? (Closed September 15th.)

CXXXIX.—How do you treat chancroids? (Answers due not later than October 15th.)

CXL.—How do you treat the symptoms of senility, without organic disease, but showing approaching dissolution? (Answers due not later than November 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not REQUIRED) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXXVII was awarded to Dr. W. C. Hess, of Cresco, Iowa, whose article appeared on page 673.

## PRIZE QUESTION CXXXVII.

### THE TREATMENT OF THREATENED ABORTION.

(Continued from page 675.)

Dr. Nelson Du Val Brecht, of Washington, D. C., says:

The therapy of threatened abortion resolves itself into the prophylactic and curative. The preventive treatment is applicable to those cases where repeated abortions have occurred (the so called abortion habit). The obstetrician having ascertained this fact from the anamnesis, or previous history of the patient, should seek diligently for the cause and endeavor to remove it if possible.

Prophylaxis.—After the cause of miscarriage has been discovered in patients who suffer from the habit, the prophylactic treatment indicated should be instituted from the date of conception or several months prior to that event. One of the commonest etiological factors in the production of abortion is undoubtedly syphilis. If lues is suspected to exist in either parent, a Wassermann or Noguchi reaction should be made, and a thorough course of antisyphilitic treatment should be insisted upon if the test is positive, and continued until the test becomes negative. One or more doses of salvarsan (arsenphenolaminhydrochloride), from four and one half to six grains, should be administered intravenously, intramuscularly, or subcutaneously. This should be followed by the use of the iodides and mercury. The following formula is useful if the stomach is retentive and does not rebel:

R Hydrargyri iodidi rubri, ..... gr. 1/24;  
Potassii iodidi, ..... gr. x;

M. ft. pilula No. j.

Sig.: One pill, three times daily, after meals.

Inunctions of mercury, with potassium iodide by the mouth, are usually better borne.

If displacement of the uterus exists the organ must be restored to its normal position, and held in place by a suitable pessary until its increased size will prevent a repetition of the malposition. Retroflexion and retroversion especially should be corrected by gentle manipulation, posture, and a pessary. Diseases of the womb and annexa should be treated before conception occurs.

When no specific cause can be found and an irritable condition of the uterus is supposed to be present, the patient must be kept quiet and in bed, especially at the time when menstruation would normally occur. She must be guarded against fright, nervous shock, and over exertion, and sexual intercourse must be interdicted; nerve sedatives as the bromides, viburnum prunifolium, and potassium chlorate should be given.

Treatment of the attack.—If the hemorrhage is slight, the os uteri not much dilated, the membranes intact, and the fetus alive, every possible measure should be used to continue the pregnancy to full term. The patient should be put to bed in a cool, dark room, with light bedclothing, and be maintained at absolute rest, not even leaving the bed for the purpose of micturition or defecation. Medicinally, opium and its preparations are our sheet anchor to secure mental and physical rest, and to check hemorrhage and inhibit uterine contraction. The liquor opii sedativus, twenty to thirty drops every two hours; the tincture, ten to fifteen drops, two or three times a day; or the aqueous extract, one half to one grain, in rectal suppository, repeated as often as may be necessary to stop the pains, may be employed. Hypodermic injections of morphine, one quarter to one sixth grain are often efficacious, especially if a quick action of the remedy is desired, and we wish the added advantages that the remedy does not cause nausea and is not lost by emesis. Hypodermic tablets of the morphine salts combined with atropine are preferable to those composed of the plain alkaloid.

The following formula is often useful:

R Codeine sulphatis, ..... gr. ss;  
Extracti hyoscyami, ..... gr. j;  
Extracti viburni prunifolii, ..... gr. v;  
Olei theobromie, ..... q. s. m.

Fiat suppositorium No. i.

Sig.: One every four to six hours, introduced within the bowel.

To overcome the constipation caused by the opiates mild laxatives, as salines, castor oil, solution of citrate of magnesia, cascara sagrada, or simple enemas of warm water, soapsuds, glycerin, olive oil; or rectal suppositories of glycerin are indicated. Chloral hydrate and potassium bromide, either alone or in combination, may be used, when for any reason opium is contraindicated. The drug treatment may be augmented by the employment of viburnum prunifolium (fluidextract, one drachm, or solid extract, four grains in pill form, every two or three hours), which acts as a valuable preventive of abortion, and quiets the uterine contractions. From five to seven days after the disappearance of symptoms, the patient may be allowed to leave the

bed, to which she should return promptly if the hemorrhage or pain returns.

Contraindications.—The use of ergot, the tampon, the ice bag, vaginal packing, or the application of cold cloths to the lower abdomen, are positively contraindicated. They all promote expulsion of the fetus.

*Dr. Irving Friedenreich, of New York, observes:*

When called to a case of threatened abortion it is a matter of great importance to be able to differentiate threatened abortion from inevitable abortion, because the treatment in the two conditions is diametrically opposite.

It is inadvisable to examine a patient who threatens to abort because of the danger of exciting uterine contractions or causing hemorrhage, unless for diagnostic purposes. Prophylactic treatment is of great value. A patient who is pregnant should not overexert herself with household duties. If there is a retrodisplaced uterus it should be corrected with a proper pessary. The bowels should be regulated and kept open during pregnancy. Syphilitic cases should be treated with antisyphilitic remedies. Bright's disease, which may be a cause, should be treated by proper diet, etc.

The main treatment consists in rest, physical and mental. This is accomplished by keeping the patient in bed in a dark, quiet room. The patient should be given one quarter grain of morphine to quiet her. Twenty minims of laudanum should be given in addition by enema every four hours. Or the following may be given:

R Sodii bromidi, ..... }  
Tincture hyoscyami, ..... } ..... aa ʒss;  
Fluidextracti viburni prunifolii, ..... }  
Syrupi aurantii dulcis, q. s. ad..... ʒiii.

M. Sig.: Two teaspoonfuls every two hours.

Very often this treatment will suffice to check the symptoms. Sometimes it will lessen the pain, but the hemorrhage will continue. In such a case how long will we allow the patient to bleed? If the patient shows signs of anemia due to the hemorrhage, empty the uterus. If the bleeding does not exceed the quantity of a normal menstrual flow no worry should be entertained. Very often a slight staining will continue for weeks. We further wish to know if pregnancy still continues. This may be found out by examining the patient at the end of two weeks. If the uterus has increased in size the fetus is growing. If there is no increase the fetus is dead, and it is best to empty the uterus.

The bowels should not be moved for three days, then one half ounce of castor oil should be given, and before the movement occurs inject a tablespoonful of olive oil to prevent straining from the evacuation of hardened feces. The bladder should be attended to. If necessary, catheterization should be resorted to under aseptic precautions. The diet should be strictly liquid, consisting of beef tea, milk, and chicken soup for the first few days.

If the loss of blood is excessive, hemostasis may sometimes be accomplished by the elevation of the pelvis or by applying cold compresses to the vulvæ. Never tampon.

After five days, the patient may be allowed to get out of bed, returning gradually to her work and

getting back to bed again as soon as she notices any staining. To summarize:

1. Rest—physical and mental.
2. Fluid diet.
3. Care of bladder and bowels.
4. Hemostasis: By elevating the pelvis and cold compresses to the vulva.
5. Empty the uterus if bleeding is severe.

*Dr. Sterling O. Fields, of Newport News, Va., says:*

One should endeavor to satisfy himself that the threatened abortion is not really some menstrual irregularity; a cessation and sudden establishment of the menstrual flow from other causes than pregnancy; or the efforts of an irritable uterus to expel a polypoid tumor.

The treatment of abortion should properly be begun before it is threatened. A pregnant woman must be cautioned against overexertion, jolts, or jars. Endometritis, tubal and ovarian infection, etc., demand treatment before impregnation. In cases of irritable uterus, rest in bed at the times corresponding to the menstrual epochs, supplemented by watchfulness against physical and nervous strain, will often prove effective. Syphilis in the mother calls for antiluetic treatment. A displaced uterus in pregnancy calls for restoration, the organ being retained in place by tampons or pessaries until its size is such as to prevent a recurrence. Cough, vomiting, and other spasmodic muscular movements demand appropriate remedies.

The active treatment of threatened abortion is comprised in the one word, "rest"—rest secured by the supine position in bed and the administration of drugs to decrease both the sensibility of the nervous system and the activity of the muscular system. The patient is kept in bed in a darkened and quiet room, receiving no visitors, and concerning herself with none of her household worries. Her diet should be liquid. Of drugs, opium deserves its reputation in such cases, women in this condition exhibiting a tolerance which often makes it possible to give unusual amounts. With opium, small dose of chloral and potassium bromide may be combined. *Viburnum prunifolium* is much used in these cases of threatened abortion, and the results amply justify its use.

The best routine method of treatment is probably the administration of 4. c.c. of fluidextract of *viburnum prunifolium*, three times daily, and the administration of 0.03 gramme of the extract of opium, three times a day. This treatment is kept up until the practitioner is satisfied that all danger of abortion is over, or that abortion is inevitable. If the danger of abortion is warded off, the woman is allowed to resume her ordinary routine, subject to such restrictions as the physician may see fit to impose.

*Dr. F. McKelvey Bell, of Ottawa, Canada, considers:*

The treatment of threatened abortion as presenting two aspects: First, that during the emergency and, second, that for the prevention of a recurrence.

During the emergency: The patient should have absolute rest, mental and physical. She should be in bed, in the supine position with the hips slightly

elevated. The room should be darkened and quiet—no visitors. A hypodermatic injection of one quarter grain of morphine, combined with atropine, is given at once. This is more rapid and reliable than suppositories of opium powder (1 grain) and chloral hydrate (10 grains), which may be used subsequently every four hours if required, to prevent further uterine contractions and allay nervous irritation. Heat, by means of a hot water bottle, over the lower lumbar region will assist as a uterine sedative.

In those rare cases where opiates are contraindicated, and in all cases when the opiates have finished their work, as indicated by the cessation of pain and hemorrhage, it will be advisable to administer, by the mouth, a mixture containing fifteen grains of potassium bromide and one half drachm of fluidextract of *viburnum prunifolium* three times daily, after meals, the former to allay general nervous irritability, and the latter as a uterine sedative. The diet should be light.

Avoid the use of tonics such as quinine or strychnine, and stimulating glandular extracts such as epinephrin or pituitary extract, etc., which excite contractions of involuntary muscles.

To prevent recurrence: It may be necessary to keep the patient in bed weeks or, in rare cases, even months.

The immediate danger being past, look for the causative factor. It may be a habit of abortion, recurring with each menstrual epoch. If so, insist upon rest in bed for the several days corresponding to each period. If retrodisplacement of the uterus is the cause, use soft rubber pessaries or wool tampons for correction, until the uterus is sufficiently enlarged to lift itself out of the pelvis.

Such diseases as syphilis, diabetes, anemia, phthisis, etc., require appropriate treatment. Recurrent spasmodic affections, such as epilepsy, chorea, eclampsia, etc., if found, should be given attention. The albuminuria of pregnancy, which may be a cause, responds well to thyroid treatment. Excessive coughing or vomiting should be relieved. Advise patient to avoid all nervous excitement, especially coitus and undue exercise.

*(To be concluded.)*

### Therapeutic Notes.

#### Treatment of Synovial Cysts at the Wrist.—

J. Parowski, in *Progrès médical* for March 8, 1913, strongly recommends injections of tincture of iodine in this condition. An ordinary hypodermic syringe, with a short needle, is used. The back of the affected hand is painted with tincture of iodine, and the hand placed flat on a table, or allowed to hang over the edge in case it is necessary to render the cyst more prominent. The cyst being held with two fingers of the left hand, the needle is then quickly introduced. In nine cases out of ten none of the brownish jellylike material contained in the cyst appears through the needle. Two or three drops of iodine tincture are then injected and the needle removed. In case any of the cyst contents, mixed with the iodine, exude at this time, a little more of the tincture should be injected. A light



dressing is applied, which should not interfere with the movements of the hand or fingers, and left on for four or five days. The cyst will then have softened, shrunk, and sometimes even entirely disappeared. Another injection should then be given, and a light dressing allowed to remain for three days, after which the cyst will have been completely cured in ninety-nine out of 100 cases. No case resists a third injection.

Contrary to what has already been written of this method, there is but little pain—the passage of the needle through the skin is the most painful part of the procedure. In the succeeding hours the hand feels slightly hot and numb. A marked advantage of the method is that the hand need not be subsequently immobilized; it may, in fact, be employed in the patient's customary work on the same day. The alleged danger of entrance of iodine into the wrist joint if the cyst should happen to communicate with the latter seems very remote. In the twenty-two cases in which the author employed the iodine method, no evidence of such communication could be observed. The jellylike consistence of the cyst contents and the small size of the orifice of communication are also factors of safety in the injection method. The author has seen no recurrence in the cases treated. Simplicity and absence of scars are additional advantages of the procedure.

**Treatment of Hay Fever.**—Menier, in *Journal de médecine de Paris* for April 19, 1913, is credited with the recommendation that, in the hay fever paroxysm, the patient be given to inhale a four per cent. solution of menthol in chloroform, to be followed by a spray of one in 2,000 epinephrin solution.

For the ocular symptoms, in particular the photophobia, one may prescribe:

R Physostigminæ sulphatis, .....gr.  $\frac{1}{2}$  (0.02 gramme);  
Aque destillatæ, .....3iiss (10 grammes).  
Solve.

Or.  
R Pilocarpinæ nitratis, .....gr.  $\frac{3}{4}$  (0.05 gramme);  
Aque destillatæ, .....3iiss (10 grammes).  
Solve.

One drop of either solution is to be instilled in each eye.

In asthmatic forms, dyspepsia should be combated with antispasmodics. In light cases belladonna and valerates are indicated.

R Extracti belladonnæ foliorum, gr.  $\frac{3}{4}$  (0.05 gramme);  
Extracti opii, .....gr.  $\frac{1}{2}$  (0.02 gramme);  
Syrupi simplicis, .....5x (40 grammes);  
Aque laurocerasi, .....3iiss (10 grammes);  
Aque destillatæ, .....3iiss (80 grammes).  
M. Sig.: To be taken in one day.

**Treatment of Constipation.**—Phœbus, in *Paris médical* for March 15, 1913, is credited with the following formula of a laxative suppository:

R Sodii sulphatis exsiccati, .....3ii (8 grammes);  
Saponis albi pulveris, .....3iv (16 grammes);  
Mellis spissi, .....q. s.  
M. Fiant suppositoria No. iv.

An electuary of sulphur for the treatment of habitual constipation might be prescribed thus:

R Sulphuris loti, .....3i (30 grammes);  
Potassii bitartratis, .....3ss (15 grammes);  
Mellis albi, .....3iii (90 grammes).  
M. Sig.: One teaspoonful once or twice daily.

**Treatment of Idiopathic Unilateral Facial Spasm.**—Henri Claude and Fernand Lévy, in *Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, March 13, 1913, report a case in which injections of magnesium salts were employed with marked success. Their object in trying these agents was, while overcoming the spasm, to avoid every chance of subsequent facial paralysis, such as may result from injections of alcohol. The patient showed frequent and intense paroxysms of clonic and later tonic contractions of the left side of the face; each attack was accompanied by marked tinnitus in the ear of the same side. The condition was of two years' standing. Injections of a twenty-five per cent. solution of magnesium sulphate were first made around the chief temporofacial nerve branches; but though the frequency and intensity of the attacks diminished, the spasm was not overcome. An injection of two cubic centimetres of a fifty per cent. magnesium chloride solution was then made around the facial nerve directly at its emergence from the stylomastoid foramen. A sensation of painful numbness was at once experienced locally, and on the next day there was slight swelling, but no facial paralysis nor noteworthy effect on the spasm. On the fifth day, however, the contractions were seen to be growing less frequent and weaker, and on the tenth day no spasmodic manifestation whatever remained. At the time of writing this condition had been maintained for over a month. If recurrence should later take place, the treatment, which is neither dangerous nor attended with much pain, could easily be repeated.

**Treatment of Chorea.**—R. Oppenheim, in *Progrès médical* for March 22, 1913, states that in mild forms of chorea the use of arsenic is unnecessary. Careful supervision of the diet, an increase in the period spent in bed to fourteen or sixteen hours, attention to the regularity of the bowel movements, and the giving of a general wash with hot water each morning, followed by dry rubbing, are among the measures indicated. Twice daily give a tablespoonful of the following mixture:

R Antipyrinæ, .....3iiss (10 grammes);  
Tincturæ belladonnæ foliorum, Mxl (2.25 grammes);  
Syrupi aurantii florum, .....3ii (60 grammes);  
Aque destillatæ, q. s. ad, .....3v (150 grammes).  
Mise.

In very severe cases of chorea, the child should be kept isolated and in a bed surrounded by padded boards. Arsenical treatment should be given, and likewise antipyrine in doses larger than in the quoted formula. If the antipyrine does not prove effective in a few days, chloral hydrate in full doses should be given:

R Chlorali hydrati, .....3ss-i (2-4 grammes);  
Potassii bromidi, .....3j/4-ss (1-2 grammes);  
Codeinæ sulphatis, .....gr.  $\frac{2}{3}$  (0.04 gramme);  
Syrupi, .....3v (20 grammes);  
Aque destillatæ, q. s. ad, .....3iiss (110 grammes).

M. Sig.: To be taken within twenty-four hours in tablespoonful doses.

Where infectious phenomena or cardiac complications accompany chorea, sodium salicylate in daily doses of from thirty to sixty grains (two to four grammes) should be added to these measures.

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### THE THERAPEUTIC USE OF THORIUM X.

The steady development of radioactive agents both as to the number available and as to their therapeutic value, has suggested the internal use of those whose physical structure permitted administration by the mouth, subcutaneously, or intravenously. Among these is thorium x, a product of decomposition of radiothorium, which, in turn, is a product of decomposition of thorium. Thorium x, though, as a rule, valueless in the treatment of cancer, owing doubtless to the rapidity with which it is itself decomposed, has been credited with marked efficiency in the treatment of gout, chronic rheumatism, and various blood disorders, particularly leucemia. Thus Plesch reported a case of myelogenous leucemia which had resisted x rays, in which a single injection of thorium x, administered intravenously in saline solution, sufficed to initiate recovery. Fifty-three days after the injection all the myelocytes had disappeared. In pernicious anemia he obtained good results where all other means had failed. In an almost moribund case, for instance, the red cells were brought up from 340,000 on the day of the injection to 2,270,000 thirteen days thereafter. Klemperer and Hirschfeld obtained equally good results in six out of nine cases

of true leucemia, including cases in which x rays had totally failed. In pernicious anemia the results were not as favorable, only three out of seven cases having shown serious improvement. These authors emphasize the advisability of giving thorium x a trial in this disease, however, where arsenic and other classic measures have failed, and other conservative clinicians speak in the same vein.

Promising as this agent seems to be, its use is by no means free from danger as some writers seem to believe. Thorium x shows a strong predilection for the leucocytic apparatus. Domarus and Salle found experimentally that it inhibited leucocytosis and reduced the coagulation time of the blood. Arneth noted a similar action which he traced to the central leucocytogenic organs. This inhibition of leucocyte formation coexisting with continuous utilization and physiological disintegration of the white cells, the latter disappear. Although these effects were brought about by large doses, our lack of knowledge as to the size of the dose indicated in a given case and the likelihood that it varies to a certain extent with each case, probably account for the fact that toxic phenomena with extreme leucopenia and severe gastrointestinal disturbance have been observed in several cases, some of which ended fatally. Great care should, therefore, be the rule in using thorium x intravenously or subcutaneously until at least its physiological action and its dose will have been carefully studied by radiologists.

### IMPORTANCE OF PURE DISTILLED WATER.

Wechselmann and Ehrlich, about two years ago, showed that some of the untoward effects of intravenous injections of salvarsan, such as fever, nausea, and vomiting, could with a very high degree of probability be attributed to protein derived from bacteria which were present in the distilled water employed in making the solutions. These observations directed attention to the inferior quality of the distilled water usually sold in pharmacies in Germany and Austria; Müller, for example, found that the bacterial counts of seventeen samples of such waters varied from 100,000 to 6,050,000 in a c. c. An intravenous injection of 300 c. c. of a salvarsan solution made with such water might thus contain one and one half billion bacteria. When it is recalled that water containing 500 bacteria in a c. c. is usually condemned for drinking purposes, it is evident that there is some justice in the comment made by a recent writer (Barladean, *Pharmaceutische Centralhalle für Deutschland*, 1913, p. 787) that some of the distilled water used in pharmaceutical work

approaches, in bacterial content, sewerage rather than bad drinking water. The use of freshly distilled water in preparing solutions of salvarsan seems to have materially reduced the number of cases in which unpleasant symptoms (fever and nausea) occur.

These observations have directed attention to the character of the water used in making solutions of other medicinal substances for intravenous or subcutaneous injections. Gaza, in a recent number of the *Deutsche medizinische Wochenschrift*, reports a case of sterile tissue destruction following the injection of novocaine; he attributed it to the (dead) bacteria contained in the water. Several recent writers (Samelson, Bendix, Bergmann, and Jörgensen) attribute the much discussed "salt fever" of infants (the fever which so often follows the subcutaneous injection of salt solution and which has been held to contraindicate saline infusions in infants) to the bacteria contained in the water employed in making the solution; the reaction did not occur if water free from dead bacteria was employed.

Attention is also being called to other possible sources of dangers in "distilled" water. Kohlrausch more than twenty years ago showed that even distilled water may abstract a considerable amount of alkaline material from glass; in some cases he found that as much as 0.5 gramme of such material was abstracted by a litre of water. Several recent writers (Matzenauer, Emery, Dreyfus) believe that this material may act injuriously on solutions of salvarsan just as it has been shown to be the chief cause of the decomposition (turning red) of solutions of eserine (Wolffin, *Klinisches Monatsblatt für Augenheilkunde*, 1913, p. 349).

The chills and fever which sometimes follow the intravenous injections of sterile solutions of lactose (for testing renal function) are attributed, by Schlayer, to the protein derived from moulds and bacteria which grow on the lactose, unless special precautions are taken.

Thus the extension of the intravenous and hypodermic methods of administering drugs has brought out new facts, one of the most surprising of which is the effect of minute amounts of bacterial proteins. They show that simply distilling water and then boiling it again when it is to be used is not sufficient; the water should be preserved under aseptic conditions or, better, used soon after its preparation. For many purposes it is also desirable to use water which has not been allowed to remain too long in contact with glassware, especially of the cheaper grades which readily yield some of its constituents to water.

## ESSENTIAL HEMATURIA AND ITS TREATMENT.

As hematuria is a symptom due to so many different causes which, though sometimes of but little moment, are often of the gravest character, it is a matter of the greatest importance in all cases, of course, where the source of the hemorrhage is not plainly evident, to endeavor to ascertain its source at the earliest possible moment. The sources of hematuria may be divided into three groups: Renal, including the pelvis of the kidney and the ureter; vesical, including the prostate; and urethral. Urethral hemorrhage though, strictly speaking, not hematuria, is for the sake of convenience always considered as such. Moreover, hematuria is a symptom which, as is well known, may also occur in certain morbid conditions of the blood, as in purpura, scurvy, smallpox, typhoid and malarial fevers, and likewise in some cases of metallic poisoning, as by mercury, lead, and arsenic.

Notwithstanding the improved diagnostic methods now at our disposal there is still found a certain proportion of instances of renal hematuria in which there is no clinical evidence of renal insufficiency, no visible organic change in the renal parenchyma, nor any evidence of renal infection. Dr. William F. Braasch, of Rochester, Minn., who, in a paper published in the *Journal of the American Medical Association* entitled *Clinical Observations on Essential Hematuria*, confines himself to the consideration of hematuria resulting from renal conditions, states that the operative records of the Mayo clinic up to June 1, 1913, show twenty-six cases of patients operated upon for hematuria for which no evident cause could be found, while the clinical records show fifty-one cases not operated on in which the clinical diagnosis of essential hematuria was evident. For lack of a more accurate term he retains that of "essential" for the type of hematuria referred to. The diagnosis of essential hematuria is most often confounded with that of chronic nephritis, infectious nephritis, pyelitis, neoplasm, tuberculosis, and lithiasis, and these are to be excluded through the failure to find the evidences characteristic of the various conditions present.

Of great interest is the aftercourse of cases of essential hematuria. Of the patients operated upon at the Mayo clinic, sixty-seven per cent. recovered after nephrotomy, which was performed in twelve of the cases, while of sixteen patients upon whom nephrectomy was done, fourteen recovered, one died, and one was lost sight of. Of the fifty-one patients not operated upon, it was possible to trace but forty-one. In twenty-six patients the affected kidney was merely catheterized, with cessation of



hematuria (which remained permanent in all but four) following. In eighteen the renal pelvis was overdistended with methylene blue or colloidal silver, with permanent cessation in all but three; while in six patients in which epinephrin, in solutions of one in two thousand, was introduced into the pelvis, recurring hematuria was reported in all except one, treated six months ago. From these results, Doctor Braasch very properly concludes that it would seem advisable, as a rule, to treat essential hematuria conservatively.

### THE FUMIGATION OF VESSELS FOR THE DESTRUCTION OF RATS.

Among the very valuable reprints from the *Public Health Reports*, Number 132, that one entitled *Fumigation of Vessels for the Destruction of Rats* should be well considered by all physicians who are connected, in official capacities, with quarantine stations of ports. In the reprint, it is stated that the efficiency of sulphur fumigation rests on its well demonstrated property of destroying vermin, its safety, and the ease with which it may be applied. For the destruction of rats on board of vessels as an antiplague the burning of roll sulphur in iron pots has not been displaced by any of the more recently proposed methods. Hydrocyanic acid gas is rarely used on account of the danger to human life, while funnel gases require an expensive apparatus and are practical only for large spaces, such as the holds of vessels. But great stress must be laid upon the fact that such sulphur fumigation has to be done thoroughly and not in the routine method of burning a few sulphur pots in the vessel's hold, a procedure which is of little value and gives only a false sense of security. Every part of the vessel must be fumigated; the compartments must be clean, as empty as possible, and open. The fires must be drawn or banked; the main funnel grating over the engine room, and all other openings that cannot be tightly closed must be battened down. The dunnage must be piled and slung up, entirely free from the floor; planking boards, ropes, canvas, etc., have to be removed. In short, every hiding place for rats must be exposed to the fumes. Actual measurements of the cubic capacity of the vessel have to be considered, and the fumigation is to be done simultaneously in all compartments. Living quarters and engine rooms must receive seven hours exposure to 4.5 per cent. gas; while the hold is given an exposure of three per cent. gas for twelve hours or more. The vessel is to be anchored away from any dock. All parts of the vessel, including rafts, boats, lockers, bins, casings, furlled sails, etc., have to be exposed to the fumigating gas. It has

been found that it is best to use five pounds of sulphur to each one thousand cubic feet of space, which will produce 4.5 per cent. gas.

### FRUIT DIET IN CARDIOVASCULAR AND RENAL DISORDERS.

According to the *Paris médical* of August 9, 1913, H. Surmont asserts that a fruit diet is indicated in all forms of arteriosclerosis, including those with aortic disease—with or without anginal pains—with pulmonary edema, with myocardial weakness, and with Bright's disease. Even in patients in whom the circulation is failing and who no longer respond to a milk diet and cardiotonic or diuretic drugs, the use of fruit may cause a surprising degree of improvement. The fruit to be employed may include all varieties available in the several seasons, and in most instances should be taken chiefly raw, with or without powdered sugar. The amount for an adult should be 1.05 kilogrammes of fresh fruits, together with 400 or 500 grammes of oily fruits such as almonds, walnuts, and hazelnuts, or preserved fruits such as prunes, raisins, dates, and figs. From three to five meals may be taken in a day. In patients already in a serious state, the fruit treatment should be preceded for one to three days by absolute rest in bed and the ingestion only of fifty grammes of water every half to one hour. After this the exclusive fruit diet should preferably be kept up for three to four weeks. In the obese and edematous, limitation to raw, fresh fruit, may bring about a considerable decrease in weight, whereas in patients already reduced and weakened, special stress should be laid on the nuts and preserved fruits. When the patient tires of the diet, or the desired end has been attained, bread and butter should first be added, then a litre of milk and a couple of eggs, once and later twice a day. Such a combined diet can be continued for months without inconvenience. The fruit diet acts as a laxative, diuretic, and in particular, as an alkalizer and a source of mineral substances previously often lacking. It is also nontoxic, avoiding the harmful effects of retained nitrogenous wastes in the classes of cases referred to. Sterile grape juice may be given to patients unable to digest raw fruits and subject to constipation because of taking preserved and dry fruits alone.

### PELLAGRA IN ENGLAND.

Gurth S. Blandy's attention was called to pellagra through reading the recent articles by Sambon, and he is able to add eleven cases to those already reported, his paper appearing in the *Lancet* of September 6, 1913. Nine of these cases are analyzed. All but one of the cases were in women; with one exception (aged seventy-four) all of the cases were in persons between the ages of twenty and forty years. The patients did not come from the lowest grades of society, and none was destitute nor suffering from privation. Some of the patients had lived so long in the asylum that that may be said to have

been the index of their social condition. The diet was liberal and contained little or no maize products. A striking feature of the series is the general severity of the cases. All of the patients were insane, and although it is said that pellagra may remain quiescent for years, Blandy finds "a great difficulty in believing that the insanity was not quite independent of any pellagrous factor." Except in one case the disease seems to have been contracted by the patients while in the asylum. Two cases occurred simultaneously, the patients being in contact with each other; a third was isolated by sex, but was in the same hospital block. Two cases seem to have developed after contact with a third at some previous time in the hospital. Another patient occupied a bed in the same ward that had previously housed two other patients. Though not wishing to express an opinion as to the mode of origin of the disease, Blandy says that it is easy to be carried away by Sambon's enthusiasm over his attractive theory of the spread of pellagra by the simulum. "While, however, it is comparatively easy to associate the life history of any individual patient in this country (England), when means of transit are so plentiful, with some or other river, it is almost impossible to find a case that can at no time have been in the near neighborhood of a simulum bearing stream."

### Obituary.

REGINALD HEBER FITZ, M.D.,  
of Boston.

Doctor Fitz died in Boston, on Tuesday, September 30, after an operation on the stomach. Born in Chelsea, Mass., on May 5, 1843, he received his education at Harvard, obtaining the degree of A. B. in 1864, of M. D. in 1868, and the honorary degree of LL. D. in 1895. He settled in Boston and in 1870 joined the teaching staff of his alma mater as instructor in pathological anatomy, becoming assistant professor of pathology in 1873 and full professor in 1878. From 1878 to 1892 he was Shattuck professor of pathology, and since 1892 Hersey professor of the theory and practice of physic. In 1908 he retired and was made an emeritus professor. Doctor Fitz was one of the leading men of Harvard University, and a well known practitioner of Boston. He contributed many essays to medical literature and is especially well known through his studies on appendicitis.

### News Items.

**A Joint Meeting of Pediatric Societies.**—A joint meeting of the Philadelphia Pediatric Society, the New England Pediatric Society, the New Jersey Pediatric Society, and the Section in Pediatrics of the New York Academy of Medicine will be held in Boston on Saturday, November 8th.

**Fifth District Medical Society.**—At the seventh annual meeting of the Fifth District Branch of the Medical Society of the State of New York, held in Oneida on Thursday, October 2d, the following officers were elected: President, Dr. Frederick H. Flaherty, of Syracuse; vice-president, Dr. W. D. Garlock, of Little Falls; secretary, Dr. J. F. McCaw, of Watertown; treasurer, Dr. George F. Mills, of Oneida.

**Professor Conklin to Give Gross Lecture.**—At a meeting of the Philadelphia Pathological Society, to be held in Thomson Hall, College of Physicians, on the evening of October 23d, Dr. E. G. Conklin, professor of biology at Princeton University, will deliver the second Samuel D. Gross lecture, his subject being the Mechanism of Heredity and Development. All persons interested are invited to be present.

**Clinical Lectures on Genitourinary and Venereal Diseases.**—Beginning on November 3, 1913, and continuing for a period of four months, Dr. Frederic Bierhoff will give a series of clinical lectures and demonstrations on genitourinary and venereal diseases, including the modern methods of diagnosis and treatment, every Monday evening, at 8:30 o'clock, at the West Side German Dispensary, 328 West Forty-second Street, New York. The course will be free to physicians and advanced students in medicine.

**Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.**—Tuesday, October 14th, Pediatric Society; Wednesday, October 15th, Philadelphia County Medical Society (business meeting) and the Section in Otology and Laryngology of the College of Physicians; Thursday, October 16th, Northeast Branch of the Philadelphia County Medical Society and the Section in Ophthalmology of the College of Physicians; Friday, October 17th, Southeast Branch of the Philadelphia County Medical Society.

**Neurological Section of the Academy of Medicine.**—The Section in Neurology and Psychiatry of the New York Academy of Medicine will meet on Tuesday evening, October 14th. The programme will include the following papers: Amnesia Due to Tobacco and Malaria, by Dr. S. F. Goodhart; What is a Complex? by Dr. H. W. Frink; Psychanalysis and Life, by Dr. Trigant Burrow, of Baltimore; Opportunities of the Psychotherapist, by Dr. James J. Putnam, of Boston. Dr. A. A. Brill and Dr. Louis Casamajor will take part in the discussion. Dr. E. W. Scripture is chairman of this section and Dr. I. Strauss is secretary.

**Utah State Medical Association.**—At the annual meeting of this association, held in Salt Lake City on Tuesday and Wednesday, September 23d and 24th, under the presidency of Dr. Andrew J. Hosmer, of Salt Lake City, the following officers were elected: President, Dr. John F. Critchlow, of Salt Lake City; first vice-president, Dr. Joseph R. Morrell, of Ogden; second vice-president, Dr. Heber E. Robinson, of American Fork; third vice-president, Dr. Margaret A. Freese, of Salina; secretary, Dr. William Brown Ewing, of Salt Lake City, reelected; treasurer, Dr. H. P. Kirtley, of Salt Lake City, reelected.

**Action of Medical Congress in Regard to Syphilis.**—At the joint session of the Sections in Forensic Medicine and Syphilology of the Seventeenth International Congress of Medicine, held in London on August 16, 1913, the following resolution was unanimously adopted.

That, sensible of the ravages wrought by syphilis in the health of the community, and deploring the inadequacy of existing facilities for the checking of its dissemination, the International Medical Congress calls upon the governments of all the countries here represented to institute a system of confidential notification of the disease to a sanitary authority, where such notification does not already obtain, and to make systematic provision for the diagnosis and treatment of all cases of syphilis not otherwise provided for.

**Postgraduate Instruction in the Medical Sciences.**—In recent years there has been a growing desire among the physicians and surgeons of New York city for opportunities to keep abreast of the advancing knowledge of the medical sciences, particularly as such information bears upon the problems of clinical medicine. To meet this demand, the directors of some of the leading laboratories in New York have cooperated to offer postgraduate courses in their respective subjects. The institutions cooperating are: College of Physicians and Surgeons of Columbia University, New York University and Bellevue Hospital Medical College, Cornell University Medical College, and the Research Laboratory of the New York City Department of Health. Instruction will be by means of lectures, demonstrations, and laboratory work according to the nature of the subject to be presented. For registration and for details regarding the various courses, applicants are requested to communicate with the directors of the respective laboratories. For information as to facilities for studies application may be made to Haven Emerson, M. D., 120 East Sixty-second Street, New York.

**Philadelphia Civil Service Examinations.**—Among the positions for which the Philadelphia Civil Service Commission will hold examinations in the near future are the following in the Medical Service of the Department of Public Health and Charities. On October 23d, at 9:30 a. m., examinations for the positions of assistant physician (resident), with a salary of \$800 to \$900 a year, with room and board; assistant physician (resident), with a salary of \$900 to \$1,200 a year, with room and board; female supervisor, with a salary of \$700 a year, and school medical inspector (women), salary of \$600 a year. On October 24th, at 9:30 a. m., an examination will be held for the position of dietitian, with a salary of \$720, and at the same hour on October 27th an examination for druggist, with a salary of \$800 a year.

**Surgeons of the Pennsylvania Railroad Hold Annual Meeting.**—At the joint annual meeting of the Pennsylvania Railroad Surgeons' Associations for the lines east and west, held recently in Baltimore, Md., the following officers were elected: For lines east, Dr. George L. Romaine, of Lamberville, president; Dr. Herbert F. Gillette, of Cuba, N. Y., first vice-president; Dr. William Martin, of Atlantic City, N. J., second vice-president; Dr. A. W. Colcord, of Clairton, Pa., secretary; Dr. Joseph C. Egbert, of Wayne, treasurer. For lines west, Dr. H. P. Linsz, of Wheeling, W. Va., president; Dr. Hiran J. Conn, of Colfax, Ind., first vice-president; Dr. Charles Graefe, of Sandusky, Ohio, second vice-president; Dr. J. D. McCann, of Monticello, Ind., secretary; Dr. O. E. Holloway, of Kensington, Ind., treasurer. Both associations voted to hold next year's meeting in Atlantic City, N. J.

**Resolutions on the Death of Doctor Van Santvoord.**—At a meeting of the board of trustees of Bellevue and Allied Hospitals, held on September 16th, the following resolutions on the death of Dr. Richard Van Santvoord were adopted:

**WHEREAS**, The trustees have learned with profound regret of the death of Dr. Richard Van Santvoord, for many years a member of the visiting staff of Harlem Hospital, and

**WHEREAS**, In his death they recognize the loss of one who gave always skillful and faithful service to the hospital and the patients entrusted to his care; be it therefore

**Resolved**, That the trustees spread upon their minutes a record of the esteem in which he was held by them, both as a physician and as a man, as well as a sense of the loss which will be sustained by the hospital from his absence; and be it further

**Resolved**, That a copy of these resolutions be forwarded to his bereaved family.

J. K. PAULSEN,  
Secretary, Board of Trustees.

**Personal.**—Dr. Francis Winslow Palfrey has been appointed secretary to the faculty of Harvard Medical School, succeeding Dr. Channing Frothingham, who resigned a short time ago. Dr. Walter Clark Howe has been appointed secretary to the faculty of the graduate school of medicine of Harvard University.

Dr. Paul S. McKibben, of the University of Chicago, has accepted the chair of anatomy in the Western University, London, Ontario.

Dr. G. E. Coghill has been appointed associate professor of anatomy at the State University of Kansas, Lawrence.

Dr. Clara Moore, pathologist to the North Chicago Hospital, has been appointed instructor in clinical medicine and diagnosis at the University of Wisconsin.

Dr. Walter Mendelson, of New York, has been elected by the alumni of Columbia University to fill the vacancy in the Board of Trustees caused by the resignation of Mr. Lenox Smith.

**First Convocation of the American College of Surgeons.**—On the evening of November 13, 1913, will be held the first formal meeting for the conferring of fellowships on the members of the American College of Surgeons. Sir Rickman Godlee, president of the Royal College of Surgeons of England, will deliver the principal address and extend, officially, greetings to our new organization from the councilors of the Royal College of Surgeons. Dr. J. M. T. Finney will deliver the presidential charge, and formally confer the fellowships on all members of the organization who have qualified. Honorary fellowships will be conferred on a small number of foreigners and Americans whom the Board of Regents have selected as worthy of such distinction. Every qualified member of the organization should make an effort to be present at this convocation, as the Board of Regents is anxious to make the occasion one of impressiveness and dignity and in keeping with the far-reaching importance of the organization.

**Pellagra in Mississippi.**—Pellagra has been reported to be on the increase in certain localities in Mississippi. Surgeon C. H. Lavinder, of the United States Public Health Service, recently visited the State for the purpose of ascertaining to what extent this reported increase existed, and during his visit obtained from Dr. F. L. Watkins, deputy State registrar, Jackson, Miss., a number of interesting statistical tables, which give some idea of the prevalence and geographic distribution of pellagra in the State by race and counties. The information contained in these tables is believed to be more complete than that in the possession of any other State in which pellagra exists to any great extent. These tables show that during the first six months of the present year 1,313 cases of pellagra were reported throughout the State, 648 white and 665 colored, with a total of 268 deaths, 74 white and 194 colored. Of the total number of cases 640 were reported during the month of June and the deaths from the disease during that month numbered 92.

**The Alvarenga Prize.**—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about \$180, will be made on July 14, 1914, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the secretary of the college on or before May 1, 1914. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award. Thomas R. Neilson, M.D., Secretary, 19 South Twenty-second Street, Philadelphia.

**Clinical Congress of Surgeons of North America.**—The fourth annual meeting of this congress will be held in Chicago, November 10 to 15, 1913. There is every indication at the present time that this meeting will prove one of the most notable gatherings of surgeons ever held on the American Continent. At last year's meeting, held in New York, nearly three thousand surgeons registered, and it is believed that the attendance at the Chicago meeting will exceed this number. Dr. Albert J. Ochsner, of Chicago, the first president of the congress, is chairman of the Committee on Clinical Programmes, and under his supervision an attractive programme has been arranged. Every branch of surgery will be represented in the clinics, and in addition to clinics in operative surgery there will be special demonstrations in radiology, experimental surgery, surgical pathology, etc. There will be eight evening sessions, at which scientific papers will be read and discussed. The formal opening of the congress will take place on Monday evening, November 10th, and at this time the president-elect, Dr. George Emerson Brewer, of New York, will be inaugurated and will deliver the annual address. The presidents of the American Medical Association and of the Canadian Medical Association will also be present at this meeting and deliver addresses. Dr. Edward Martin, of Philadelphia, the retiring president, will also deliver an address, and Dr. Harvey Cushing, of Boston, will read a paper which will be discussed by Dr. John B. Murphy, of Chicago. An interesting feature of the congress will be an extraordinary session in Orchestra Hall on Thursday evening, November 14th, for the discussion of the cancer problem, among those taking part being Dr. Thomas S. Cullen, of Baltimore, Dr. William J. Mayo, of Rochester, Minn., Dr. James Ewing, of New York, Dr. C. J. Gauss, of Freiburg, Germany, Dr. Joseph C. Bloodgood, of Baltimore, Dr. Edward Reynolds, of Boston, and Dr. Frederick R. Green, of Chicago. The division of surgical specialties, which includes surgery of the eye, ear, nose, throat, and oral cavity, of which Dr. Casey A. Wood is chairman, will hold evening sessions on Tuesday, Wednesday, and Friday, in the Hotel Sherman. General headquarters will be at the Hotel La Salle. Dr. Franklin H. Martin, 31 North State Street, Chicago, is general secretary of the congress, and Dr. E. Wyllys Andrews is chairman of the Committee on Arrangements.



## Pith of Progressive Literature.

### BERLINER KLINISCHE WOCHENSCHRIFT.

August 4, 1913.

**Splenomegaly.**—F. Kraus presents an extreme case of splenomegaly. The patient was poorly nourished, skin loose, mucous membranes pale, temperature elevated. A marked splenomegaly and hyperchromic anemia were present. Even in the standing posture the large spleen could be easily palpated. No parasites were found in the blood withdrawn from the spleen nor in the stools; the urine was normal. The pulse was somewhat hard, the tongue coated, and bowels constipated. The man was a Russian, sixty-two years of age; never had had any venereal infection. Wassermann reaction negative. No positive tuberculous reaction present. The patient believed he had been ill about three months; that his ailment began with headaches, muscular pains, digestive disturbances, drowsiness, etc. Gradually cardiac weakness developed; dyspnea and anasarca ensued. Extirpation of the spleen was serious in the presence of myelosis. The only treatment left was the Röntgen ray, thorium x, and finally with benzol. Patient has been x rayed since July 1st; six grammes of benzol in oil was given daily per rectum, and a salvarsan injection of 0.4 gramme followed once. On the whole the treatment had a favorable effect on the anemia.

**The Source of Amniotic Fluid.**—E. Wolff believes that liquor amnii is not produced by the mother; but by the living ovum. All late investigations have led to the knowledge of the close union of the fertilized ovum to the wall in which it implants itself. No blood is transferred, either directly or by filtration, to the fetal circulatory system. The amniotic fluid is produced by the activity of the fetal cells.

August 11, 1913.

**The Chemotherapeutic Treatment with Ethylhydrocuprin.**—H. J. Vetlesen reports the treatment of nine patients, with fibrous pneumonia. The sole remedy used was ethylhydrocuprin, given in three daily doses of 0.5 gramme, especially during the febrile period was this treatment persistently used. Only occasionally were symptomatic remedies given. During convalescence the author gave bitter wine of iron after the ethylhydrocuprin had been discontinued. In reviewing the outcome of treatment with this remedy, it is striking with what promptness the disease took a favorable course. Defervescence ensued in forty-eight hours after the onset of the disease, in three cases. In two others after two days and one half. In two others in three days and one half. In one case in four days and finally, in one case in eight days. This last being a specially virulent, contagious form. A girl of five years and a boy of four years were taken down with the same disease in the home of the patient. The author emphasizes the necessity of early treatment.

**Hæmatology.**—H. Strauss states his experience with patients suffering from chronic acholuric icterus with gout, and with chronic acholuric icte-

rus without splenomegaly. This last is very rare—the one in question being the first which the author has seen without splenic tumor. The disease progresses with remissions and exacerbations. Whether the anemia is temporary or permanent is still questioned. Although a cure may be effected in a number of patients with hemolytic icterus, like some cases of Banti's disease, by extirpation of the spleen, such is not the case with all. Splenotoxic disintegration of albumin is not to be lightly considered. In a patient without splenomegaly, the blood changes were slight. The function of the liver was comparatively normal; the quantity of urobilin in the urine and feces was increased—but much more marked were these changes in the ailment when combined with gout. There were marked signs of anemia and bonemarrow irritation. The serum was rich in bilirubin. It must have contained an antihemolytic substance, at least, during the time of examination. The urine and feces contained specially large amounts of urobilin. The feces also contained great amounts of bilirubin. Under the influence of treatment, with benzol for forty-five days the leucocytes were decreased from 271,000 to 151,000. Two intravenous injections within thirty days, each of 3,000 E. S. E. thorium x the white blood corpuscles were reduced from 151,500 to 62,000. The splenic tumor was also greatly decreased. This proves thorium x to be an effectual remedy in leucemia, as well as in severe anemia. Many similar experiences have recently been added.

August 18, 1913.

**The Beri Beri Question.**—W. Caspari and M. Mosykowski present their contributions as follows: In 1911 Mosykowski reported practical experiences, while Caspari made a tour of investigation to New Guinea and as a result of the same concluded that beri beri, so called human neuritis, was a disease of disturbed metabolism, caused principally by food and irritating toxins. Other investigators also adhere to the infection theory. Mosykowski was able to bring about the disease, by a diet of polished rice, in Berlin. Here infection was out of the question. The authors hope, by their investigations, to prove that beri beri is toxic in its origin.

August 25, 1913.

**Pathology of the Function of the Spleen.**—H. Eppinger reports the following facts observed in clinical cases of splenomegaly. The removal of the spleen in Banti's symptom complex which had at first been viewed with some misgivings, now proves to be in higher favor. The brilliant results after removal of the spleen in hemolytic diseases are known. Then it is suggested that the spleen, not only has something to do with these pathological conditions, but that it may be the exclusive etiological factor of the disease. Excess and diminution of function are mostly produced by well characterized diseases. Icterus is a common symptom accompanying the diseases in which splenectomy is proposed. In most cases icterus disappears after the operation. When so called hypertrophic cirrhosis of the liver is seen to greatly improve after splenectomy, the disease is not so much to be sought in the liver, but rather outside of it. The

authors have tried to bring pernicious anemia and hemolytic icterus under simultaneous observation. In both instances an increased hemolysis was present. It may be assumed that with hematological icterus there is a concurrent regenerative power in the bone marrow; splenectomy is capable of checking marked hemolysis, in hematological icterus, and the removal of the spleen is also beneficial in pernicious anemia. This, however, must not be considered the treatment in every case of pernicious anemia. Since this result is only attained by the removal of the spleen, it follows that the cause of the pernicious anemia must be sought in the spleen.

**Electrotherapy for the Diminution of Abdominal Fat.**—Carulla, of Barcelona, summarizes as follows: 1. By a simple technic, a reduction of sixty-six kilogrammes was obtained under a treatment, continued for nine months. 2. During the course of treatment, untoward secondary effects—dizziness, oppression, and nervous disturbances—were overcome by the high frequency current and Franklinization. 3. Before treatment there were present muscular contractions without pain, increased peripheral circulation, diaphoresis, acceleration of respiration, increased heart action; great amplitude of pulse and higher arterial tension. 4. As a result of treatment there occurred a retardation of the respiration and of the pulse rate and a lessening in tension of the bloodvessels. 5. Together with the marked decrease in weight, the patient experienced a sense of well being and energy. His sleeplessness disappeared, as well as the muscular pains, neuralgia, migraine, and dyspeptic symptoms. 6. The results attained attest the value of electrical treatment as an important therapeutic agent.

#### WIENER KLINISCHE WOCHENSCHRIFT.

August 7, 1913.

**Vascular Reflexes.**—L. Hess and E. von Bermann tested the reactions of the vessels in normal persons and also in others suffering from scleroderma, arteriosclerosis, and syringomyelia. The cases in which pathological conditions were present are given in detail. One interesting point brought out was that a vasodilatation followed irritation of the skin, even when there must be supposed to exist a complete interruption of the spinal reflex arch, and that consequently the reflex must take place through some other way.

**Gonorrhea.**—Brandweiler and Hoch say that autogenous gonococcus vaccines give quantitatively greater puncture reactions than allogenous monovalent or polyvalent vaccines in the same dose. The polyvalent causes a greater local reaction than the allogenous monovalent, and in this respect sometimes approaches closely the autogenous vaccine. Polyvalent vaccines of various origins, but analogous manufacture, give about the same reactions with the same dose. The superiority of the autogenous vaccine is also noticeable in the treatment of acute anterior urethritis.

**A Case of Diphtheria Following Piercing of the Ears.**—Richard Pollak reports a case in which a child had its ears pierced. More than three weeks later the punctures were covered with puru-

lent scabs. Two days later a pustule appeared on the upper lip, then other pustules on the lips, gums, and tongue. Autopsy revealed a lobular pneumonia in the right upper lobe, degeneration of the cardiac muscle, liver, and kidneys, and the bacteriological examination revealed the presence of diphtheria bacilli.

August 14, 1913.

**The Vagotonic Pupillary Phenomenon.**—Rudolf Somogyi says that Koranyi had observed that in those patients in whom other conditions indicated an increase of the tonus of the vagus deep inspiration caused a dilatation of the pupil, followed by a contraction during expiration. He has now studied this phenomenon in 120 patients, forty-two of whom were between thirteen and twenty-five years old, seventy-eight between twenty-five and sixty-seven. In the first group thirty-four had respiratory arrhythmia of the heart, fourteen the respiratory phenomenon of the pupils. In the second group thirty-nine had respiratory cardiac arrhythmia, six the respiratory pupillary phenomenon, showing that the latter is more common in young people. He thinks it most probable that the same causes act as in respiratory arrhythmia.

**Irrigation with Ether in Perforation Peritonitis.**—Franz Dergane reports two cases in which peritonitis was caused by a perforating ulcer of the stomach, or a rupture of the intestine. Laparotomy was performed in each case, revealing an early stage of an extensive peritonitis. The abdominal cavity was washed out with hot, sterile saline, dried with cotton, and then flushed with ether, which was immediately wiped out with cotton. Both patients made an excellent recovery. He calls attention to the sizzling noise made by the ether when it was poured into the cavity.

**Acute Polyarthritis in the Late Stage of Syphilis.**—W. Huzar says that there are forms of acute multiple arthritis due to syphilis in its late stage which bear a perfect, or almost perfect resemblance to acute articular rheumatism, of which he gives three examples. Suppuration does not take place in these cases. For this reason one should think of syphilis and search for its symptoms, and when these cannot be found, try an antisiphilic treatment in all cases of febrile inflammation of the joints which exhibit a marked resistance to the usual treatment. Mixed treatment is advised, and when this is without effect, salvarsan.

August 21, 1913.

**Reinfection with Syphilis within Three and a Half Months.**—Moriz Biach reports a case in which a man appeared on February 18, 1913, with a chancre on his glans penis. Wassermann's reaction was negative. Four doses of neosalvarsan were injected intravenously in the course of the next month. On June 4th he reappeared with another chancre in the coronary sulcus. Wassermann's reaction was negative at first, but became positive on the 11th. The exanthem appeared in due time. The first chancre was proved to be such by its clinical appearance, and by bacteriological investigation. The second chancre contained spirochæta, and the syphilis took its usual course in spite of the treatment with neosalvarsan to which the patient had been subjected.

August 28, 1913.

**Acute Necrosis of the Pancreas.**—Josef Gobiet concludes from his observations that the pancreas ferment theory gives the most natural explanation of the peculiar clinical picture, in which symptoms of poisoning are most prominent, that leads rapidly to death in the worst cases, and takes a more benign course in others, according to the amount of the pancreas poison produced and absorbed. Consequently the prognosis depends on the quantity of toxine produced, which in turn depends on the local extent of the process in the gland. This is in agreement with the clinical experience that the cases of total necrosis rapidly prove fatal, and that the clinical picture and the findings on autopsy perfectly simulate those of a poisoning. In some cases the diagnosis can be made with certainty, in others with great probability, before operation. The diagnosis in the early stage is based on the symptoms of poisoning, associated with great shock, the peculiar epigastric pains, which may be differentiated from those of gallstones, and the history. When the diagnosis is uncertain and the question of operation is doubtful, aid may be obtained from an isolated inflation of the transverse colon, which is very often demonstrable in the early stage and points to the pancreas as the focus of disease. The only rational treatment is to lay the pancreas bare at the earliest possible moment, to incise it and insert a tampon.

**CENTRALBLATT FÜR ALLGEMEINE PATHOLOGIE UND  
PATHOLOGISCHE ANATOMIE.**

August, 1913.

**Experimental Investigation in Cancer.**—Novell makes some very interesting claims concerning the experimental production of cancer. He obtains from recently removed cancers, presumably human although the author does not so state, an extract in the form of crystals. A sterile solution of this is made and injected into rabbits. The author summarizes his work as follows: That a highly poisonous substance, free from bacteria, may be obtained from cancer. That this material is characteristic of cancer and when injected into rabbits will cause the growth of cancer. Such tumors are followed by the formation of secondary growths with the development of cachexia. The repeated injections of sublethal doses has been found to confer immunity upon the rabbits.

**PARIS MÉDICAL.**

August 16, 1913.

**Treatment of Movable Kidney.**—F. Cathelin disapproves of the Hahn-Anyon method of introducing catgut sutures for the purpose of fixing a movable kidney, chiefly on the ground that the transverse direction in which the six strands of gut are tied, after being passed through the renal parenchyma, tends to "strangle" the portion of the kidney included in them. Instead he uses only two strands, which are passed through the kidney obliquely and almost at right angles. The extremities of each of these strands are, respectively, tied horizontally across the kidney with the extremities of the other strand lying opposite as they emerge from the kidney substance, a triple knot being made in each case. The ends hanging from the upper knot

are then tied around the twelfth rib if it be sufficiently long—otherwise around the costotransverse ligament of Henle—and the ends from the lower knot in a broad loop to the anterior and posterior musculofascial layers. An added advantage of this procedure is that the lower pole of the kidney is held in a relatively lateral position, corresponding with its normal condition and giving ample room for the ureter. Good operative results followed the employment of this mode of fixation in the three cases in which it has so far been tried.

**PRESSE MÉDICALE.**

August 30, 1913.

**Relationship of Appendicitis to Inflammation of Meckel's Diverticulum.**—M. Guibé believes simultaneous disease of the appendix and Meckel's diverticulum to occur rather frequently. Either the two affections merely coincide, no causal relationship existing between them, or the one is secondary to the other. In the latter event, appendicitis is doubtless usually the primary condition, the infection of the diverticulum later giving rise, however, to a disturbance in it so marked as to overshadow the appendicular condition. The author cites cases illustrating each possible condition referred to, and in particular, reports a personal case in which, three and a half months after an operation for gangrenous appendicitis, he intervened again because of further abdominal discomfort and in order to remedy a protrusion at the site of the previous incision. The free tip of a Meckel's diverticulum was found firmly adherent to the cecum. Upon removal of the diverticulum, it proved to be the seat of a chronic inflammatory process extending inward from the serous through the subserous layer, but practically stopping at the musculosa.

September 3, 1913.

**Fibroma of the Cecum.**—J. L. Faure and B. Desplas report a case of pure cecal fibroma in a woman twenty-four years of age, and review the literature of benign tumors of the intestine. The growth in their case was of the size of a child's head, and was diagnosed at first as a uterine fibroma, as it was dependent in the pelvis and was freely movable. The right iliac fossa was free, but the patient had presented symptoms which might with propriety have been regarded as secondary to a chronic appendicitis. The tumor was removed by section of the ileum ten centimetres from the ileocecal valve and of the ascending colon two finger-breadths above the tumor, the open ends of gut being closed and a laterolateral anastomosis established. Recovery followed.

**SEMAINE MÉDICALE.**

September 3, 1913.

**Duodenal Ulcer in Children.**—L. Cheinisse calls attention to the fact that, according to recent statistics, duodenal ulcer occurs more frequently in the first year of life than at any other age. In spite of the difficulty generally attending the diagnosis of duodenal ulcer, it is not impossible to recognize the affection even in young children. The chief basis of such a diagnosis is, indeed, the appearance of intestinal hemorrhage or peritonitis, either of which



threatens the life of the little patient. Duodenal ulcer may, however, terminate in spontaneous recovery, or even be entirely overlooked. Von Torday and others have pointed out that the clinical phenomena of pyloric stenosis may sometimes be produced by duodenal ulcer. As for treatment, subcutaneous injections of gelatin have appeared in a few cases to act favorably on the hemorrhage. Breast-feeding should, according to Helmholtz, alone be recommended, and the amount of milk taken at each feeding restricted at first to ninety or one hundred grammes for each kilogramme of body weight. Where perforation occurs, early laparotomy and suture of the ulcer is indicated. Pichat's case proved that such intervention may save life even twenty-four hours after the initial symptoms. Although the two youngest patients so far operated upon and cured were fourteen and fifteen and a half years, respectively, operation would seem to be indicated even in infants. In fact, according to Kuttner, it should be resorted to whenever, the diagnosis of duodenal ulcer being assured, the usual therapeutic measures fail or hemorrhage sufficient seriously to affect the patient's general condition takes place.

**Bilateral Ligation of the External Carotid in Facial Surgery.**—H. Vulliet recommends ligation of both external carotids instead of ligation of only that on the operated side, in extensive operations in the facial region, *e. g.*, in removal of the superior maxilla. In a considerable number of cases unilateral ligation does not prevent hemorrhage sufficiently for ideal operative purposes, the operator feeling hurried and perhaps not dissecting carefully enough in the removal of malignant growths. The bleeding is accounted for by anastomoses of the two external carotids in the labial region. Ligation of both these vessels is known to be devoid of danger, and was found completely effective by the author in preventing hemorrhage.

#### BRITISH MEDICAL JOURNAL.

September 20, 1913.

**Suggestions for the Technic of a New Method of Performing Wertheim's Abdominal Panhysterectomy.**—According to Charles P. Childe, Wertheim's operation is associated with two conspicuous dangers—shock, because of the unfavorable conditions of the patient's general health, and sepsis, because in addition to circumstances favorable to sepsis being present, a septic stage is introduced of necessity into the operation itself. He gives the special conditions favoring infection as: 1. The fact of the patient's being in a reduced state of health with diminished resistance. 2. Three extensive wounds are exposed to infection—the peritoneum, the abdominal incision, and the pelvic tissues. 3. The fact that the pelvic wound is open to the exterior through the vagina. 4. The free opening of the space of Retzius. To obviate these dangers, Childe, after the patient is anesthetized and placed in the lithotomy position, removes all of the soft growth with scissors and sharp spoon and thoroughly applies the Paquelin cautery to the raw area. The vagina is then dried thoroughly and painted with a two per cent. solution of iodine in alcohol and is closely packed with dry sterile gauze.

When about to divide the vagina in the course of the operation, the gauze is to be withdrawn by an assistant who is not taking part in the operation. During the operation the area about the uterus is completely surrounded by two large gauze packs wrung out of salt solution and introduced just prior to the division of the vagina. Immediately after this division these gauze packs are folded up, enclosing the uterus while it is removed from the abdomen. It is essential to secure perfect hemostasis, and this should be done with the use of the least amount of suture material possible. By means of strong crushing forceps, modeled in much the shape of Wertheim's vaginal forceps, Childe secures perfect hemostasis with the use of but four ligatures—one for each of the uterine and ovarian arteries. Drainage is not necessary in cases in which hemostasis is good.

**A Case of Carcinoma of the Pelvic Colon, Ovarian Tumor, and Appendicitis.**—Lawrie McGavin's patient was a married woman thirty-eight years of age, who in September, 1908, had her left ovary and tube removed because they were giving pain, owing to their adhesion to a mass in the lower part of the pelvic colon. After recovery from this operation she came under the care of the author, who operated and removed the whole sigmoid with its mesocolon, making an artificial anus. The removed sigmoid contained a ring carcinoma of the columnar cell type. No glandular enlargement was noticed. A year later an acute appendicitis developed, for which she underwent a third laparotomy with excellent recovery. In a short while it became necessary to cauterize a vesical nevus. Eighteen months later pain developed in the right side of the abdomen, and upon operation the right tube and ovary were removed on account of a benign fibroadenoma. At the time of this operation McGavin implanted the rectum, by this time much narrowed, into the lower portion of the transverse colon, and closed her colostomy wound. The closure of this was not complete, and, after a period, during which her bowels moved through the rectum, she began to have pain and difficulty with such attempted movements, which soon began to escape from the old colostomy opening. After due consideration it was determined to attempt an enlargement of the narrowed rectum where it led off from the colon. This was accomplished successfully by means of a longitudinal incision which was closed transversely, as in pyloroplasty. A complete recovery ensued, with closure of the colostomy and perfect control and function of the restored rectum. After a period of over four and a half years there has been no recurrence of the malignant growth.

**True Total Enucleation of Two Hydatid Cysts from the Same Liver.**—J. B. Buckley succeeded in dissecting out two cysts, one larger the other smaller than a tennis ball, from the liver of a young girl without injuring the organ or inducing any material hemorrhage. The entire cyst wall was removed, leaving what appeared to be normal liver tissue. Recovery was complete and rapid.

**A Method of Operating for Radical Cure of Inguinal Hernia.**—William T. F. Davies begins his incision just internal to and above the pubic spine and runs it parallel with the fibres of the

aponeurosis of the external oblique, from which the skin and subcutaneous tissues are raised. After defining the pillars of the ring, the external oblique is split far enough to give room. The lower margin of the internal oblique is exposed and retracted upward and the peritoneum (not the sac) is incised from the internal ring upward. The neck of the sac can now be seen from the inside, and the contained structures are withdrawn from it. The peritoneal incision is now extended down to and is carried around the neck of the sac, cutting it off as a glove finger might be cut from a glove. The abdominal peritoneum is next closed with a continuous suture and attention is turned to the sac, which is completely removed.

**Rhinocleroma.**—Owen Richards calls attention to the utter impossibility of curing this deforming disease by surgical or medical measures and reports the use of a vaccine prepared from the bacillus which is constantly found in the deeper tissues of the diseased region. He used the vaccine in four cases, giving doses up to twenty thousand million organisms, without producing the least effect, either harmful or beneficial. He concludes that such treatment is useless.

#### LANCET.

September 20, 1915.

**The Dynamic Side of Biochemistry.**—F. Gowland Hopkins says that it is a striking fact that all the known complexes of the cells—the proteins, the nucleic acids, the phosphorus compounds, etc.—are susceptible of hydrolysis by catalytic agents. These catalytic agents, he believes, are always present or potentially so. An honest appraisal of the experimental evidence shows that it points to the conclusion that the complexes are unstable to hydrolytic processes only. While intact and under normal conditions of the body, they are resistant to other types of change, while their hydrolytic products are much less stable. Inasmuch as hydroclastic agents are present in the cell, we must suppose that at any moment there is equilibrium between these complexes and their watersoluble hydrolytic products, though the amount of the latter present at any moment may be very small. Hopkins regards assimilation and dissimulation, when very strictly defined, as being dependent upon changes in this equilibrium alone. They are processes of condensation and hydrolysis respectively. Substances foreign to the normal constitution of the complexes—including both extraneous substances and material for assimilation but not yet ready for condensation, or metabolites which are no longer simple hydrolytic products—neither enter nor reenter the complexes. They may undergo changes within the cell, but not as a part of the complexes. The normality of the cell proteins seems to be maintained by processes which precede actual condensation or assimilation. And conversely, when the cell balance leans toward dissimulation the amino acids which are liberated by hydrolysis undergo further change outside the complexes themselves. The equilibrium of the whole system must, to a greater or less extent, be affected by a change in any one phase. "A happening of any kind in the fluid phases must affect the chemical

equilibrium and, no less, the physicochemical equilibrium, between them and the complexes or less fluid phases. A drug may have an action on a cell, even though it remain in solution, and it may have a specific action because its molecular constitution leads it to intrude into, and modify the course of, some one, rather than any other of the numerous simple chemical reactions proceeding in the cells of different tissues." Each chemical reaction within the cell is controlled by a specific catalyst. These catalytic agents are what are known as enzymes. When we consider the great multiplicity of the reactions which take place in the animal body, this view of an individual catalytic agent for each process calls for a myriad of such agents. But recent work by Abderhalden and others seem to confirm the conception of the need for such a multitude of specific catalytic agents, and to give us ground for the belief in their actual presence. It has also been shown to be possible for the cell to acquire new catalytic agents upon the necessity for them arising. Such newly acquired agents, or the ability to form them, is transmitted throughout the descendants of such a cell. Hopkins's theory of the existence of this myriad of catalytic agents calls for an extreme complexity of process, but, he says, "Underlying the extreme complexity we may discover a simplicity which now escapes us."

**The Detection of Small Amounts of Glucose in Urine.**—Sydney W. Cole gives the fallacies of Fehling's test as: 1. Urates reduce the solution, as does also creatinine. 2. An excess of sodium hydroxide destroys a small amount of glucose. 3. Conjugate glycuronates are hydrolysed to reducing substances by sodium hydroxide. 4. The mixed solution is unstable. 5. The solution is reduced by lactose and by pentoses. In a large number of urines as much as 0.5 per cent. of glucose can be added without the urine's giving a typical reduction with Fehling's solution. Cole gives his new method as follows:

In a dry boiling tube, or large test tube, place about 1 gramme of Merck's pure blood charcoal. Add 10 c. c. of the urine and shake from side to side to mix thoroughly. Heat to boiling point, shaking the whole time. Cool thoroughly under the tap and shake at intervals for about five minutes. Filter through a small paper (9 to 11 cm. in diameter) into a rather wide test tube containing about 0.5 gramme of anhydrous sodium carbonate. When the fluid has filtered through add 6 drops of pure glycerin, shake and heat to boiling. Note the time when boiling commences. Maintain active boiling for 50 seconds, shaking from side to side to prevent spurting. Immediately add 4 drops of a 5 per cent. solution of crystallized copper sulphate. Shake for a moment to mix the solution, and allow the tube to stand without further heating for one minute. With normal urine the fluid remains blue, with a variable amount of grayish precipitate of the earthy phosphates. If glucose is present to the extent of 0.02 per cent. or more above the average normal amount of blue color is discharged, and a yellowish precipitate of cuprous hydroxide forms.

The two fundamental principles underlying this method are: 1. Charcoal absorbs the greater part of nonsaccharine reducing substances of normal urine, the greater part of any lactose present, and also a certain amount of the glucose present. 2. The filtrate is boiled with sodium carbonate, and thus converted into a reducing substance which reacts with the copper subsequently added. It is to

be noted that normal urine contains about 0.03 to 0.08 per cent. of glucose. The author also gives a method for the identification of lactose in the urine, which consists in boiling the urine with charcoal, cooling, and filtering. The residue is then extracted with water and glacial acetic acid, boiled, and filtered into a tube containing phenylhydrazine hydrochloride. A lactosazone is thus formed and identified by its crystalline form.

#### BOSTON MEDICAL AND SURGICAL JOURNAL.

September 28, 1913.

**Needs of the Future in Hospital Administration.**—Frederic A. Washburn urges that the great professional departments of a large modern hospital should each have a single head with a service uninterrupted, except for the necessary vacation, on a salary. These heads to form a committee of not more than five or six to meet with the superintendent and consider the problems of medical and surgical administration, and the great questions of the medical and surgical policy of the institution, so as to obtain an efficient organization. The standard of efficiency of an entirely unpaid medical staff has in many instances been high, but it does not meet the requirements of the present day. The superintendent with this committee should see that the men appointed on the staff are the very best possible, and that they work for the greatest efficiency of the hospital, rather than for their personal aggrandizement. The committee could also inspect and criticize the work of the various departments, so as to prevent slipshod work. More thought should be given to the needs of the community when a small general hospital is to be erected. Often it could be erected at a central point which would serve several towns and be able to command better work than could several smaller institutions in the various towns. There is a tendency in some of the smaller hospitals for members of the staff to attempt surgery for which they have had no adequate training. The proposal to license surgeons has been made, but a public sentiment must be developed which will make ignorant surgery impossible. A surgeon of small experience must learn that it is no disgrace to admit that a given patient's chances are better in the hands of another man. No hospital with low standards of deportment and decorum can ever permanently flourish or do good work, and the question is raised whether this has anything to do with the difficulty some hospitals have in getting nurses. Too many small hospitals are started without adequate provision for their support. The result is a constant struggle and an overburdening of the unfortunate nurse in charge. No hospital should be started until it has been clearly shown to be necessary that the location suggested best meets the need, that there is adequate support in evidence, and that its conduct is in the hands of those whose ideals are high and whose methods are practical.

**Atrophic Rhinitis with Ozena. Its Etiology and Surgical Treatment.**—Francis P. Emerson believes sinus disease to be the cause of atrophic rhinitis, and says that he has never seen a case that was not relieved by thorough drainage, instead of being made worse, as would be the case if trauma and increased air space were added to a genuine

atrophic mucosa. The crust formation and fetor when unilateral are always on the wide side, where they have apparently been preceded by a compensatory hypertrophy of the second turbinate, which in turn interferes with the proper drainage of a subsequent sinus infection. The discharge of pus over a mucous surface causes the mucous membrane to appear glazed, dry, and to have an exudate, but that this is not a true atrophy is shown by the return of function after free drainage and the cure of the focal infection. Radical surgery to establish free drainage lessens the tendency to crustformation, instead of increasing it. Ethmoid disease, the writer believes, is the most constant of the infectious processes in the nasal chambers, and his cases have shown the morbid process more uniformly in these and the sphenoid sinuses. Next in frequency have been the ethmoid, sphenoid, and frontal, last the ethmoid, sphenoid, and antrum.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

September 27, 1913.

**Causes, Types, and Treatment of Diarrhea in Adult Life**, by R. C. Cabot and Haven Emerson.—See this JOURNAL for June 28th, p. 1364.

**Report of a Case of Acute Nephritis in an Infant with Congenital Heart Disease**, by H. M. McClanahan.—See this JOURNAL for July 5th, p. 41.

**The Nature of Ileocolitis from an Etiological Point of View**, by C. G. Grulee.—See this JOURNAL for July 5th, p. 40.

**Diseases of Porto Rico**, by E. F. Otis.—See this JOURNAL for June 28th, p. 1362.

**Three Ophthalmic Questions: Optometry, Conservation, Education**, by Hiram Woods.—See this JOURNAL for July 5th, p. 43.

**Physiological Optics the Basis for Teaching Clinical Ophthalmology**, by W. B. Lancaster.—See this JOURNAL for July 5th, p. 43.

**Some Modern Viewpoints of Glaucoma**, by Robert Sattler.—See this JOURNAL for July 5th, p. 43.

**Experimental Study of Intraocular Pressure and Ocular Drainage**, by M. J. Schoenberg.—See this JOURNAL for July 5th, p. 43.

**Hydrophthalmos; With a Histological Report of Two Cases, One of Which Presented a Congenital Coloboma**, by William Zentmayer.—See this JOURNAL for July 5th, p. 44.

**Trachoma; Its Prevalence and Control among Immigrants**, by John McMullen.—See this JOURNAL for July 5th, p. 44.

**Trachoma among the Indians**, by J. W. Schereschewsky.—See this JOURNAL for July 5th, p. 44.

**Trachoma among the Natives of the Mountains of Eastern Kentucky**, by J. A. Stucky.—See this JOURNAL for July 5th, p. 44.

**Temperature of the Conjunctiva**, by Lucien Howe.—See this JOURNAL for July 5th, p. 45.

**Blepharochalasis; Report of Two Cases with the Microscopical Examination**, by W. B. Weidler.—See this JOURNAL for July 5th, p. 46.

**Equivalent Values in Spectacle Lenses**, by W. E. Shahan.—See this JOURNAL for July 5th, p. 44.



**Metastatic Ophthalmia; Report of Three Cases, One of Which Resulted in Recovery of Vision,** by W. H. Wilder.—See this JOURNAL for July 5th, p. 44.

**Phlyctenular Ophthalmia and Episcleritis,** by W. Walter.—See this JOURNAL for July 5th, p. 45.

**Topical Diagnostic Value of the Hemipapillary Reaction and the Wilbrand Hemianoptic Prism Phenomenon; With a New Method of Performing the Latter,** by C. B. Walker.—See this JOURNAL for July 5th, p. 45.

**Preventable Blindness: A Challenge to the Professions,** by H. C. Greene.—See this JOURNAL for July 5th, p. 45.

**Apparent Esophoria and Its Relation to Convergence Insufficiency,** by H. B. Lemere.—See this JOURNAL for July 5th, p. 46.

**Ocular Vertigo,** by A. Greenwood.—See this JOURNAL for July 5th, p. 45.

**Is the Percentage of Myopic Eyes Diminishing?** by S. D. Risley.—See this JOURNAL for July 5th, p. 45.

**Postcataract Extraction Delirium; Report of Eleven Cases,** by W. R. Parker.—See this JOURNAL for July 5th, p. 46.

**The Surgical Treatment of a Certain Type of Penetrating Wounds of the Sclera by Means of a Double Conjunctival Flap,** by L. M. Francis.—See this JOURNAL for July 5th, p. 46.

**Primary Lues of the Bulbar Conjunctiva,** by C. N. Sprunt.—See this JOURNAL for July 5th, p. 46.

**Ozone; Its Bactericidal, Physiological, and Deodorizing Action.**—From their experimental investigation of this subject, and in view of the evidence already in existence, E. O. Jordan and A. J. Carlson conclude that the hygienic value of ozone in room ventilation would be hardly worth considering were it not for the persistent and sometimes extravagant claims made by the manufacturers and promoters of ozone generators. So far as the destruction of bacteria is concerned, these statements have little or no foundation, and there is no evidence for supposing that a quantity of ozone which can be tolerated by man has the least germicidal action. Disinfection in a closed room without inmates can be much more effectively carried out by means of formaldehyde or other gaseous disinfectant, and therefore ozone has no place in practical room disinfection.

**Isolation of the Typhoid Bacillus from Milk Which Caused a Typhoid Outbreak.**—The outbreak referred to occurred in a suburban town in Maryland, and W. R. Stokes and H. W. Stoner, who made the laboratory investigation, point out that the first point of interest in their study consists in the isolation of a typical typhoid bacillus from the milk, and that the study is also of interest as demonstrating the relation of infected milk to the epidemiology of typhoid and containing the methods by which the cause of the outbreak was recognized and by which its further spread was averted.

**The Effects of Colloidal Copper, with an Analysis of the Therapeutic Criteria in Human Cancer.**—Richard Weil asserts that the demonstrable reduction in size of a tumor, of a kind not to be attributed to the natural processes of evolution of that tumor or of its associated lesions, is the

one essential feature of effective therapeutic intervention. He reports twelve cases of malignant disease in which the preparation described by Loeb as colloidal copper was administered, in eight of which the treatment was thoroughly carried out. In most of the cases the treatment resulted in the production of mild constitutional effects, such as fever, chills, nausea, some loss in weight, slight reduction of hemoglobin, and occasional albuminuria or hemoglobinuria. Chemical analysis of two tumors from treated patients failed to reveal the presence of copper, while in a liver obtained at necropsy it was present in appreciable quantity. Judged by certain clinical criteria which were adopted as a reliable standard of therapeutic effectiveness, the treatment has not appeared to exert a destructive action on the tumor tissue in any instance.

## MEDICAL RECORD.

September 27, 1913.

**A Contribution to the Study of Chronic Intestinal Stasis.**—W. S. Bainbridge says that while the existence of chronic intestinal stasis has long been known as a possible contingency, it was left to Lane, of London, to establish the fact that many of the factors concerned in the production of its various types are associated with, or perhaps dependent upon, an already existent chronic intestinal stasis, and that they are, in reality, end results of such a condition. Having given an outline of Lane's work in this connection, and having considered the cases of intestinal stasis with reference to the point of kinking and to the dominant features in the symptom complex, he takes up the classification of cases with reference to treatment; describing the following types: 1. Atonic or asthenic, in which there is a general loss of muscular tone and nervous energy, with a slight degree of ptosis of the hollow viscera. In the treatment of this class of cases liquid paraffin has been found particularly useful. 2. Misplaced appendix. 3. Ileal kink, from evolutionary bands—called by Lane "crystallization of lines of strain." The milder degrees may be corrected by simply cutting the adhesive bands; taking care to cut one way and sew up another in such a way as to lengthen. In the form with broad bands, however, it may be necessary to divide the ileum, inserting it directly into the pelvic colon or rectum obliquely by an end to end anastomosis. 4. Kinking of duodenojejunal junction, usually secondary to ileal stasis. This kink may be corrected by cutting one way and sewing the other, or the loop of jejunum may be placed in the position of gastroenterostomy, held by several stitches of silk or linen. In some of the cases it may be necessary to resort to ileocolostomy. 5. Changes at the hepatic and splenic flexures of the colon, often with the formation of adhesions. In mild cases, with prolapse of the colon, Coffey's omentopexy may be employed. In the presence of more marked adhesions, with disease of the transverse colon, the question of colectomy may be considered; though other attempts at correction should be made before this radical procedure is resorted to. 6. Changes at the sigmoid loop. In some of these cases the portion of mobile gut which intervenes between the upper fixed portion of the loop and the portion of the

rectum without peritoneal covering is exceedingly long, and this renders it possible to insert the ileum into the mobile loop, close to its termination. Anastomosis should be between the ileum and the beginning of the pelvic lesion. 7. Extreme cases, with diverticulus. Exsection of the large bowel is indicated. 8. Various kinds of adhesions of an inflammatory and noninflammatory nature. The adhesions should be removed, and the raw surfaces covered. The author next describes the preparation of the patient for operation and the technic of the two operations advocated by Lane, ileocolostomy (Lane's "shortcircuiting" operation) and colectomy. He then considers the prognosis, and, in conclusion, says that in the vast majority of instances, unless there is a congenital defect, the conditions described are preventable, and should not be allowed to progress to the degree which calls for operative interference. With a more intelligent understanding of the importance of exercise, of proper hygienic régime, of position, and of adequate support of the abdominal organs, chronic intestinal stasis will be forestalled.

**Exophthalmic Goitre Cured by Ligating One Superior Thyroid Artery.**—L. F. Watson finds that the simple and conservative operations are steadily gaining favor in the treatment of goitre because of their safety and ease of application. A single or double ligation always benefits, even though it does not cure every case. Operations on the thyroid, he says, should be performed under local anesthesia whenever possible. Ligation should be preceded by several days' rest in bed while the operator gains the patient's confidence. One hour before operation the patient receives a dose of morphine or morphine and hyosine, sufficient to allay restlessness and prevent psychic shock.

**A Collapsible Weighted Stomach Tube and a New Gastric Glass Bulb.**—These are presented by I. O. Palefski. The stomach tube has a gold plated lead tip, the upper half of which is hollow and perforated and the distal half solid, while the tubing is soft and collapsible, and is marked off at fifteen and at forty-five centimetres from the metallic tip, to show when the latter has reached beyond the pharynx and cardia respectively. When the patient refuses to swallow the tip a flexible stylet is employed. The following are the advantages claimed for the Palefski tube: 1. Its tubing has no resistance; hence it does not irritate the gastric mucosa. Blood present in the stomach contents will therefore point to some organic condition. 2. By its use a moderate degree of gastric stenosis will be readily detected. 3. It may be kept in the stomach as long as desired. 4. It lessens preparation and renders assistance unnecessary in lavage and the extraction of test meals. 5. As its introduction causes no exhaustion, it may be employed in conditions in which the use of the ordinary stomach tube is contraindicated. 6. Following lavage or extraction of test meals, an inflating bulb attached to the outer end of the tube will inflate the stomach to any desirable degree without any distress whatsoever. 7. It enables one to study the functions and disturbances of the stomach more readily and accurately. The purpose of the glass bulb is to facilitate the aspiration and collections of gastric con-

tents, and it is attached to the outer end of the stomach tube after its introduction, when a suction bulb is employed to aspirate the gastric contents into it. It is a graduated ten ounce glass bulb having two inlets and two outlets, for air and gastric contents respectively, each opened or closed with stopcocks.

#### AMERICAN JOURNAL OF SURGERY.

AUGUST, 1913.

**Tendon Transplantation in Talipes from Anterior Poliomyelitis.**—B. F. Zimmerman successfully employs the following technic which he says is comparatively simple and easy of accomplishment: 1. An incision is made along the inner anterior aspect of the foot from the first metatarsal bone upward to the annular ligament of the ankle. 2. The tendon of the tibialis anticus is isolated and a portion (at least one half) detached at the point of attachment, carrying therewith the periotum and a thin section of bone. 3. The tendon is split upward to the annular ligament, and then beneath the annular ligament and above as far as the attachment to the muscle if deemed advisable. 4. A counter opening is then made on the outer side of the foot over the calcaneocuboid articulation and a pair of hemostatic forceps or blunt scissors being passed beneath the skin and superficial to the extensor tendons, the tendon is grasped and "dragged" through this tunnel and out at the counter incision. 5. The calcaneocuboid joint is then opened and a narrow strip of the articular surface on either side removed, the joint being closed with catgut sutures. 6. The periosteum is then incised and elevated, and the detached tendon with its periosteum and bone placed beneath the elevated periosteum of the cuboid or os calcis, being held in position by a fine silk suture passed through the reflected periosteum and the tendon. 7. The periosteum is then sutured and the wound closed with catgut, a plaster cast being applied to maintain the foot in an overcorrected position. The writer insists that care should always be exercised not to have too much or too little tension upon the transplanted tendon. The tendon should be on slight tension, however, when the foot is in a slightly overcorrected position.

**The Treatment of the Pathological Lingual Tonsil.**—Harold Hayes says that the simplest way to remove the lingual tonsil is by means of the Myles' lingual tonsillotome. The base of the tongue and surrounding parts must first be thoroughly cocaineized, and then, after the patient is told how to properly hold out his tongue, one should have the parts under direct inspection with a laryngeal mirror. Operative work is best done when the operator stands over the patient. The tonsillotome is brought over the growth, and as soon as it is in position the mirror is withdrawn and pressure is made firmly with the fingers of the other hand at the tip of the instrument. If this is not done, the cutting part of the instrument will invariably slip from and over the growth and nothing will be removed. Considerable bleeding attends the operation and often this will not stop sufficiently for one to get another inspection of the throat in order to see if any of the mass still remains. As the hypertrophy is bilo-

bar, it is absolutely necessary in many cases to insert the instrument a second time and under no circumstances should this be done unless one can see every part. If bleeding is too profuse to be stopped at one sitting, it is far better to finish the operation another time. The aftertreatment of this operation needs very little comment.

### Proceedings of Societies.

#### AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

*Twenty-Sixth Annual Meeting, held at Providence, R. I., September 16, 17, and 18, 1913.*

The President, Dr. MILES F. PORTER, of Fort Wayne, Indiana, in the Chair.

*(Concluded from page 693.)*

**Conservatism in Operations for Acute Inflammatory Pelvic Disease.**—Dr. BUDD VAN SWERINGEN, of Fort Wayne, said that one should not allow a large pelvic exudate or a tuboovarian abscess to remain until absorbed, as it meant chronic invalidism. Pus should be evacuated as soon as it was safe to do so. But when once inside the abdomen for this purpose, it was wrong to think that all pathology present must be removed with the knife. Ample provision for drainage and the ablation of the original focus would be sufficient and would save many a tube and ovary which would result in much greater peace and happiness to the patient. Illustrative cases were reported.

**The Significance of Hematuria and Its Management.**—Dr. J. GARLAND SIERRILL, of Louisville, stated that according to its causation, hematuria was classified as: 1. Traumatic, including accidental injury and also the minor traumatism resulting from stones. 2. Inflammatory, including acute nephritis, chronic inflammatory affections of the kidney, tuberculosis, acute and chronic inflammation of the pelvis of the kidney, ureter, bladder, prostate, and also of the urethra. 3. Vascular, blood dyscrasia, such as hemophilia, etc., nævi, venous obstruction of the kidney; varicosity of the vesical veins, especially that due to prostatic engorgement. 4. Chemical, in which class should be placed hemorrhages from irritating drugs, as turpentine, cantharides, etc. 5. Toxic, in which the hemorrhage was the result of vascular changes occurring in severe toxemias, such as those resulting from malaria, acute yellow atrophy of the liver, yellow fever, scurvy, etc. 6. Neoplastic. 7. Parasitic. Renal hematuria was probably the form most interesting to the surgeon. Laceration of the kidney, gunshot and stab wounds, frequently caused hemorrhage which appeared in the urine. Tuberculosis of the kidney presented in hematuria as an early symptom, the amount of blood varying very greatly in different cases. In the treatment of hematuria, rest was of the greatest importance, and he advised the use of turpentine in small doses. Calculus, tumors, major traumatism, and unilateral tuberculosis would demand operative intervention.

**Acute Unilateral Hematogenous Nephritis.**—

Dr. CURTIS S. FOSTER, of Pittsburgh, stated that in the acute cases, with multipleiliary abscesses, and from which an overwhelming toxemia resulted, nephrectomy must be the operation of choice if we would save the patient's life. Of the fourteen cases of this type encountered by Brewer, two were untreated, and in four nephrotomy with drainage was done. These patients all died. The remaining eight were treated by nephrectomy with recovery in each case. In the acute diffuse inflammation of the kidney, the treatment was not so well defined and must depend more on the course of the disease in the individual case. In those cases in which the areas of infarction were very numerous, to such an extent that the function of the kidney was seriously impaired, and when the toxic symptoms were very pronounced, nephrectomy should be the operation of choice. In cases where the infarcts were few in number, to toxemia was mild, and the general condition of the patient was good, splitting of the capsule with drainage of the diseased areas should be considered. Cases were on record, however, in which the symptoms had recurred after this operation and in which a subsequent nephrectomy was necessary.

**The Diagnosis and Therapeutic Value of the Renal Catheter.**—Dr. K. I. SANES, of Pittsburgh, stated that the value of the ureteral catheter in the diagnosis and treatment of urological disease was well established. It behooved them all to make use of it more frequently than it had been our custom in the past. To some of us ureteral catheterization seemed a difficult procedure; to others a dangerous one. It should be neither dangerous nor difficult in the hands of men practising surgery. Those who had catheterized many hundreds of ureters had learned not to fear infection from its use, and had gradually extended the field of its application with great satisfaction to themselves and great benefit to their patients.

**Renal and Ureteral Calculi.**—Dr. HENRY DAWSON FURNISS, of New York city, said that renal and ureteral calculi were more frequent than was generally supposed, and often existed, especially calculi, in the renal cortex for a long time without symptoms. The classical textbook symptomatology of calculi was oftentimes associated with other conditions of the urinary organs. The effect upon the kidney of calculi was dependent upon the size, shape, character, and most of all the location of the stones, those in the pelvis of the kidney and the ureter causing most damage. For those calculi that could not be attacked from the vagina or bladder, the best procedure in stones that would be difficult to locate was the combined intraperitoneal and extraperitoneal operation. If they could be easily found on account of their size, he would prefer the extraperitoneal route. It was not necessary to close the ureter, as it healed rapidly. A cigarette drain near the ureter had best be used for seventy-two hours, or while there was still drainage. If the stones were to be felt through the vagina, they could be removed through it; if impacted in the vesical orifice, by slitting the ureter through an operating cystoscope, or after suprapubic cystotomy, or by cauterization.



**Local Anesthesia in Abdominal Surgery with Cinematographic Demonstration.**—Dr. JULIUS H. JACOBSON, of Toledo, stated that with this method of local anesthesia he had performed thirty-six operations upon twenty-eight patients, eight of these being operated upon for double hernia. The operations were as follows: Twenty-eight operations for radical cure of inguinal hernia; three operations for strangulated inguinal hernia with radical cure; one operation for radical cure of femoral hernia; two operations for strangulated femoral hernia; one operation for incarcerated umbilical hernia; one operation for incisional hernia. Mortality nil. In only two of the earlier operations was it necessary to finish the operation under a general anesthetic. This was due to inexperience with the method. The operations were uniformly painless, without nausea or vomiting, and without the slightest toxic effect from the anesthetic solution. The sensation of the operation was described by the patients as that of a pulling or tugging on the parts. In a few instances some pain was complained of when working about the hernial sac or peritoneum. This could be overcome by a separate injection of the neck of the sac early in the operation. As the epinephrin acted as hemostatic, there was some danger of a postoperative hematoma. It was therefore necessary to ligate all bloodvessels as soon as they were divided. Cinematographic demonstration showed the complete operation for inguinal hernia under local anesthesia, demonstrating the method of injection, the operation being of the Ferguson type. Motion pictures of local anesthesia of double inguinal hernia, umbilical hernia, and strangulated inguinal hernia were shown.

**Operative Treatment of Mammary Carcinoma, with Special Reference to the Pectoral Muscles and Axillary Space.**—Dr. CHARLES EDWARD RUTH, of Des Moines, said the principal object of his paper was to eliminate all complications resulting from operations upon the mammary gland in malignancy which emptied the axillary space of everything but its vessels and nerves, and thereby exposed them to the grasp of cicatricial tissue which must fill in and close the space, and in thirty-one per cent. of cases caused edema of the arm, and many times intolerable pain with, in no small proportion, practical loss of function of the arm. The operative plan outlined in the paper proposed to eliminate these difficulties by the use of the distal part of the pectoral muscles sutured against the chest wall in such manner as to eliminate entirely all dead space, cicatricial formation, contraction, edema, and gave a result which left little, or no impairment of function in its range, and in no manner increased the danger of recurrence of the malignancy.

**Diagnostic Hysterotomy.**—Dr. GORDON K. DICKINSON, of Jersey City, stated that it was yet a question as to when hysterotomy was justifiable. He had grave doubts whether any one could answer this question in pathological terms. One's personal pride in making a diagnosis without too much surgery should lead to a proper effort to obtain the same through a complete history, curettage, and perhaps the added opportunity of a manual examination of the uterus, but if by these means, particu-

larly in chronic cases, one could not be positive as to the contents of the uterus or of the condition of its substance, then in his opinion hysterotomy was not only justifiable but necessary.

**The Use of Iodine in Abdominal Surgery.**—Dr. LOUIS FRANK, of Louisville, read a paper on this subject in which he drew the following conclusions: From our work, not only experimentally but from our clinical observations with iodine in the preparation of the field for abdominal operations, we could conclude that while it was effective as a means of sterilizing the skin it had its disadvantages. First, should the intestines come in contact with the iodine, adhesions would undoubtedly take place in the area thus exposed, due to the action of the iodine as an irritant to the peritoneum. Second, when it was used as a means of preparing the field, the utmost care should be taken to avoid such contact by protecting the field beyond the abdominal incision by means of moist pads securely fixed in place. Third, tincture of iodine, judging from experience and experiments, should never be poured into the abdomen.

Dr. JOHN W. KEEFE, of Providence, R. I., read a paper on Stenosis of the Pylorus in Infancy, and reported several cases.

Dr. ARTHUR T. JONES, of Providence, R. I., reported three cases. One of these was a case of solid tumor of the parovarium evidently originating from the Wolffian body. Case two was one of the large sarcoma of the ovary, with a great amount of fluid in the abdominal cavity. There had been improvement in the general condition of the patient since operation. The prognosis was good for several years in this type of case. In the third case he detailed the results three years after hysterectomy in a case of sarcoma and carcinoma of the uterus.

**Sudden Severe Hemorrhage into an Ovarian Cyst Following Delivery.**—Dr. WILLIAM EDGAR DARNALL, of Atlantic City, stated that ovarian tumors of all sorts and especially cysts, almost always produced serious trouble sooner or later, and especially during pregnancy and the puerperium. The most dangerous period was the puerperium. It was the part of wisdom, therefore, to remove them as soon as they were discovered, if possible.

**Cholangitis and Pancreatic Lymphangitis.**—Dr. L. W. SWOPE, of Pittsburgh, reported twenty-two cases out of a series of 2,000 operations on the biliary and pancreatic systems. The clinical histories and physical signs justified the diagnosis of carcinoma of the head of the pancreas. The findings were of such a nature that differentiation from cancer was almost impossible. There was recovery with relief of symptoms after temporary or permanent drainage of the bile passages which excluded the possibility of malignancy. At autopsy upon the three patients who died, the postoperative and post mortem changes were so marked, that the characteristic operative findings were completely altered; consequently post mortem examination had added very little to our knowledge of pancreatic lymphangitis. It was probable that the infection causing the pathological enlargement of the head of the pancreas in these cases traveled through the lymphatics, causing lymphangitis in the pancreatic interstitial tissue. This supposition explained the im-

provement and cure with the subsidence of the inflammatory enlargement of the head of the pancreas which followed operation. The origin of infection was often obscure. Treatment consisted in drainage of the bile passages, temporary or permanent. The former was obtained by surface drainage of the gallbladder and common duct, the latter, by anastomosing the gallbladder to the duodenum or stomach.

**Observations Based on Seventy Cases of Bowel Obstruction, with Special Reference to the Unusual Cases.**—Dr. WALTER C. G. KIRCHNER, of St. Louis, reviewed his own cases of intestinal obstruction and gave an abstract of the histories of the unusual cases. Obstructions due to hernia were encountered in forty-seven cases or in ten per cent. of the hernias operated on. Most of the cases of ileus were seen in the critical stages, and the mortality rate was fifty-two per cent. In the seventy cases postoperative ileus due to adhesions occurred ten times, with a mortality of fifty per cent. The appendix was implicated in eight per cent. of the cases. Resection of bowel was performed in 25.7 per cent. of the cases, with a mortality of twenty-seven per cent. The intestinal obstructions which were encountered were those caused by adhesions, carcinoma, fibromyoma, intussusception, volvulus, interstitial hernia, excessive dilation of the colon, gallstone, prolapse of intestines through rupture in mesentery, prolapse of intestine through a rent in the omentum, thrombosis of the superior mesenteric artery, etc. Obstruction of the bowel was essentially a surgical condition, and the mortality rate was in direct proportion to the duration of the obstruction. Greater stress should be laid on the necessity for early operation in bowel obstruction. In the early cases of obstruction, resection might be a safe procedure, while in the critical cases primary enterostomy and later resection of bowel or repair of fecal fistula was a better course to pursue.

**Cancer of the Uterus and Fibroid Tumors from a Clinical Standpoint.**—Dr. EDWARD JOSEPH ILL, of Newark, stated that from personal experience he held that fibroid tumors were not a cause of malignant degeneration of the uterus. Among 443 operative cases in his hands there was no record of any fibroid having undergone malignancy, nor was there any record among 2,600 cases recorded in his office case book of any having undergone malignancy, although many of these patients were seen repeatedly for years. The autopsy records of hospitals variously situated showed that from four to eight per cent. of all women over thirty years had fibroid tumors. During the same time that the 443 operations of fibroid tumor took place, he operated in 175 cases of cancer of the uterus. Five of these patients had fibroids in the uterus; four patients were cases of true carcinoma; one patient, with a sarcoma, had small fibroids in the posterior wall, while the sarcoma was situated in the anterior wall behind the scar of an old fixation operation. It was thus shown that all his cancer cases had but 2.8 per cent. of fibroids, which was less than the average of all women over thirty years. His deductions were that they had no right to suggest the operation for removal of fibroid tumors when possible future malig-

nant degeneration constituted the only indication.

**The Later Operative Technic in the Treatment of Cancer, with Special Reference to Cancer of the Breast and Uterus.**—Dr. MAURICE I. ROSENTHAL, of Fort Wayne, said that it was just as important that the surgeon should appreciate the high degree of infectiousness of cancerous tissue as it was that the practitioner should recognize any symptom which was significant of this disease. The radical operation had demonstrated that infiltrations and glandular enlargements, apparently cancerous, were frequently inflammatory in character, and that cases apparently inoperable by reason of such extensions were readily operable by this technic. As a result of this greater operability, the primary mortality following this greater technic, must be considered when estimating its true value. With the exception of certain epitheliomata, it was in cancer of the breast that something like a reasonable result from operative procedure for cancer was obtained. With some little changes in the technic of this operation, which he described in detail, he had obtained results which, compared with cancer in other regions, might almost be called satisfactory. We might take the technic of this operation, which embodied all that went to make up the operative technic of this disease as a technic typical for operation for cancer in other organs. In his paper he pointed out such steps in the technic as would have a tendency to make the operation more successful, and then reported a series of cases on which he had operated with the results.

**Uterine Fibromyomata of the Lower Uterine Segment.**—Dr. JAMES N. WEST, of New York city, reported three cases. The points of interest and instruction in these cases were so numerous that he only called attention to the following: 1. Cases of fibroid tumors of the lower uterine segment occurred with moderate frequency where operation was an immediate and urgent necessity on account of pressure upon the urethra. 2. Cases occurred where fibroids in the lower segment complicated by inflammatory conditions closely resembled malignancy, and that such cases should have the benefit of an exploratory incision. 3. A preliminary myomectomy might often allow the structure to assume a more normal anatomical relation and thus simplify operation and reduce the dangers.

**Laceration of the Cervix; A Causative Factor in Salpingitis.**—Dr. FRANCIS REDER, of St. Louis, stated that the disclosure of a vaginal examination did not prove definitely the existence of a salpingitis, because the examining finger could not interpret correctly the pain that pervaded oversensitive pelvic viscera. The existence of a hydrosalpinx, when sufficiently large, could usually be diagnosed by palpation without difficulty, whereas a tube that was slightly or not at all distended with fluid would present its difficulties. In a woman who had given birth to children the most frequent lesion that could be directly attributed to childbirth was a laceration of the cervix. It was a trauma whose importance had been not only too often disregarded, but it had also been underestimated. If the tear was a superficial one, it would most likely heal completely in a short time. If, however, the laceration was a deep and perhaps extensive one, it would not heal. Ever-

sion of the traumatized lips of the cervix would take place, and a chronic inflammatory process with its sequelae would become established. That lacerations of the cervix were the most common atriæ for infection of the tubes was evidenced by the frequency with which this pathology was encountered during operation. Not only was the infective material carried by the cervical lymphatics to the tubal structures, but it was also deposited into the cellular tissues of the broad ligaments. The necessary surgical measure for relief consisted in freeing the fimbriated end of the tube, turning back the mucosa and suturing it. Of equal importance was the obliteration of the primary focus by plastic repair of the lacerated cervix. The source inviting microbic inflammation having been removed, infective material would no longer find routes of transmission to the tubes. Freedom from these continued bacterial assaults would gradually permit the tube to return to a normal or almost normal state, with the possibility that the patient might again become pregnant.

**Notes on Adventitious Tissues of the Abdominal Cavity.**—Dr. ROBERT T. MORRIS, of New York city, stated that the Lane kink, Jackson's membrane, cobwebs of the attic, and other adventitious tissues of the abdomen, depended upon hyperplasia of embryonic structures already present. The hyperplastic change was brought about by toxic as well as mechanical influences. These tissues were to be differentiated from the adhesions dependent upon toxic injury of endothelial structures. A simplified operation for short circuiting the bowel was described.

**Gallstone Surgery.**—Dr. JOSEPH H. BRANHAM, of Baltimore, reported seven cases, two of which showed the danger of long continued gallstone disease as causing carcinoma. The cases demanded cholecystectomy. In case where the gallbladder was not hopelessly diseased, and where there was no stricture, he had done cholecystostomy. These patients had recovered and usually had remained well. One of his patients has a fistula of long duration which failed to yield to the usual treatment. She went to another physician who closed the fistula with electrocautery. He found the same thing effectual in another case after other methods had failed. He was persuaded that the gallbladder would be removed more frequently in the future than in the past. The Mayos, who, on account of their enormous experience and wonderful success in these conditions, had done much toward making cholecystostomy the operation of choice. They pointed to the slightly greater mortality of cholecystectomy. This might be accounted for by the graver conditions in which it had been done. They also pointed out that the gallbladder was too small to act as a reservoir, but that probably its function was to relieve tension during the height of liver secretion, and thus prevent regurgitation of bile into the pancreatic duct. This was an ingenious theory, yet many animals got on without this organ. Was it not more probable that the small, inadequate gallbladder of man, with its poorly developed coats, was a disappearing organ, physiologically as well as pathologically, very like the appendix?

**A Review of the Plastic Methods of Closing the Incisional Herniæ.**—Dr. LEWIS FREDERICK SMEAD, of Toledo, stated that the earliest operations for ventral hernia closed the ring without incising even the skin. Later all useless tissue down to the peritoneum was removed and the edges of the ring alone drawn together. Still later the edges of the ring were inverted and the anterior surface of the fascia approximated. Following this, the rectus sheath was opened and the abdominal wall closed in layers. Omphaloectomy was not generally used until after 1888, and the lateral method of approaching the hernial ring was suggested in 1891. Numerous plastic methods of using the fascia and muscle to close the rupture were devised, but the principle of overlapping from above downward had displaced most of them. Tension sutures were used, the hernial ring was attached from within the abdomen, and numerous foreign materials inserted to close the opening, and many important general principles were laid down. At present, the closure in layers or the Mayo operation was used in small hernias, but in the larger ones, if some plastic device was not practicable, we relied upon the filigree. The transplantation of fascia might take the place of the filigree in time and was at present a valuable means of reinforcing doubtful suture lines.

Papers were also read by the following members: Fibroma Cardia in a Girl of Eighteen; Gastrostomy and Enucleation, by Dr. JOHN F. ERDMANN, of New York city. Appendicitis in Young Women, by Dr. H. S. LOTT, of Winston, N. C. A Seven Pound Ovarian Tumor That Developed in Nine Days, by Dr. J. H. CARSTENS, of Detroit, Michigan. Omentocoloexy, by Dr. H. W. LONGYEAR, of Detroit, Michigan.

**Election of Officers.**—The following officers were elected for the ensuing year: President, Dr. Charles N. Smith, of Toledo, Ohio; first vice-president, Dr. Hugo O. Pantzer, of Indianapolis, Indiana; second vice-president, Dr. J. H. Branham, of Baltimore, Maryland; secretary, Dr. E. Gustav Zinke, of Cincinnati, Ohio, reelected; treasurer, Dr. Herman E. Hayd, of Buffalo, New York, reelected.

Buffalo, New York, was selected as the place for holding the next annual meeting.

## Letters to the Editor.

### ENTEROPTOSIA.

173 LEXINGTON AVENUE,  
New York, September 30, 1913

To the Editor:

To enteron is the bowel, *ta enteræ* (the plural) means the entrails, in Latin viscera. Enteroptosis is ptosis of the entrails, there exists no Greek one word term for ptosis of the bowels. Another word for entrails is *splanchnon* or *splanchna*, immaterial if we use the singular or the plural. *Splanchnoptosis* means the same as *enteroptosis*. Gaster is the stomach, but also the abdomen, and *gastroptosis* is another synonym of *enteroptosis*. Ptosis of the stomach alone is *stomachoptosis*. Compounds ending in *ix*, *xis*, and *psis* change this ending into *ia*, except when the first component is a preposition, for instance *asepsia*—antiseptis; *gastroptosis*—diagnosis. Some writers do not distinguish between Greek and Latin, employing the horrid, the mongrel, the hybrid, the hermaphrodite, the illegitimate



term, the bastard word visceroptosis. The word atonia means relaxation, it does not signify weakness as some erroneously believe.

It is amusing to learn of all the nonsense and confusion created, even by distinguished writers, who do not know the meaning of these words. Riegel spoke of "simple atony or insufficiency of the stomach." Atony and insufficiency, however, are, as we have seen, not the same thing.

Ptoisis of the entrails is caused by atony and atonia gastrica is another synonym of enteroptosis. There is no atony of the stomach without dilatation of the stomach. Dilatio or dilation means delay or postponement and comes from *fero, ferre, tuli, latum*. Dilatatio or dilatation is an abstract noun from dilato, dilatare, dilatavi, dilatatum, to expand, and dilatation is expansion, in Greek ectasio not ectasia as some "hit or miss" will write.

The following two illustrations taken from textbooks will demonstrate the confusion caused by disregard of the true meaning of the words enumerated: "It is impossible to invent a term which shall comprise and connote the important features of all types of motor and mechanical insufficiency; as clear a classification as any is one based on Riegel and Boas, as follows: Simple gastric atony or motor insufficiency or myasthenia without dilatation. Gastric atony is a condition of reduced or lost tonicity of the musculature, sub or hypo-tonicity, also very aptly designated as gastric myasthenia." Such nonsense in learned sounding language has always a comic effect, it reminds us of the demonstrator in the dime museum: "Here you see two statues, one of them is Cæsar, the other Pompey, they are very much alike, especially Cæsar."

"The description in the books of the symptoms of gastropnoia are hopelessly obscure and chaotic, characteristic and diagnostic points are few and these few misleading." In reality, however, the contrary is the case, there is only one factor and that factor is relaxation, a characteristic point which indicates a rational method of treatment.

These two quotations give us an idea of the confusion brought into medicine by unscientific nomenclature.

ACHILLES ROSE, M. D.

## PROTOZOA OR AMEBA OF THE SKIN.

ST. CHARLES HOSPITAL,

FORT PIERRE, FLORIDA, September 13, 1913.

To the Editor:

I wish to report a case that is new to me. If any other doctor has seen a similar one, what were the sequelæ?

*History:* Three members of a family were infected by walking through a swamp. General acne developed within a week; indurated noninflammatory; pearly nodules produced very slight itching.

*Microscopic findings:* Ameba one to four times the diameter of a leucocyte, each containing from one to four nuclei, some vacuolated, enclosed in a wall of fibrous tissue and partially degenerated leucocytes. I had expected to find entozoa.

*Treatment:* Emetin hypodermically with the local application of a mixture of carbolic acid, camphor, and alcohol, after opening each nodule.

C. G. ROEHR, M. D.

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

1870-71 *Erinnerungen und Betrachtungen*. Von Prof. Dr. HEINRICH FRITSCH, Geh. Ober-Medizinalrat. Bonn: A. Marcus & E. Weber, 1913. Pp. 318.

Next to Kussmaul's *Reminiscences*, Professor Fritsch's *Recollections of the War of 1870-71* is one of the best biographies written by medical men in the German literature, which abounds in retrospection. Professor Fritsch, for years one of the leading men of the medical faculty of Bonn, has thus compiled a book which is worthy to be

placed next to his contributions to the medical science. It is not so much the description of the victorious war that appeals to the reader, but the personal impressions given by the author which at the same time throw an interesting light upon the position of the military surgeon in the army, which has hardly changed during the past forty years. The enthusiasm of the German originates not from the victorious gain but from the fact that from 1871 dates the unity of Germany, which has been the dream of generations since 1813. The book will appeal not only to the German reader but to the physician whose science is not limited by political views, but is in reality international.

*The Influence of Monarchs*. Steps in a New Science of History. By FREDERICK ADAMS WOODS, M. D., Lecturer in Biology in the Massachusetts Institute of Technology, etc. New York: The Macmillan Company, 1913. Pp. xiii-422. (Price, \$2.)

Doctor Woods has undertaken and succeeded in writing a very interesting book which reveals not only deep thought but as well an enormous amount of historical knowledge. The arrangement of the book has been carefully considered and the text has been well reviewed in an appendix. May we ask the author to give, in the next issue, on the page before the appendix, the contents of the matter which appears on the following pages, in such a way, for example, as: France 305; Spain 318, Castile 318, Aragon 325, United Spain 328; Portugal 332, etc. We have done this in our issue and find this condensed table of contents very valuable for reference. There should be, at least to our mind, a somewhat sharper distinction between Charles the Fifth, of Germany and Austria, and Charles the First, of Spain, who are identical. (See page 83 and page 170.) Furthermore, we do think that on page 60 and on page 316 Mazarin should be mentioned. The subject is, as we have said, a very interesting one; that is to observe the histories of the countries with their eras of splendor and decay through the personality of their rulers. The book shows that only very rarely has a nation progressed in its political and economical aspects save under the leadership of strong monarchs. The author believes that the monarchs have, to a very large extent, caused the change of conditions and not the reverse that the monarchs have been a product of the environment in which they lived. The book makes very interesting reading.

*Diseases of the Rectum and Pelvic Colon*. By MARTIN L. BODKIN, M. D., of New York, Rectal Surgeon, St. Mary's Hospital, Williamsburgh Hospital, the Howard Orphan Asylum, etc. Illustrations Specially Drawn by FRANCIS A. DECK. New York: E. B. Treat & Company, 1913. Pp. xix-416. (Price, \$3.50.)

As stated by the author in his preface the object of writing this book was to condense the results of his practice and the labors of other specialists in this branch of medicine. One gets the impression that too much has been attempted in such a small treatise. The field of rectal surgery has grown so large that it cannot be properly covered in a volume of this size. It should be classed as a compendium useful to students rather than as an addition to the literature of the subject of value to the workers in rectal surgery.

The methods of treatment described are in keeping with the best modern practice and, in fact, are the ones described more fully in the various monographs of such specialists as Tuttle, Wallis, Allingham, and Hirschman. The plates and diagrams are well executed and help materially in making the subject clear to beginners in this field.

*Leukæmie und Pseudoleukæmie*. Als zweite Auflage des Werkes von wirlk. Geheimrat Prof. Dr. P. EHRLICH, Prof. Dr. A. LAZARUS, und Dr. F. PINKUS. Neu Bearbeitet von Dr. O. NÄGELI, a. o. Professor und Direktor der medizinischen Poliklinik in Tübingen. Mit 4 Textabbildungen und 8 Tafeln. Wien und Leipzig: Alfred Holder, 1913. Pp. viii-226.

In the preface attention is called to the fact, so often forgotten, that the blood changes in leucemia constitute nothing more than a symptom. The increase in the number of white cells may be very slight, and at times may be absent. There will be found, however, young, unripe, and

pathological forms. The characteristic lesion of leucemia is the unusual and well marked pathological hyperplasia of those tissues which form the leucocytes. For discussion the subject is divided into the two common types, the lymphatic and the myelogenous. The first includes the chronic lymphadenoma, the acute lymphatic leucemia chlorolymphadenoma, and the aleucemic lymphadenoma. Under the heading of the symptom complex of pseudo-leucemia, lymphosarcoma of various nodes of the body is dealt with. Seven excellent plates show the microscopical changes in the different tissues. The book covers the ground quite thoroughly and gives a very clear presentation of the conditions.

*A Practical Treatise on the Causes, Symptoms, and Treatment of Sexual Impotence and Other Sexual Disorders in Men and Women.* By WILLIAM J. ROBINSON, M.D., Chief of the Department of Genitourinary Diseases and Dermatology, Bronx Hospital and Dispensary, etc. New York: Critic and Guide Company, 1913. Pp. 422. (Price, \$3.)

This is a well printed book written in the catchy and frank style of the editor of the *Critic and Guide*. The author gives a good many case histories to show the results of treatment, etc., and one in reading this book is so invariably fascinated with the horrid tales in the case histories that one forgets really what each chapter is about. We can by no means subscribe to all of the doctor's ideas; for instance, I am sure it would bring endless confusion to the community if the following were the rule, he says: "To advise a confirmed masturbator to get married without being sure of the integrity of his sexual potency, and without his having given proof that he can break himself of the habit at least temporarily, is nothing short of criminal. . . . It is therefore more honest, more decent, more honorable, more moral, to advise a masturbator to attempt illicit relations, etc." The doctor has extraordinarily good eyes: Page 39, he tells how to differentiate the shreds of the confirmed and excessive masturbator from gonorrheal shreds. This I should consider at least hard to do. The author apparently very much minimizes the effect of wholesome athletic life and maximizes the physician's treatment for these cases. It would seem that he would rather prefer to scare a patient into getting well, rather than to lead him gently toward the normal path by good sound talk, normal athletics, etc. It would be hard to determine what the lasting mental effect of his treatment for masturbators in children would be. Page 44: "In two or three cases I found it necessary to apply rapidly a red hot iron to the child's genitals. . . . The child ceased to masturbate."

*Die Rassenhygiene in den Vereinigten Staaten von Nordamerika.* Von GÉZA VON HOFFMANN, k. u. k. österr.-ungar. Vizekonsul. Mit einer Figur im Text. München: J. F. Lehmann, 1913. Pp. xii-237.

Under the title of Race Hygiene the author takes up what might more accurately be termed eugenics. After reviewing the underlying factors of eugenics and the dissemination of such ideas in the United States, an interesting chapter is devoted to the regulation of marriage in so far as it affects the well being of the race. The matter of the sterilization of the feeble-minded is also treated quite fully, the various methods and their advantages or disadvantages being referred to. A shorter chapter takes up the topic of the selection of immigrants as carried out in this country. This completes the book with the exception of the texts of various laws relating to the questions discussed and a list of various articles and books that have been used for reference.

## Meetings of Local Medical Societies.

MONDAY, October 13th.—Society of Medical Jurisprudence; New York Ophthalmological Society; Association of Alumni of St. Mary's Hospital, Brooklyn; Williamsburgh Medical Society, Brooklyn; Corning Medical Association; New Rochelle Medical Society; Waterbury, Conn., Medical Association.

TUESDAY, October 14th.—New York Academy of Medicine (Section in Neurology and Psychiatry); New York Obstetrical Society; Medical Society of the County of

Schenectady; Medical Society of the County of Rensselaer; Buffalo Academy of Medicine (Section in Medicine); Jamestown Medical Society; Rome Medical Society (annual); Practitioners' Club of Jersey City, N. J.

WEDNESDAY, October 15th.—New York Academy of Medicine (Section in Genitourinary Diseases); Woman's Medical Association of New York City (New York Academy of Medicine); Medicolegal Society, New York; Buffalo Medical Club; Northwestern Medical and Surgical Society of New York; New Haven, Conn., Medical Association; New Jersey Academy of Medicine, Jersey City, New Jersey.

THURSDAY, October 16th.—New York Academy of Medicine (stated meeting); German Medical Society, Brooklyn; Newark, N. J., Medical and Surgical Society; Aesculapian Club, Buffalo, N. Y.

FRIDAY, October 17th.—New York Academy of Medicine (Section in Orthopedic Surgery); Clinical Society of the New York Postgraduate Medical School and Hospital; New York Microscopical Society; Brooklyn Medical Society; Alumni Association of Roosevelt Hospital; Saratoga Springs Medical Society.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending October 1, 1913:*

**Austin, H. W.**, Senior Surgeon. Granted leave of absence for one month and twelve days from October 6, 1913. **Banks, C. E.**, Senior Surgeon. Relieved from duty at the Marine Hospital, Portland, Me., and directed to proceed to Milwaukee, Wis., and assume charge of the Service at that port. **Bolten, J.**, Assistant Surgeon. Relieved from duty at the Marine Hospital, Stapleton, N. Y., and directed to proceed to Detroit, Mich., and report to the medical officer in charge for temporary duty. **Burkhalter, J. T.**, Passed Assistant Surgeon. Granted two months' leave of absence from October 1, 1913. **Guthrie, M. C.**, Passed Assistant Surgeon. Relieved from duty at Tampa Bay Quarantine Station and directed to proceed to Philadelphia, Pa., for duty in the medical examination of arriving aliens. **Lumsden, L. L.**, Surgeon. Directed to stop at Raleigh, N. C., for conference with the State health officer, in connection with field investigations in North Carolina. **Mathewson, H. S.**, Surgeon. Directed to take temporary charge of the Marine Hospital at Portland, Me., in addition to present duties. **Oakley, J. H.**, Surgeon. Relieved from duty at Gloucester, N. J., and directed to proceed to Evansville, Ind., and assume charge of the Service at that port. **Parker, H. B.**, Passed Assistant Surgeon. Upon expiration of leave of absence, directed to report to the chief medical officer, Ellis Island, N. Y., for temporary duty. **Prebile, Paul**, Passed Assistant Surgeon. Directed to report to Assistant Surgeon General J. W. Kerr for temporary duty. **Ridlon, J. R.**, Passed Assistant Surgeon. Granted leave of absence for two months and twenty days, with pay, and for a further period from December 10, 1913, to January 15, 1914, without pay, with permission to go beyond the sea. **Thompson, L. R.**, Assistant Surgeon. Relieved from duty at the Marine Hospital, Detroit, Mich., and directed to proceed via Cincinnati, Ohio, to Pittsburgh, Pa., for duty in connection with investigations of pollution of the Ohio River. **Warner, H. J.**, Passed Assistant Surgeon. Relieved from duty at the New Orleans Quarantine Station and directed to proceed to the Tampa Bay Quarantine Station and assume charge of the Service at that port. **West, T. J.**, Acting Assistant Surgeon. Granted two months' additional leave of absence, without pay, from September 3, 1913. **White, J. H.**, Surgeon. Directed to proceed to various places in Louisiana for the purpose of obtaining data and materials for determining the incidence of malaria. **Williams, C. L.**, Assistant Surgeon. Relieved from temporary duty at Port Townsend, Wash., and directed to proceed to Washington, D. C., and report to the director of the Hygienic Laboratory on duty.

*Board Convened.*

Bureau of commissioned medical officers convened to meet at the bureau on Monday, October 20, 1913, for the purpose of examining candidates for appointment as assistant surgeons. The board will also prepare questions to be submitted to candidates appearing before boards to be convened at the Marine Hospital at Boston, Chicago, St. Louis, New Orleans, and San Francisco. Detail for the board: Assistant Surgeon General W. C. Rucker, chairman; Surgeon W. G. Simpson, member; Assistant Surgeon R. A. Kearny, recorder.

**United States Army Intelligence:**

*Official list of changes in the stations and duties of officers serving in the Medical Department of the United States Army for the week ending October 4, 1913:*

**Ashford**, Mahlon, Captain, Medical Corps. Relieved from duty with Field Hospital No. 1 and Ambulance Company No. 1 at Fort D. A. Russell, Wyo., to take effect on the arrival at that post of Captain Wayne H. Crum, and will proceed to Fort Washington, Md., and report for duty. **Baker**, C. R., First Lieutenant, Medical Reserve Corps. Relieved from temporary duty at Fort Niagara, N. Y., and from further duty at Fort Ethan Allen, Vt., and will proceed to his home in time to arrive there on September 30th and will stand relieved from active duty in the Medical Reserve Corps on that date; resignation accepted to take effect on October 1, 1913. **Banta**, William P., Captain, Medical Corps. Ordered to Key West Barracks for temporary duty. **Blanchard**, R. M., Captain, Medical Corps. Granted ten days' leave of absence from September 24, 1913. **Bradley**, Alfred E., Lieutenant Colonel, Medical Corps. Order directing him to go to Plattsburg Barracks, N. Y., revoked. **Bratton**, Thomas S., Major, Medical Corps. Upon arrival in the United States will proceed to Fort McPherson, Ga., for duty. **Carswell**, Robert L., Captain, Medical Corps. Upon arrival in the United States, will proceed to Fort Howard, Md., for duty. **Connor**, C. H., Captain, Medical Corps. Will assume the duties of attending surgeon at New York city until the arrival of Major Russell. **Crabtree**, George H., Major, Medical Corps. Granted leave of absence for one month, effective upon his arrival in the United States. **Crum**, Wayne H., Captain, Medical Corps. Upon arrival in the United States, will proceed to Fort D. A. Russell, Wyo., for duty with Ambulance Company No. 1. **Davis**, W. Cole, Captain, Medical Corps. Upon arrival in the United States, will proceed to West Point, N. Y., and report in person to the superintendent of the United States Military Academy for duty. **Guthrie**, William G., First Lieutenant, Medical Reserve Corps. Ordered to active duty and will report to the commandant of the Army Medical School, Washington, D. C., for course of instruction. **Hardaway**, R. M., First Lieutenant, Medical Corps. Granted leave of absence for two months. **Johnston**, J. F., First Lieutenant, Medical Corps. Relieved from duty at Fort McDowell, Cal., to take effect at such time as will enable him to comply with this order, and proceed on transport sailing from San Francisco, Cal., about November 5th for Honolulu, H. T., for duty. **King**, Charles T., Captain, Medical Corps. Upon arrival in the United States, will proceed to Vancouver Barracks, Wash., and report for duty. **McMillan**, C. W., First Lieutenant, Medical Corps. Ordered to Fort Washington for temporary duty. **Morse**, Arthur W., Major, Medical Corps. Ordered to Fort Morgan, Ala., for the annual physical examination and test ride. **Scott**, G. H., Captain, Medical Corps. Ordered to Watervliet Arsenal, on October 1st, for the physical examination of officers at that arsenal and for the examination of Colonel W. W. Gibson, Ordnance Department. **Shaw**, Henry A., Lieutenant Colonel, Medical Corps. Upon arrival in the United States will proceed to Boston, Mass., for duty as attending surgeon in that city. **Watkins**, F. E., First Lieutenant, Medical Reserve Corps. Granted one month's leave of absence upon the arrival of First Lieutenant J. S. Kennedy, Medical Reserve Corps, at Key West Barracks. **Weed**, Mark D., Captain, Medical Corps. Upon arrival in the United States will proceed to Washington Barracks, D. C., and report for duty. **Whaley**, Arthur M., Captain, Medical Corps. Ordered to Fort Howard, Md., for temporary duty in the field.

**Woodson**, Thomas D., Captain, Medical Corps. Granted leave of absence for fifteen days. **Wright**, Frederick S., Captain, Medical Corps. Leave of absence extended five days.

The following named first lieutenants in the Medical Reserve Corps have been ordered to active duty in the Medical Reserve Corps and to the Army Medical School, Washington, D. C., for course of instruction: L. H. Bauer, L. W. Webb, Jr., R. M. Le Comte, Austin J. Canning, Walter P. Davenport, Frederick H. Dietrich, Harold H. Fox, and Alexander W. Williams.

**United States Navy Intelligence:**

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending October 4, 1913:*

**Bass**, J. A., Passed Assistant Surgeon. Detached from the Naval Recruiting Party, Erie, Pa., and ordered to the Naval Academy, Annapolis, Md. **Curtis**, L. W., Medical Director. Detached from the Naval Recruiting Station, Boston, Mass., and ordered to the Naval Hospital, Newport, R. I. **Henry**, R. B., Passed Assistant Surgeon. Detached from the Naval Hospital, Annapolis, Md., and ordered to the Rhode Island. **McDonnell**, W. N., Passed Assistant Surgeon. Ordered home to await orders. **McEwan**, S. W., Acting Assistant Surgeon. Detached from the Naval Recruiting Station, Cincinnati, Ohio, and ordered to the Naval Recruiting Station, St. Louis, Mo. **Orvis**, R. T., Surgeon. Will proceed from Las Animas, Colo., to the Newport Hospital. **Plummer**, R. W., Surgeon. Detached from the Naval Recruiting Station, Detroit, Mich., and ordered to the Hancock. **Steadman**, W. G., Passed Assistant Surgeon. Detached from the Georgia and ordered to the Naval Recruiting Station, Detroit, Mich. **Turner**, H. W. B., Passed Assistant Surgeon. Detached from the Naval Training Station, San Francisco, Cal., and ordered to the Naval Hospital, Puget Sound, Wash. **Wilson**, H. D., Surgeon. Ordered to the Naval Recruiting Station, Boston, Mass.

**Births, Marriages, and Deaths.***Married.*

**Brigham—McKissock.**—In Boston, Mass., on Wednesday, October 1st, Dr. Francis Gorham Brigham and Miss Helen Greeley McKissock. **Hurt—Loveless.**—In Atlanta, Ga., on Monday, September 22d, Dr. John W. Hurt and Miss Mary Loveless.

*Died.*

**Baldwin.**—In Rosebank, N. Y., on Friday, October 3d, Dr. Edwin Candee Baldwin, aged forty-eight years. **Elliott.**—In Kansas City, Mo., on Saturday, September 27th, Dr. Charles Sinclair Elliott, aged fifty years. **Fitz.**—In Brookline, Mass., on Tuesday, September 30th, Dr. Reginald Heber Fitz, of Boston, aged seventy years. **Gilbert.**—In Hebo, N. C., on Friday, September 19th, Dr. William W. Gilbert, aged seventy-five years. **Goldstein.**—In New York, on Sunday, October 5th, Dr. Maxwell Goldstein. **Harvey.**—In Westboro, Mass., on Monday, September 29th, Dr. Edwin B. Harvey, aged seventy-nine years. **Hering.**—In Westminster, Md., on Tuesday, September 23d, Dr. Joshua Webster Hering, aged eighty years. **Kuttner.**—In Berlin, Germany, on Sunday, October 5th, Dr. Louis Kuttner, aged forty-seven years. **Marvin.**—In Muskegon, Mich., on Monday, September 22d, Dr. La Ray Marvin, aged sixty-five years. **Michel.**—In St. Louis, Mo., on Monday, September 29th, Dr. Charles Eugene Michel, aged eighty years. **Reames.**—In Canastota, N. Y., on Thursday, September 25th, Dr. Edwin C. Reames, aged forty-three years. **Schenck.**—In Flemington, N. J., on Saturday, September 27th, Dr. William H. Schenck, aged eighty-seven years. **Shuman.**—In Upper Strasburg, Pa., on Sunday, September 21st, Dr. William Britton Shuman, aged thirty-one years. **Srodes.**—In Woodville, Pa., on Friday, September 26th, Dr. James Lewis Srodes, aged fifty-one years. **Town.**—In Narberth, Pa., on Monday, September 29th, Dr. Edwin C. Town, aged sixty-three years.



# New York Medical Journal

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### Original Communications.

#### THE CLINICAL FORMS PRESENTED BY NERVOUS SYPHILIS.

##### *Significance of and Necessity for Their Differentiation.*

By F. X. DERCUM, M. D.,

Philadelphia.

Professor of Nervous and Mental Diseases, Jefferson Medical College.

The recent developments in our knowledge of the relation of the *Treponema pallidum* to so called parasyphilis will greatly influence, it would appear, our conceptions of syphilis of the nervous system. The epoch making discovery of the spirochetes in the brain of the paretic by Noguchi has been confirmed by a number of observers, among them Marinesco, Marie, Levaditi and Bankowski, and Foerster and Tomaszewski. The latter have indeed demonstrated the presence of living spirochetes in material obtained from paretics by brain puncture, while Noguchi has successfully inoculated rabbits with the substance of paretic brains, typical syphilitic lesions being produced. The thought that suggests itself at once is that the distinction heretofore made between syphilis of the nervous system, i. e., syphilis of the vessels and membranes, on the one hand, and parasyphilis, i. e., tabes and paresis, on the other, can no longer be maintained, that in truth there is but one affection, that no matter in what forms it presents itself these forms are all nervous syphilis, that the most that can be said is that in syphilis of the vessels and membranes we have an *interstitial syphilis* and in syphilis of the nerve substance, as in paresis and tabes, we have a *parenchymatous syphilis*. There is grave danger, however, in attempting to give such generalizations a practical application and great harm may be done in losing sight of important clinical distinctions. While all of the diseases of the nervous system resulting from the infection of spirochetes fall properly under the caption of syphilis, it does not follow that all nervous syphilis is the same, nor does it follow that the clinical distinctions thus far established should be abandoned. Indeed there are many reasons why the latter should be emphasized.

Syphilis of the brain and cord, i. e., gummatous infiltration of the vessels and membranes, presents, other things being equal, special symptom groups with special probabilities and possibilities in prognosis. These symptom groups, which are the outcome of the interference of nutrition caused by a diminished

lumen or occlusion of the vessels and to a less extent of pressure, it would be out of place to rehearse here; suffice it to say that in syphilis of the brain, the picture is that of headache, somnolence, possibly optic neuritis, or, it may be, palsies of cranial nerves with or without hemiplegia crossed or ipsilateral, while mental symptoms are absent or practically so. Again in syphilis of the cord, the picture is that of a paraplegia in which spasticity and to a less extent ataxia are the dominant features. At the same time there are slight sensory losses—not the retardation of tabes—merely a hypesthesia. Again both the motor and sensory phenomena are unequally marked in the two extremities, one limb is always more affected than the other. There is also a history of a transient bladder disturbance; first delayed micturition, then slightly lessened vesical control, and lastly and quite commonly spontaneous disappearance of the sphincter symptoms. Finally there is a conspicuous absence of lightninglike, shooting, or other pains. The picture is due primarily to gummatous infiltration of the vessels and membranes of the cord.

How greatly syphilis of the brain and cord differ in their symptomatology from that of paresis on the one hand and of tabes on the other need hardly be pointed out. Paresis in brief presents the picture of a gradually oncoming and slowly increasing dementia which sooner or later terminates in death. Certain physical signs are present but these not only differ largely in kind from those of syphilis of the membranes and vessels but also in being less clearly marked and definite. There are present a variable intention tremor of hands, lips, and tongue, an atactic speech, inequalities, irregularities, sluggishness, or fixation of pupils, the Argyll Robertson pupil, slight modification of gait, spasticity, incoordination, transient apoplexies or hemiplegias, and infrequently transient, slightly marked fugacious pareses of the cranial nerves, and other symptoms impossible to review here, but all of them the outcome of a general, a parenchymatous, destruction of the brain tissue.

In tabes the symptom group again differs widely from that of gummatous disease of the vessels and membranes of the cord. The lightninglike pains, the loss of reflexes, the incoordination, and the Argyll Robertson pupil form a well defined and distinctive picture.

Further, the distinction between the two forms of nervous syphilis, namely the cerebral and spinal symptom groups resulting from gummatous infiltration of vessels and membranes, and the cerebral and spinal symptom groups resulting from disease

of the nervous parenchyma, so called parasyphilis, was long ago established as the outcome of clinical observation—long before definite conceptions as to the pathology of syphilitic disorders become established or for that matter possible. Clinical observation has not only enabled us to make broad and fundamental distinctions between these cardinal symptom groups, but it has also taught a significant lesson as regards the clinical histories of the patients. Thus, every physician of experience knows that in parasyphilis the history of the original infection, i. e. of the primary lesion, is often difficult to elicit, often denied, and often uncertain. Particularly is this true of paresis; it is almost equally true of tabes, while it is quite the exception in ordinary cerebral and spinal syphilis. In keeping with this a search upon the genitals for scars of the initial lesion is almost invariably met by failure in both paresis and tabes. Again, a history of secondary symptoms, eruptions, mucous patches, sore throat, and falling out of hair, is commonly wanting in parasyphilis (parenchymatous syphilis); if the writer were to trust his own experience entirely, he would say invariably wanting. It is this fact which has led physicians at times to speak of paresis and tabes as the outcome of "mild" syphilis, a designation which is singularly inapt when applied to affections which, as in the case of paresis, are invariably fatal or, as in the case of tabes, attended by gross and permanent destructive changes. What is the significance of this peculiar clinical history? Does it not suggest a possible difference in the character of the infection? How are we to interpret the cases in which both husband and wife suffer from paresis or in which both suffer from tabes? Is it not startling to realize that one of them does not present syphilis of membranes and vessels and the other of parasyphilis, but both the symptoms of parasyphilis? How are we to account for the instances in which a number of men having acquired syphilis from the same woman, all subsequently develop paresis. Morel-Lavallée and Bélières have reported an instance in which five men becoming infected by the same woman all became paretic, and to this number Ramadier added a sixth man likewise paretic from the same source. Brosius has reported an instance of seven glass blowers all infected by the same mouthpiece of whom five were attacked by tabes or paresis while the remaining two presented very suspicious symptoms. Similar instances have been recorded by Nonne, by Marie and Bernhard, and by Erb. Certainly it would seem that at times the germs of syphilis undergo some change, acquire some quality which especially favors the development of paresis or it may be that, as Mott has recently suggested, "there may be varieties of spirochetes as there are different varieties of trypanosomes, the morphological character of which would not permit of differentiation."<sup>1</sup> Too little is as yet known of the life history of the spirochetes to say whether the same species may undergo modifications affecting their action upon man, or whether indeed different varieties or even species may not exist at present indistinguishable from each other. Even the biological relationships of the spirochetes have by no means been definitely

determined. Schaudinn, who, it will be remembered, discovered the *Treponema pallidum*, placed it, along with the other spirochetes, among the protozoa. Others, however, and among them Minchin, have pointed out that a trypanosome structure and trypanosome stage are altogether wanting, and that these organisms divide transversely, and not longitudinally, and therefore belong properly to the bacteria.

As opposed to the clinical distinctness and separateness of syphilis of the membranes and vessels and of parasyphilis, it may be pointed out that cases are met with in which symptoms belonging to both groups are present; i. e., that there are cases of paresis in which the evidence also points to syphilis of membranes and vessels, or on the other hand that transitional forms are met with. In the first place, the concurrence of true gummatous lesions in cases of undoubted paresis is excessively rare, and secondly, if cases actually occur in which ordinary cerebral syphilis passes into paresis, it has not been the fortune of the writer in an unusually extensive hospital experience to observe them; indeed the writer believes that they are nonexistent or based upon an initial error of diagnosis. A similar explanation applies in the case of the cord. Every now and then a case is reported as one of tabes in which there has been a marked improvement following specific medication; for instance a marked lessening or disappearance of the incoordination together with a return of the knee jerk. Such reports are based, the writer believes, upon a failure to differentiate clearly between syphilis of the membranes and vessels, i. e., a meningomyelitis syphilitica, and true tabes. The common picture presented by syphilis of the cord is that of Erb's symptom group. Here there is in about two thirds of the cases a slightly spastic gait with exaggerated tendon reflexes, but in the remaining third—those cases in which the gummatous infiltration involves mainly the vessels and membranes of the posterior columns—ataxia is present. Sometimes this ataxia is pronounced and at the same time there may be a diminution of the knee jerks which may be so great as to amount practically to a loss. Such a case can very readily be mistaken for one of locomotor ataxia. However, there is not the history of the lightninglike pains, pupillary phenomena are absent or if present consist of inequality, palsies, and dilatation, not of the Argyll Robertson pupil. Perhaps there is also frank involvement of the cranial nerves, or other evidence of cerebral syphilis. Unequal sensory losses, hypesthesias, involving the extremities and slight or transient bladder disturbances may also be present. Such cases, unless they are of too long standing may very readily—and indeed commonly do—improve upon specific medication.

Mercury, the iodides, salvarsan are as powerless in influencing the organic changes in the cord in tabes as they are in paresis. When improvement in a given case follows specific medication, the inference is inevitable that syphilis of the cord and not tabes was present. To state that both syphilis of the vessels and membranes are present concurrently with tabes is virtually a begging of the question. It is conceivable that both in the case of tabes and in that of paresis there are in rare instances also

<sup>1</sup> *Annals of the New York Academy of Medicine*, International Congress, London, 1913.

gummatous lesions, but this is on the whole negatived both by clinical experience and by microscopic examination.

To repeat, it is necessary to make a clear distinction between syphilis of the vessels and membranes on the one hand and tabes and paresis on the other. The facts of the prognosis of the parasymphilitic affections make such a distinction imperative. Again, the writer believes that it has become necessary to go one step further and to emphasize the distinction between the two great parasymphilitic affections themselves. The clinical distinction between tabes and paresis has of course long been admitted. It is the occurrence of taboparesis, that is, the form in which spinal symptoms appear early, which has tended to obscure the subject. The knee jerks may in such cases be much diminished or even lost. If at the same time incoordination is noticeably absent, the picture of locomotor ataxia may, as is well known, be more or less closely simulated. However, certain striking differences obtain between taboparesis and tabes. In the first place, the history of tabes is one of very slow and gradual evolution. There is a history of difficulty of walking in the dark, of unsteadiness in the mornings while washing the face, of shooting pains more or less severe, of gastric crises, of delayed sensation in the feet and legs, of disturbances of micturition. Early, too, the ataxia becomes a marked feature. Finally, pupillary disturbances make their appearance. These differ notably as we will see from those met with in paresis. Most frequently they consist of a narrowing of the pupils with an early impairment or loss of the light reaction. It is to be especially noted, however, that in tabes the pupils are equal; inequality is excessively rare. Secondly, the impairment of the light reaction is commonly the same on the two sides; sluggishness and the degree of loss are usually not more pronounced on one side than on the other.

In taboparesis, the evolution of the symptoms may be slow, though as a rule it is far more rapid than in tabes. Secondly, mental symptoms make their appearance relatively soon, so that the real nature of the case early becomes apparent. Again, incoordination though present is rarely so pronounced as to play a striking rôle in the early period. The writer has never in a case of taboparesis elicited as a beginning symptom a history of difficulty in the dark or of unsteadiness in the mornings while washing the face. Shooting pains also form no, or a very inconspicuous, part of the early history and at no time do they constitute a prominent or striking feature. Gastric and other crises, it may be safely stated, are excessively rare if not unknown. Delayed sensation in the feet and legs is equally absent; at most a mild hypesthesia, widely diffused but not attended by delay is observed. Disturbances of micturition also form no feature of the early history of taboparesis. Again, the disturbances of coordination, though undoubtedly present, are never as pronounced, either early or late as in tabes. Further, the disturbances of the pupil in paresis are peculiar. Long before the light reaction disappears, it is noted that the pupils are unequal, the opposite condition to that met with in the great mass of true tabes. This inequality may be shifting in character, absent at one time, present

at another. At the same time it may be noted that one or both pupils are irregular in shape. A pupil may be oval, ovoid, or its circumference may be irregular, the circle may be slightly flattened as by a cord, or it may be slightly angled. This irregularity, like the inequality, is usually changing and shifting, present at times and absent at others, and the pupil may indeed change its shape while under observation and thus justify the designation "ameboid pupil." Finally the two pupils may react unequally to light, the reaction may upon one side be prompt and normal, upon the other sluggish or lost. It is perhaps unnecessary to point out that irregularity and the other phenomena just described are rarely, if ever, present in tabes. In the latter the changes consist for the most part in symmetrical departures from the normal both in size and light reaction. The reason for this is probably to be sought in the fact that in tabes the myosis and fixation are to be attributed to changes in the cord, while in paresis they are directly due to involvement of the brain—of the oculomotor nuclei and of the intracranial mechanism upon which the shape and movements of the pupil depend. In short, tabes stands in bold contrast to paresis both in its course and final termination. In the great majority of the cases of tabes, the mental condition is good throughout. Many instances could be cited of tabetics who fill important positions, who follow pursuits and vocations which demand not only entire sanity, but often very unusual qualifications. Among them we find physicians, lawyers, business men, men of affairs, and when these patients die, they do not die of a dementia, but of disease of the heart, of the aorta, of an arteriosclerosis, of infections of the bladder, of disease of the kidneys, or of other visceral complications.

The writer is fully aware that some distinguished observers,—for instance Oppenheim,—state that tabes may eventuate in paresis. The writer, however, believes that the points of clinical differentiation are not only sufficient in number, but of such a character as to demand a frank recognition of the two affections as distinct clinical entities. How their occurrence is to be explained is a matter of secondary importance. It may be that it is to be sought for in differences in the infecting organism or differences in the infected individuals. The fact remains, that the wide divergence in their course and prognosis makes their early differentiation of the utmost practical importance.

1719 WALNUT STREET.

#### A REPORT OF SEVEN CASES OF SYPHILIS APPARENTLY CURED WITH ONE INJECTION OF SALVARSA.

By ABR. L. WOLBARST, M.D.  
New York.

It is nearly three years since the first supplies of salvarsan, then designated by the number "606," were distributed to selected clinicians for trial by Doctor Ehrlich. In the period that has elapsed, the stage of primary experiment may be said to have been successfully passed, and the remedy is now safely launched and universally accepted, as the



most potent antisymphilitic agent known to medical science.

The time is too short, to say definitely, whether the wonderfully effective results attained through the use of salvarsan are permanent or only temporary. Relapses have occurred and repetitions of the treatment have been necessary, in the vast majority of the cases treated with this agent, and to all appearances, those who have had most experience with salvarsan have come to the conclusion that the *therapia sterilisans magna* for which we had all hoped so fervently, is yet a thing of the future. That this is still the great desideratum, may be deduced from the statement made by Doctor Ehrlich, in his Address in Pathology before the recent International Medical Congress at London, in which he said that he continually kept in view the idea of freeing the body of microorganisms by one or at most two injections of the proposed remedy, and that in his animal experiments this principle was still being pursued.

In looking over the records of the cases treated by the writer late in 1910, and early in 1911, with salvarsan, administered through the courtesy of Doctor Ehrlich, a number of cases stand out prominently, not only because of the splendid response which they made at that time, but also because of the fact that a cure appeared to have been effected as the result of a single injection. In other words, in those cases, the great aim of a cure with one injection of salvarsan, seems to have been attained, as far as present evidence is able to show.

In any discussion of a cure of syphilis, there are two great factors to be reckoned with. The first is the clinical condition of the patient, and the second is the patient's serological record as pronounced by the Wassermann test. We are all agreed that if a patient remains clinically well for several years after cessation of treatment, and during the greatest part of that period gives a continuous and persistent negative Wassermann reaction, we may feel reasonably safe in discussing the probability of that patient being cured of his disease. And it goes without saying that any mention of the word "cure," in reference to syphilis, must always be accompanied by the usual reservations that will allow for the development of future parasymphilitic conditions, and all the other phenomena which are apt to follow syphilis, even in those who appear to be cured of the original disease.

Let us agree, for the moment, on a given state of facts. Let us assume that a patient with undoubted primary and secondary syphilis receives treatment for his disease. Let us assume that after the treatment (of any kind whatever) is suspended, all symptoms of the disease pass off and do not return during a period of at least two or three years. Throughout this period the patient is carefully watched, and the seroreaction studied at frequent intervals. The reaction, positive at first, becomes negative and remains such after repeated examinations. The body weight is increased considerably, and the patient feels better than he ever did. Are we justified in such a case, in declaring that such a patient may consider himself "cured"? The answer must be, yes.

The most recent authoritative "conception" of a

cure in syphilis, is that of Wechselmann, of Berlin (*Salvarsan Therapy*, ii, p. 110), who says: "A syphilitically infected individual is cured if, upon careful and exact clinical examination, he is found to be free from all symptoms of the skin, the mucous membranes, and of all the internal organs, when his serum no longer gives a positive Wassermann reaction, when his lumbar puncture fluid shows no alterations, and if this absence of all, especially these last two most important symptoms, remains permanent upon most careful control throughout a certain period of time which is to be determined according to further experience and observations." (*Urological and Cutaneous Review*, July, 1913.)

Another "standard of cure" is given by Nichols (*Studies of Syphilis, Bulletin No. 3, U. S. A. Medical Department*, July, 1913) as follows: One year without treatment, without any suspicious clinical signs, with several negative Wassermann reactions and no positive ones, and with a negative provocative Wassermann reaction and luetin test at the end of the year.

Nevertheless it is a fact that we are not able to say positively who is, and who is not, cured, notwithstanding our improved methods of treatment and control, and it is just as true to-day as it ever was that the only sure way to tell whether a patient has been cured of syphilis is to wait fifty years after all treatment has been suspended. If the patient has remained well and has had children who have grown to maturity unscathed, that patient has been cured of his disease; otherwise he has not been cured.

But it is apparent that we must adopt some other method of determining this question in a manner that will meet the requirements and feelings of our patients. Notwithstanding our limitations, which, by the way, it is difficult for the average patient to understand, they demand to know when they may consider themselves cured and by what signs they are to know that such is the fact. We cannot tell them to wait fifty years. We must give them something more definite and immediate, and, as a matter of fact, we ourselves require something more tangible than this long look into the future.

It is therefore the writer's custom to advise patients that if they remain perfectly well for two years after all treatment is stopped, if they gain weight and maintain this gain, and if the seroreaction is repeatedly negative, they may consider themselves cured. At the same time they are impressed with the fact that notwithstanding the apparent cure, there may still be some traces of the disease which our present methods are unable to reveal, and that consequently the disease may nevertheless reappear at any time in the future. They are furthermore told that the best way to watch for any possible reappearance of the disease, is by having the blood examined for the seroreaction at least twice every year, and that if a positive reaction appears, it must be considered a warning signal that evidences of the disease are likely to make their appearance shortly.

With these conceptions of a "cure" of syphilis in mind, I am prompted to report seven cases of syphilis, which may be considered "cured" with one in-

jection of salvarsan. They have received no other treatment of any kind whatever. They have remained perfectly well, have gained considerably in weight, and four of them have given a persistently negative Wassermann reaction. The remaining three have steadily refused to permit their blood to be taken, for examination, but in all other respects, they may be considered clinically "cured."

A detailed study of these cases will be of interest:

CASE I. *Primary Syphilis*. R. E., male, aged twenty-seven years. Referred by Dr. S. W. Bandler. Initial lesion typical, on shaft of penis, near the corona. Duration, two weeks; no secondaries present; inguinal glands indurated, not tender. November 4, 1910, spirochetes, many; Wassermann reaction, positive. November 7, 1910, received 0.5 gramme, "606" hyperideal, intramuscularly, by the Alt method. Moderate pain, followed by very severe reaction, the temperature reaching 105.4° F. on the ninth day after the injection. This was accompanied by a distinct renal suppression, which was relieved by diuretic measures. November 17th, spirochetes negative, chancre soft and smaller; November 15th, primary lesion gone entirely, except pinkish discolorization and slight thickening of the skin; November 30th, Wassermann reaction +++; December 4th, Wassermann reaction ++, skin clear, patient normal and well; July 25, 1911, patient reported feeling perfectly well; there have been no secondaries or other manifestations; Wassermann reaction slightly +; August 7, 1911, condition the same; patient had gained considerably in weight; March 29, 1912, condition perfect; June 6, 1912, condition perfect; Wassermann reaction negative; November 14, 1912, condition perfect; gaining weight; May 12, 1913, condition perfect; gained much weight; Wassermann reaction negative (controlled by three serologists); September 2, 1913, condition perfect; refused another Wassermann test. Period of observation, two years and ten months.

Here, then, we have a case of primary syphilis, spirochetes present, followed by a positive Wassermann reaction, in which one injection of salvarsan was administered and the patient has remained well, without any subsequent treatment, for a period of two years and ten months, with a negative Wassermann reaction and a decided gain in weight and strength.

CASE II. *Primary Labial Syphilis*. I. L., male, aged twenty-five years. Referred by Dr. T. Parodi. Chancre on upper lip. Duration six weeks, no secondaries; Wassermann reaction, two tests, +, spirochetes present; February 14, 1911, received 0.6 gramme, "606," intramuscularly, by the Alt method. Moderate pain, followed by the disappearance of the lesion within ten days. March 27, 1911, perfectly well, Wassermann reaction —; July 21, 1911, reported feeling well, no secondaries having appeared; August 8, 1911, perfectly well; December 12, 1912, perfectly well; Practitioners' Laboratory reported as follows: "Since first examination, we have examined his blood every three or four months, and in every instance the result has been distinctly negative." September 3, 1913, Practitioners' Laboratory reported: "Wassermann reaction —; patient had gained weight and felt perfectly well in all respects. He had taken no treatment whatever since the injection of salvarsan. Period of observation, two years and seven months."

CASE III. *Secondary Syphilis, Severe Type*. L. B., male, aged thirty-eight years. Referred by Dr. B. Livingston. Duration eight months. Patient presented a large, deep ulcer on the right lower lip, mucous patches in the mouth and pharynx, and a papular syphilide covering the left side of the face and neck. The patient had been treated with mercury in all its forms, and was salivated several times in the hope of obtaining a recession of the lesions, but without avail. Apparently there was a decided antipathy to mercury for the more treatment he received the worse his condition became. He had lost twenty-four pounds,

present weight being 132 pounds. November 10, 1910, he received 0.5 gramme "606" hyperideal, intramuscularly, by the Alt method. Moderate pain, traces of which remained for several months. He left the hospital ten days later, almost entirely recovered. The ulcer had disappeared, likewise the mucous patches. Since then he had had no treatment of any kind; there had been no recurrence and he had gained weight continually. Since the injection, the Wassermann tests had been as follows: December 20, 1910, —; February 1, 1911, —; March 7, 1911, —, and had gained sixteen pounds; May 10, 1911, —; August 1, 1911, felt perfectly well, and had gained twenty-five pounds; November 21, 1911, perfectly well, weighed 165 pounds (a gain of thirty-three pounds); December 19, 1912, perfectly well; weighed 172 pounds (a gain of forty pounds); Wassermann reaction (three controls) —; August 12, 1913, patient reported feeling perfectly well in all respects. Period of observation, two years and nine months.

Comment: In this case, it will be seen that the patient was suffering from an unusually resistant form of syphilis, in which mercury was of no value whatever. The Wassermann reaction has remained negative for over two years since the treatment was administered, and his clinical condition has been absolutely perfect for nearly three years. In addition he has gained over forty pounds in weight, and all traces of the syphilitic lesions have been eliminated.

CASE IV. *Secondary Syphilis*. G. F., male, aged twenty-seven years. Mucous patches involving the mouth and pharynx; duration of disease, four months. Had been unaffected by injections of salicylate of mercury and inunctions. Wassermann reaction +. November 22, 1910, received 0.5 gramme salvarsan, intramuscularly, by the Alt method. Slight pain; patient left the hospital ten days later in excellent condition; all lesions gone. May 12, 1911, perfect condition; gained four pounds; Wassermann reaction —; August 2, 1911, perfect condition, Wassermann reaction —; November 20, 1912, perfect condition, Wassermann reaction —; December 24, 1912, perfect condition, Wassermann reaction —. Period of observation two years and one month.

In the three cases which follow, it has been impossible to obtain a Wassermann test. However, the physical condition of the patients has been under observation from time to time, as will be noted below, and in each case the improvement has been so marked, as to leave no doubt whatever but that the Wassermann reaction, if it could be obtained, would be found negative.

CASE V. *Malignant Secondary Syphilis, Resisting Mercury and Iodides*. J. L., male, aged twenty-eight years. Referred by Dr. J. B. Prager, with the following history: Initial infection eighteen months ago; began as a pustule, which grew large and hard, and eventually broke down resisting treatment for seven months; inguinal glands swollen and tender; six weeks later, the roseola appeared and disappeared only after several months of treatment; for the past three months, the patient complained of a sore throat, growing worse all the time, so that speech and swallowing became almost impossible and excruciatingly painful; also had pains in the joints. Examination of the throat revealed a large greenish white ulcerating area covering the uvula, tonsils, postpharyngeal space, and part of the roof of the mouth. The mouth could be opened partially, but with great difficulty. Wassermann reaction, in spite of large doses of mercury, +, +, +; November 3, 1910, administered 0.5 gramme "606" hyperideal, intramuscularly, by the Alt method. No pain, but a few hours later the pain became severe and lasted two days. November 15th, patient left the hospital; throat was almost entirely well; was eating solid food. November 25th, throat normal; patient back at his work, and had gained seven pounds. April 15, 1911, Doctor Prager kindly reported having seen the patient; latter said he was feeling perfectly well, and had gained at least thirty pounds in weight. July 23, 1911, the writer saw the patient and cor-

reiterated the report. August 25, 1913, Doctor Prager again kindly reported having seen the patient; he had grown very stout and was in perfect health; had taken no treatment of any kind since the single injection of salvarsan. Period of observation, two years and nine months.

*Comment:* In this case, as in Case III, mercury and the iodides seemed to be of no avail in stopping the progress of the disease. One injection of salvarsan not only cleared up all the lesions but, for a period of thirty-three months, there has been no recurrence of any kind, the patient has gained at least thirty pounds, and has been in perfect health in all respects.

CASE VI. *Precocious Tertiary Syphilis.* L. C., male, aged thirty-four years. Referred by Dr. M. J. Klein, with the following history: The patient was infected two years previously. Three months later, a severe extensive vesiculopapular eruption developed covering the entire body and face, associated with a gummatous infiltration of the epiglottis and tonsils. The treatment at that time consisted of injections of cypridol, alternating with salicylate of mercury, with increasing doses of sodium iodide up to three drachms, three times daily; also local applications to the throat. The general condition was not much improved by this treatment, although the lesions in the throat did show some betterment. The eruption on the face and extremities remained, however, and soon localized itself on the forehead, lobes of the ears, and on the legs and hands. Here there was actual destruction of tissue, which was not influenced by the treatment. At this time he was getting an injection of mercury every second day, and in addition was taking yellow iodide of mercury pills,  $\frac{1}{2}$  grain, from nine to twelve daily. At no time did he show any signs of salivation. At various times he also received injections of enesol, bichloride and succinamide of mercury, and inunctions, all without effect. Wassermann reaction ++. October 12, 1910, received 0.5 gramme salvarsan, intramuscularly, by the Alt method. Had slight pain, which soon disappeared. At the end of ten days, he left the hospital, much improved, and within two weeks after the injection the lesions had disappeared entirely. This patient had not returned for observation, but he had been seen frequently by Doctor Klein, who had kindly reported as follows: August 2, 1911, patient had grown very stout, and said he was in perfect health; refused blood test. November 15, 1912, Doctor Klein saw patient, and said he must have gained at least fifty pounds in weight; he felt perfectly well, and had had no additional treatment of any kind. Period of observation, two years and one month.

*Comment:* This is the third case of this series, in which mercury and iodides were unable to control or benefit the disease; one injection of salvarsan has apparently cured the patient of the disease, and has made this fact evident by the long period that has elapsed without recurrence, and by the remarkable gain in body weight.

CASE VII. *Tertiary Syphilis, with Extensive Syphilide.* Mrs. D. B., aged forty-five years; married twenty-seven years, mother of three healthy children; also had three miscarriages; first noticed bad sore throat six years ago followed by a skin eruption which lasted a week and disappeared under some internal treatment. The patient took this medicine for two years. For one year, was apparently well, but at the end of that time, ulcers began to break out, first on the face, then on the left hand and arm; the face ulcers healed, but those on the hand and arm have remained ever since and have spread quite extensively.

When first examined, she presented enormous crust covered syphilides involving the left shoulder and arm, and forearm and hand. The Wassermann reaction, ++. January 25, 1911, received 0.5 gramme salvarsan, intramuscularly, by the Alt method. She had slight pain, which soon passed off. Within a few days, the syphilide began to show evidence of improvement, and seventeen days after the injection, the scales had disappeared and healing was well under way. She left the hospital, and since then had persistently refused to present herself for further observa-

tion, but her husband had reported on her condition, as follows: June 23, 1911, he stated she was absolutely well, and entirely free from lesions of any kind. August 26, 1913, he stated that she had continued in good health, without a trace of her skin lesion, and had also gained very much in weight. Period of observation, two years and seven months.

It must appear to the unprejudiced student of syphilis and its treatment that, in the seven cases just reported at some length, salvarsan has certainly been the ideal treatment. In each of these seven cases but one intramuscular injection was administered, no other treatment of any kind has interfered with the remedy, and we are scientifically certain that whatever benefit has accrued to the patient must necessarily have come from the salvarsan. Furthermore, in five of the cases, mercury and the iodides were of no avail, and in all of them improvement began simultaneously with the administration of salvarsan.

We therefore feel justified in saying that in these particular cases we have attained the end that has been sought so assiduously by Doctor Ehrlich,—a *therapia sterilisans magna*, a cure brought about by one injection of the remedy. It goes without saying, even at the risk of another repetition, that the word "cure" is employed in the conception mentioned previously in this paper, namely, when a patient shows no clinical evidence of the disease for two years after cessation of treatment, has gained in weight and general health, and, in addition, gives a repeated and persistently negative Wassermann reaction.

Before closing this communication, it would be well to ask whether such convincing results have ever been attained with the intravenous method of administering salvarsan. The writer has given thousands of intravenous injections to many hundreds of patients, and has had the opportunity of observing them carefully for long periods, but in not a single instance has he seen such splendid results as have followed the use of salvarsan by intramuscular injection. Were it not for the pain associated with this method of treatment, it would certainly be the method *par excellence*. The action of the drug is kept up for a much longer period owing to the continuous absorption and the slower elimination of the drug. In this single factor, above all others, lies the advantage of the intramuscular method. It is for this very same reason that Wechselsmann (*Münchener medizinische Wochenschrift*, lx, No. 24, 1913) advocates the use of his subcutaneous method of injection, in preference to the intravenous method.

It would also be interesting to learn the cause for the enormous gain in body weight which these, as well as numerous other patients, have shown, after an intramuscular injection of salvarsan. Undoubtedly, the tonic effect of the arsenic is primarily responsible, but there must be some additional and unknown metabolic action produced by the continued absorption of the drug in syphilitics, which brings about so remarkable a gain in weight. The writer has never seen it so strikingly in patients who have been given the intravenous injections, even though the treatment has been repeated at frequent intervals.



## CONCLUSIONS.

In these seven cases, the patients received but one intramuscular injection of salvarsan; no other treatment was administered; they all became, and remained, perfectly well; there have been no recurrences of any kind, and all have gained remarkably in body weight; the periods since the administration of the injection, vary from two years and ten months to two years and one month, an average of two years and six months; in four of these cases the Wassermann seroreaction has been taken repeatedly and has persistently remained negative; it must therefore appear beyond any shadow of doubt, that one intramuscular injection of salvarsan has cured syphilis and may do it again—i. e., remove all manifestations of the disease for several years and produce a persistently negative Wassermann reaction. No other method of treatment has ever been able to show results equally satisfactory. Surely Ehrlich's ideal has been attained in these cases.

113 EAST NINETEENTH STREET.

# NEW AND IMPROVED DUODENAL INSTRUMENTS AND TECHNIC OF SPEEDY INTUBATION OF THE NORMAL DUODENUM.\*

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On reviewing the literature dealing with duodenal investigation by means of the duodenal tube, it appears to me that the Montefiore Home has not been backward even in this comparatively new science of duodenology, although, heretofore, nothing has appeared in print on this subject from this institution. For over two years, both Dr. S. Wachsman, medical director of the Montefiore Home, and myself have been actively engaged in the exploration of the duodenum and its contents in both normal and pathological conditions. Indeed, no gastrointestinal case has been considered fully investigated unless accompanied by a duodenal examination.

Some of the predominating features in connection with our studies are:

(a) Improved and original duodenal instruments not hitherto published;

(b) a simplified and accurate technic in the examination of the common digestive enzymes; and

(c) nature and extent of investigations.

These studies were commenced August, 1911, by first inquiring into the laws and principles governing the action of enzymes upon fifty nongastrointestinal cases, thereby acquiring the technic of the examination of the duodenum, simplifying the quantitative tests of enzymes and the establishment of a "standard" of normal duodenal contents. Following these inquiries we have examined the duodenal contents in such common disturbances as anacidity, subacidity, and superacidity; in gastric

and duodenal ulcers, achylia gastrica, cancer, arthritis deformans, and diabetes. By means of x rays in conjunction with the duodenal tube we studied the course of the normal and, subsequently

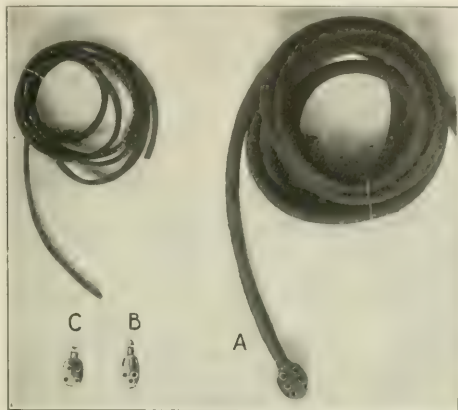


FIG. 1.—The weights of the three duodenal tubes. *A*, Grassie's bulky duodenal tube. *B*, The light and elongated capsule of Einhorn's duodenal tube. *C*, The small and heavy gold plated lead ball of the improved duodenal tube. (Line representing long axis of each.)

for diagnostic purposes, the pathological duodenums, including lesions at the pylorus, of the duodenum, and of the jejunum. Finally, we studied duodenal digestion first independent of, then simultaneous with, gastric digestion by means of a gastroduodenal tube. In this manner we have examined about 125 patients repeatedly, making a total of 400 to 500 examinations representing about 15,000 hours of work. The findings will soon appear in a pamphlet being issued by Doctor Wachsman and myself. At this juncture, I desire to state that I feel myself fortunate in having had the personal interest and cooperation of Doctor Wachsman, without which the success of these investigations could hardly have been attained.

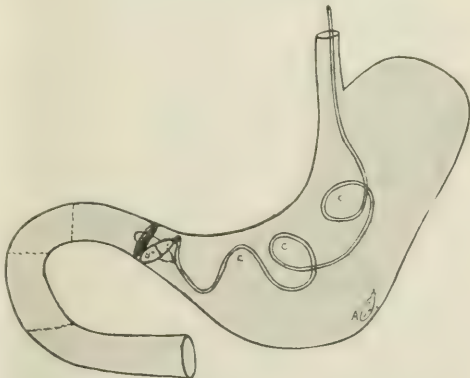


FIG. 2.—Einhorn's duodenal tube in the stomach. *A*, Point where capsule reaches the stomach. *B*, The capsule undergoing rotation at the pylorus. *C*, Coils of tubing hindering its passage toward the pylorus.

\*Demonstrated before the Harlem Medical Society, New York, February 12, 1913; and before the Section on Medicine, New York Academy, April 15, 1913.

In this preliminary communication, I desire to describe two duodenal instruments,<sup>1</sup> the design and perfection of which are based upon a previous experience and familiarity of the difficulties encoun-

comfort of the patient is paramount. The duodenal tube in general use at present (Einhorn's) reaches the duodenum after from five to twelve hours, and hence it is passed and left over night. This is essentially a cruel procedure and hence refused by most of the patients. Such a diagnostic or therapeutic measure can hardly hope to gain the confidence of many of the members of the profession even to the extent of giving it a trial.

#### THE IMPROVED DUODENAL TUBE.

In order to appreciate its advantages, one must familiarize himself with the disadvantages of the original Gross's and Einhorn's duodenal tubes.

*Gross's Duodenal Tube.* (Fig. 1 A.) It consists

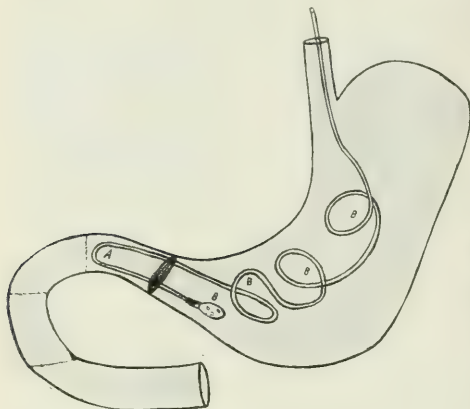


FIG. 3.—Einhorn's duodenal tube in the stomach. A, Loop of tubing entering the duodenum. B, Capsule caught among the coils of tubing in the stomach.

tered in a few hundred examinations. It must be remembered that the capsule or ball of the duodenal tube in its way toward the duodenum bears the same relation to the pylorus as the fetal head bears to the pelvis during parturition, namely, that the largest diameters of one must be in relation to the largest diameters of the other. Secondly, to reach

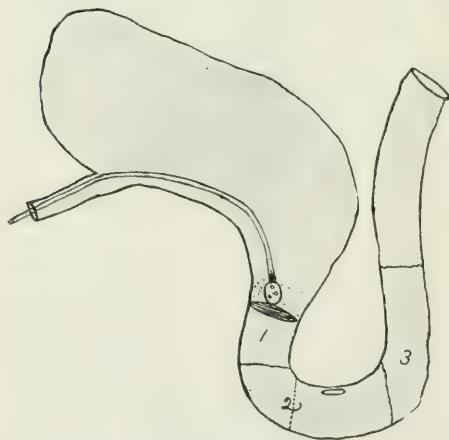


FIG. 4.—The introduction of the improved duodenal tube, showing tube along the lesser curvature, lead ball, and gastric contents at pylorus. (Patient on right side.)

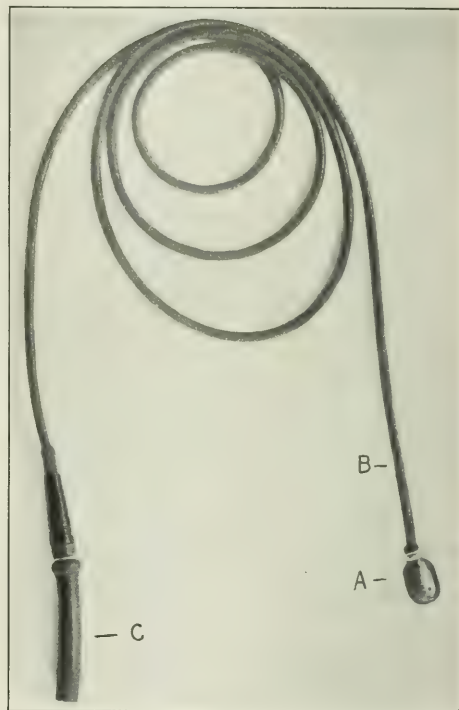


FIG. 5.—Palefski's duodenal tube. A, Gold plated lead ball. B, Tubing. C, Outlet.

of No. 20-French soft tubing enclosing at one end a perforated and calibered lead ball weighing 160 grains, of the size of a small cherry. The patient swallows the lead ball which reaches the pylorus by the aid of gravity and passes into the duodenum in from two to four hours. However, owing to its bulkiness, patients refuse to swallow it, and for the same reason the pylorus of some patients will not admit it. It already has fallen into oblivion and nothing more need be said about it.

*Einhorn's Duodenal Tube.* (Figs. 1 B, 2 and 3.) It consists of No. 8 French tubing, to one end of which is attached a perforated brass capsule weigh-

its destination, a duodenal instrument must follow the horseshoe course of the duodenum. Hence the smaller and more flexible it is, the sooner will it accomplish its purpose. Finally, in this work the

<sup>1</sup>The remaining instruments will be described in another paper.

ing forty-eight grains. The patient swallows the capsule and, with the aid of a few mouthfuls of water it reaches the floor of the stomach at A, Fig. 2. From this point on, owing to its lightness, its passage into the duodenum depends upon peristalsis, but it is hindered by the coils of the tubing in the stomach. (Fig. 2, C.) At the pylorus, the elongated capsule must undergo rotation by the peristalsis in order to bring its long axis at right angles to the former. (Fig. 2, B.) These features prolong its stay in the stomach, and, not infrequently, it is regurgitated after a considerable length of time. Very often a loop of tubing precedes and enters the duodenum while the capsule remains in the stomach entangled among the coils of the tubing. (Fig. 3.) This is responsible for the many unsuccessful attempts. At any rate, a duodenal examination by its means is wasteful of time as it requires from five to twelve hours. I have employed it long enough to convince myself that, except in rare instances, it is unsuitable for routine duodenal examinations.

*The Improved Duodenal Tube.* (Figs. 1 C, 4 and 5) This combines in itself the advantages and none of the disadvantages of the original tubes. It consists of No. 8 French pure rubber tubing, to one end of which is attached a perforated gold plated lead ball weighing 105 grains. The tube is marked off at 40, 50, 60, and 70 cm. distance from the ball. The following table shows the features of each of the three duodenal tubes:

Substance and design .....	Gros's Perforated and calicheid lead ball covered with tubing*	Einhorn's Perforated brass capsule	Pallefski's Perforated and gold plated lead ball
Weight in grains. ....	160 gr.	48 gr.	105 gr.
Long axis of the weight .....	8 inch long*	3 1/2 inch long*	3 1/2 inch long
Size of tubing. ....	No. 20 French	No. 8 French	No. 8 French
Swallowed .....	With difficulty*	With the aid of water	Easily
Reaches pylorus. ....	In a few minutes by the aid of gravity	Indefinite; after many hours by the aid of peristalsis*	In a few minutes by the aid of gravity
Duodenal contents obtained .....	2 to 4 hours	5 to 12 hours*	1 to 2 hours

\*Disadvantages.

It will thus be observed that the improved duodenal tube is twice as heavy, and its long axis is less than one half that of the capsule of Einhorn's duodenal tube. It is, therefore, easier swallowed, and by the aid of gravity it reaches the pylorus in a few minutes and gradually makes its way into the duodenum in from one to two hours.

*Method of Introduction.* It is best passed on an empty stomach usually at 9 a. m. Its passage to the pylorus is accomplished in the following three procedures: First, the patient places himself in the recumbent posture with his mouth wide open. The operator introduces the gold plated lead ball directly into the pharynx; the patient then swallows it and assumes the erect posture.

Secondly, the patient now breathes deeply and slowly while the operator is supporting the outer end of the tube. The latter will be seen to move into the mouth until the 35 cm. mark has approached the lips, indicating that the ball has reached the cardia.

Thirdly, the patient places himself on his right side and the tube is allowed to go into the mouth until the 50 cm. mark slowly approaches the lips.

At this point the ball of the duodenal tube passes along the lesser curvature and gravitates toward the pylorus along with the scanty quantity of gastric contents present in the empty or fasting stomach. (Fig. 4.) To ascertain whether the tube has been correctly introduced, the operator aspirates a portion of the gastric contents, which will be obtained only if the ball has reached the pylorus. If no gastric juice is obtained the tube is withdrawn about 10 cm. and then reintroduced, after which aspiration is again attempted until some fluid is invariably obtained. At this juncture I desire to

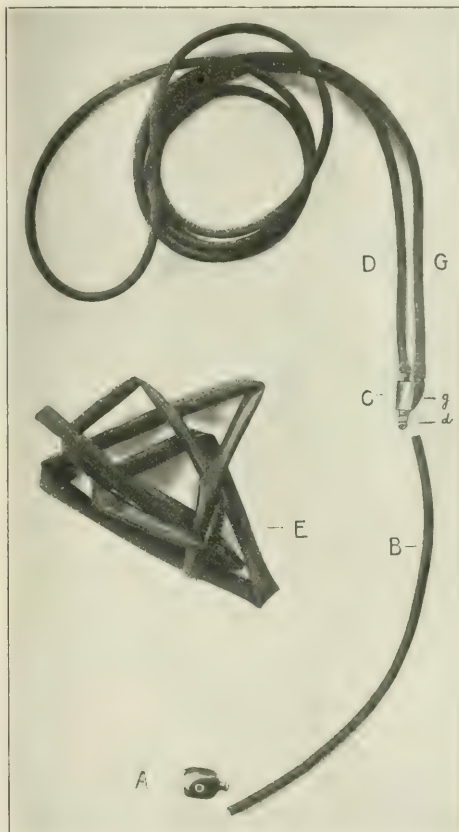


FIG. 6.—Construction of the gastroduodenal tube. A, Gold plated lead ball. B, Duodenal tubes nine inches long. C, Aluminum piece; g, gastric inlet; d, duodenal inlet. D, Duodenal tube. G, Gastric tube. E, Drainage tube covering D and C. A, B, d, and D, Duodenal channel. G and g, Gastric channel.

state that the technic just described is applicable to the normal gastroduodenal tract only. It is greatly modified in dilated and ptosed stomachs, pylorospasm or obstruction, and duodenal obstruction. This will be described fully in the pamphlet. The important points to be remembered during the introduction of the tube are as follows:

(a) The tube should not be introduced further



than to the 35 cm. mark before the patient places himself on the right side.

(b) If introduced further than the 55 cm. mark there may occur a condition as shown in Fig. 3.

(c) A specimen of the gastric contents must be

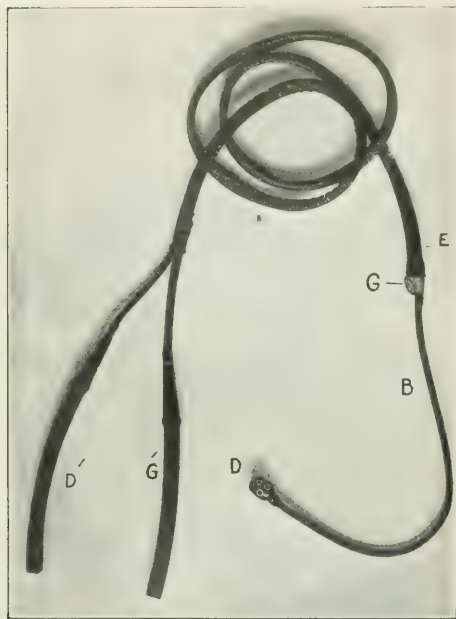


FIG. 7.—Palefski's gastro-duodenal tube. *D*, Duodenal inlet delivering duodenal contents, by means of suction, at *D'*. *G*, Gastric inlet delivering gastric contents, by means of suction, at *G'*. *E*, Drainage tube covering *D* and *G*.

aspirated immediately after the introduction of the tube, while the patient lies on the right side, to ascertain whether or not the duodenal tube has reached the pylorus.

Perhaps the greatest advantage of the modified duodenal tube lies in the fact that its progress from the pylorus toward the duodenum can be watched by aspirating about every half hour and noting the color and reaction of the aspirated contents. Figure 4 shows the duodenum divided into its three anatomical parts, first, second, and third. The following table shows the distance, location of the duodenal tube, and the characteristics of the aspirations at the end of each half hour, in the first two hours after the introduction of the duodenal tube:

	One-half hour 50 cm.	One hour 55 cm.	One and a half hours 55 to 60 cm.	Two hours 60 to 65 cm.
Distance from lips.....	50 cm.	55 cm.	55 to 60 cm.	60 to 65 cm.
Color of as- pirated con- tents.....	Colorless	Light green- ish, or colorless	Colorless, or golden yellowish green	Viscid
Consistency...	Mucoid	Watery	Viscid	Viscid
Neutral reac- tion.....	Acid	Neutral or acid	Neutral	Neutral
Location of duodenal tube.....	Beyond the pylorus	First portion of the du- odenum	Second por- tion of the duodenum	Third por- tion of the duodenum

The importance of these findings will be elaborated upon in our pamphlet. At present suffice it for

me to say that a knowledge of these will enable one to localize lesions in the gastroduodenal tract. It must be remembered, however, that these cannot be obtained with the Einhorn duodenal tube as its passage into the duodenum requires too long a time to watch its progress.

#### THE IMPROVED DUODENAL ASPIRATING BULB.

The methods of aspiration and collection of the duodenal contents has given me some concern. Some use a syringe, others employ Gross's duodenal glass bulb (Fig. 9), both of which make the aspiration of the duodenal contents a tedious procedure. Very frequently, turbid duodenal contents, unsuitable for examination, suddenly appears in the bulb containing previously aspirated clear duodenal contents. The bulb must then be quickly detached and emptied to prevent the admixture of the two portions of fluid. Fig. 10 shows the improved duodenal aspirating bulb with a cock (suggested by Dr. S. Wachsmann). It is seen that the bulb can be readily emptied whenever desired without detaching it.

#### THE GASTRODUODENAL TUBE.

The findings in a duodenal examination, at times, can hardly be accurately interpreted unless accompanied by a simultaneous examination of the existing conditions in the stomach. Indeed, in certain cases a duodenal examination independent of an examination of the stomach might lead to serious errors. Furthermore, when pathological constituents are present in the duodenal contents, as blood or pus, the question naturally arises as to their source, as these might have been conveyed into the duodenum by the gastric contents. Finally, it was our aim to undertake a series of simultaneous investigations in gastric and duodenal digestion. We have accomplished all these by means of a gastro-duodenal tube.

*Construction.* It is a noncommunicating double channeled tube, one leading into the stomach and

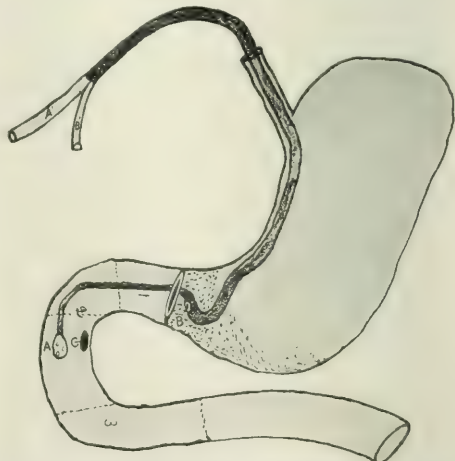


FIG. 8.—Gastro-duodenal tube *in situ*. *A*, Duodenal inlet in the second portion of duodenum. *B*, Gastric inlet at the pylorus. *G*, Ampula of Vater.

the other into the duodenum for the purpose of obtaining unmixed gastric and duodenal contents simultaneously. It consists of two lengths of No. 8 French pure gum tubing, sixty centimetres long (Fig. 6, D and G) placed side by side and are covered and held in apposition by a thin drainage tube. (Figs. 6 and 7, E.) The gastric end of each tube is attached to and communicates with a double bored aluminum piece serving as a gastric inlet and duodenal channel respectively. (Fig. 6, C.) The latter at its other end gives attachment to and com-

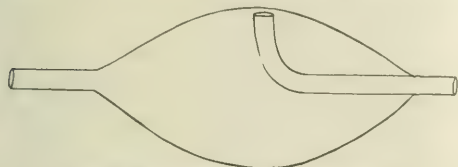


FIG. 9. Gross's duodenal aspirating glass bulb.

municates with a nine inch tubing (B) holding in suspension a gold plated and perforated lead ball similar to the one described in connection with the duodenal tube. The distance between the aluminum piece and the lead ball equals that between the pylorus and the third portion of the duodenum. (Fig. 8.) The outer ends of tubing D and G are free and separate. (Fig. 7.) The perfection of this tube lies in the fact that it is swallowed, introduced, and retained as readily as the duodenal tube.

*Technic.* The mode of introduction is the same as that of the duodenal tube. Immediately after its introduction the perforated lead ball lies at the pylorus, while the aluminum piece containing the gastric inlet is up in the fundus. When each tube is aspirated by means of a suction bulb and aspirating duodenal glass bulb attached to the outer end of both tubes, gastric contents will be obtained

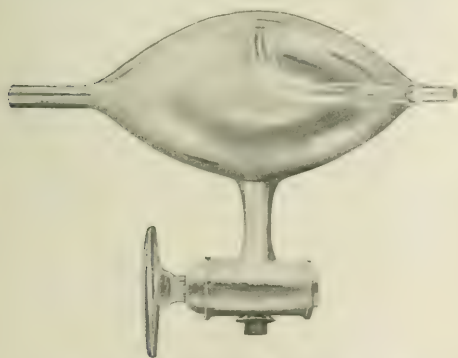


FIG. 10. Palefki's duodenal aspirating glass bulb.

from tube D and nothing from tube G. As the lead ball makes its way into the duodenum in from one to two hours, it will bring down the aluminum piece toward the pylorus (Fig. 8), when D will then deliver duodenal contents, while G will deliver the gastric contents. Having obtained unmixed gastric

and duodenal contents simultaneously, the operator now introduces, with a syringe, directly into the duodenum or stomach, as desired, liquid foods as milk, white of egg, soup, etc., or medicinal agents, and removes specimens for subsequent examination from time to time.

#### CONCLUSIONS.

In conclusion I desire to state that the invention of the duodenal tube and other duodenal instruments, based upon the same principle, marked the beginning of an era of advancement in gastroenterology, rivalled only by the introduction of the x ray and the invention of the stomach tube. I base my conclusion on the fact that the duodenal tube is capable of reaching a hitherto inaccessible place, yet a depot into which are collecting the contents of the stomach, duodenum, pancreas, liver and gall-bladder.

I desire to express my thanks and appreciation to Mr. L. Farrar, of the firm of Tiemann & Co., and to Mr. William Dunne, photomicrographer to the Cornell laboratory, for the many courtesies shown to me in connection with the designing and perfecting of these instruments.

3390 BROADWAY, NEW YORK.

#### THE TEETH AND THEIR RELATION TO THE EYE.

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Back of every case of eye disturbance there is a physical derangement to account for it. Very many times it is so obscure that one is quite apt to overlook the underlying cause and to confine reasons to local treatment. If it were not for kind Nature, so frequently coming to our aid, many are the patients that we would fail to benefit. We should remember that the underlying cause is of the greatest importance and neglecting its treatment is a very serious mistake that we may, sooner or later, have to cope with in an aggravated form. The exact relationship that accounts for the many eye changes seen, are often due to the obscure conditions of the teeth. I say obscure, for many are the cases that are seen in which no local manifestations of any diseased teeth are evident. Only becoming manifest when the x ray or exploration is used. This relationship, however, has not been definitely established other than clinically. That some relationship seems to have been thought of for a long time, is evident, from the fact that we have the so called "eye tooth" (upper canine, cuspidate). Many are the cases reported of spasm of accommodation, the foundation of which when discovered is in the root of a tooth socket. Ofttimes the spasm is overcome by the use of atropine only to be followed by its return upon the suspension of the mydriatic, the underlying cause not having been sought nor found.

We now realize that the local manifestation and the physical derangement may be widely separated. The exact relation by which the changes are produced in many of the eye cases, is very obscure, the

intervening, or carrying tissue, not apparently suffering in the least. It appears that it is the terminal filaments of nerves or lymphatics that are the carriers, and the lowered resistance at their terminals are occasions for this disturbance.

Several cases were reported by Rogers, where, in filling a tooth, a brooch was left in; this caused hemorrhages of the eye. Temporary blindness has been reported by others. One of the cases which I wish to report is one in which there was a great amount of fatigue, the patient not being able to use his eyes over ten minutes at a time, in which case the teeth were apparently all sound.

CASE I. Male, aged thirty-six years. For a period of three years he had never been able to read consecutively longer than fifteen minutes. Any attempt beyond this resulted in a very marked pain in the eye, necessitating a

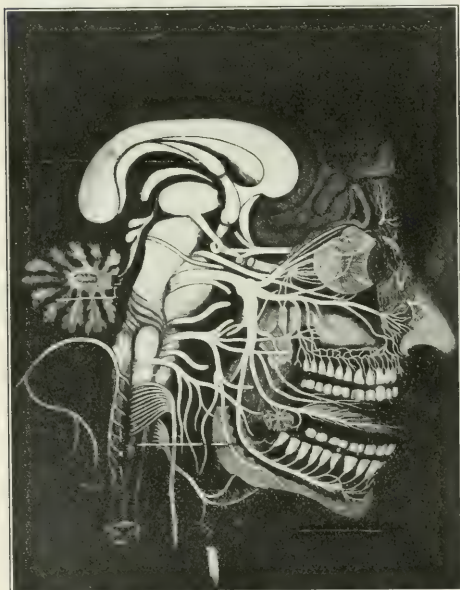


Illustration showing the relation between the nerves of the teeth and the eyes.

complete cessation of all use of the eyes. He found that by bathing the eyes with very hot water he was greatly relieved for the time being. Under a mydriatic the case was carefully refracted and the appropriate correction given him. In as much as he did not receive the relief desired from this correction, he returned for advice and believed that his glasses were not suited to him. Transillumination of all the sinuses and nasal examination of same failed to reveal any trouble. Refracting him again failed to disclose any change whatsoever in the lenses, and he was advised to consult his dentist regarding the condition of his cuspid teeth. In as much as he had always had his teeth carefully attended to, he very reluctantly sought the advice of his dentist in regard to the teeth. The dentist reported one week later that no trouble could be found with any of the teeth. The blood was examined, the whites, reds, and the hemoglobin index being normal. A thorough examination of the urine failed to throw any light upon the etiological factor. The patient disappeared from any further observation for six months and upon his return stated that he had had no alteration of the symptoms described. Ophthalmoscopic examination revealed

the fundus right and left hyperemic, more marked on the left, and the patient persistently insisted that another examination be made in order to determine if a change of glasses were not needed. Refraction, however, gave the same correction as on the two former examinations and I so informed the patient. He was advised to have the teeth again examined and the dentist sent back the same report as previously. He disappeared from view for three months and upon his return there was added to the report, hyperemia of the bulbar conjunctiva well marked but no photophobia. I now insisted that an x ray be made of the superior maxillary, both sides, and to my satisfaction an abscess at the root of the left cuspid (eye tooth) manifested itself. The dentist, on this evidence, made an opening above the tooth and reported that the very foulest smelling pus exuded to the approximate amount of 1.5 c. c. The next day the patient was able to read at his pleasure, as long as he desired, and had continued to so do ever since. The patient had not sought any change in the lenses since the evacuation of the pus. He was interviewed recently and had had no further trouble with his eyes. The time elapsed from the opening of the abscess cavity to the present time was three and one half years.

CASE II. Male, aged fifty-five years. Four months previously he suffered from a hard attack of la grippe which laid him off from his work for a period of four weeks. Recovery from the weakness was very slow, and for the last six weeks he had pain described as neuralgia of the right side of the face, extending from the superior maxillary bone to the right eye and ear. Vision of the right eye 6/30, left 6/10. Examination of the fundus showed a marked amount of congestion of the retina and optic nerve. He had been a habitual smoker, for years, and had no trouble with his teeth so far as he knew. Transillumination showed a dark area over the right maxillary antrum extending to the ethmoid. Although no pus could be demonstrated intranasally, there was a vasomotor condition of the inferior turbinate on the right. Tapping of all his teeth showed none of them sensitive. The application of heat and cold failed to bring out the presence of any tender teeth. By running the finger over the entire area of the gums with moderate pressure, the tissue over the first molar above and below, was more tender than the remaining surface. The first molar (above) was extracted and an opening made into the antrum resulted in the discharge of a considerable amount of purulent matter. Irrigations were used daily, but the patient had no relief from the pain. At the end of the fifth day the first molar (lower) was extracted and inside of an hour there was a complete cessation of all pain, with the return of vision to 6/10 in the right. The hemoglobin had been examined and showed an index of 85. Examination of the lower first molar showed an abscess at its root which evidently was the cause of his excruciating pain. It should be noted that at no time was there any elevation of temperature or pulse.

One can infer from these cases that there is a very intimate relation between the teeth and the eyes. We must keep this relationship ever before us and, whether cavities are present or not, insist that an x ray examination be made in all obscure eye troubles.

604 LEARY BUILDING.

## PYELITIS IN THE ADULT.\*

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Pyelitis is a fairly common disease both in adults and children. It is also one of the easiest of diseases to pass unrecognized. Either it is entirely overlooked or fully as often mistaken for some other condition entirely foreign to the urinary system. In this category are malaria, lumbago, a de-

\*Read at a meeting of the Connecticut State Medical Society, May 22, 1913.



laved puerperal sepsis, chronic appendicitis, etc. These errors in diagnosis have two explanations. First, a large proportion of all cases of pyelitis have no definite localizing symptoms. This is quite contrary to our usual notions of this disease. Secondly, it is the exception rather than the rule that careful microscopical examinations of the urine are made as a routine, and as long as this continues they are bound to go unrecognized. The necessity for early recognition of the condition is apparent to any one familiar with the appearance of the lesions occurring in the kidney. In an acute pyelitis the destruction of tissue is as a rule slight; the condition may be relieved by appropriate treatment before the kidney parenchyma is deeply involved. In the later stages with the usual complications the organ is beyond repair by any means.

In this paper I shall not limit myself to a discussion of pyelitis in the strict anatomical sense of the term—that is a process confined to the pelvis of the kidney. This is for the reason that inflammation beginning here is not prone to respect the anatomical boundaries of the pelvis. For a time it may be a simple pyelitis, but sooner or later the kidney parenchyma is apt to be involved and the condition becomes a pyelonephritis; and from the clinical standpoint the differentiation between a pyelitis and a pyelonephritis is often impossible. I shall speak only of the disease as it occurs in adults.

The relative frequency of pyelitis is shown by autopsy records. In a study of 20,770 such records from different Austrian hospitals made by Kapsammer, 750 cases of pyelitis and pyelonephritis were found, that is 3.6 per cent. And less than one third of these were correctly diagnosed during the life of the patient. This is evidence beyond question of the frequency with which these cases occurred and were unrecognized, and I believe it is no exaggeration to assert that nearly as large a proportion still go undiagnosed.

I shall first consider the recognition of this condition. For our purpose we may omit that portion of the cases now usually recognized, namely, those in which there are definite localizing symptoms, such as pain and tenderness in the region of the kidney. These are so obvious that they cannot well be overlooked. Such cases, whether complicated by calculus or not, I believe to be decidedly the exception, not the rule. More often the disease appears in one of two quite different forms. In the first of these there is evidence of an acute infection, chills, a high fever which may be septic in type, rapid pulse, and a moderate leucocytosis. The localizing symptoms are lacking or so slight as to be overlooked. For some reason, perhaps by chance, I have seen more of these cases during the puerperium when they are particularly misleading, being naturally mistaken for an infection of the uterus. And I have been surprised to observe in these not only the lack of pain in the kidney region but also the very slight tenderness upon pressure which they show. It may be incorrect to speak of these as acute. Many of them are probably an acute exacerbation of a previously existing unrecognized pyelitis, with a sudden absorption of toxins from the inflamed area. However that may be, the con-

dition is readily overlooked until the urine is examined. And I have found that one cannot always rely upon the statement of the attending physician that the urine shows nothing. I feel safer to examine the urinary sediment myself.

The other type of case is the opposite of this. Instead of the marked constitutional symptoms the process here is so insidious as to be overlooked. The localizing symptoms, if present, are of that indefinite variety which may accompany any one of several different pathological conditions. This is the variety which if noticed at all is liable to go into the category of lumbago, chronic appendicitis, etc. Here, as in the former type, it is the urinalysis which must be the real determining factor in the case. And it is this examination, with its positive findings, which leads to the recognition of a very slight tenderness in the region of one or both kidneys, more often of the right alone.

In pyelitis the urine varies much in different cases, and at different times in the same case. The variation in the quantity of urine excreted, a decrease in the acute cases, and an increase in the more chronic ones, which is usually present, may not be marked and is, of course, not distinctive of this condition. Pyuria is present but it should be remembered that this does not always mean a densely turbid urine with a large amount of sediment. In fact, there may be, at most, but a very slight turbidity and the sediment may be correspondingly scanty. It is only a careful microscopical examination that may indicate the condition present. Another circumstance which is often overlooked is that, when pus is collecting in considerable quantities in the pelvis of the kidney in pyelitis, there may be, temporarily, no pyuria provided the condition is unilateral. This is explained by a blocking of the ureter of this kidney for the time by pus, by a calculus, or by a kink in the ureter. For this reason repeated examinations of the urine may be necessary to reach a diagnosis.

Will an examination of the urine in a case of pyuria show, whether the pus is from the kidney pelvis rather than from some other part of the urinary tract? I have been interested in this for some years and do not agree with those who say that this cannot be done. I think that under favorable circumstances differentiation is possible. If there is pyelitis without cystitis this can be diagnosed fairly accurately from the urine. If cystitis is present, it is more difficult to determine whether the pelvis is also involved. There is perhaps no one thing alone in the urine which tells that we are dealing with a pyelitis, but there are several factors which combined may indicate the pelvis as the source of the trouble. The urine in pyelitis is most often acid, though not always. Fewer epithelial cells are present in pyelitis than in cystitis, while the so called tailed epithelial cells are relatively more numerous in pyelitis. I have found red blood corpuscles in small numbers more often in pyelitis. Together with the pus there are liable to be casts of the larger collecting tubules of the kidney, at times containing pus cells, which aid in confirming the diagnosis of pyelitis, together with some involvement of the kidney parenchyma. I think that in the great majority of cases the diagnosis can be

made from the urine. In those exceptional chronic cases in which the urine is constantly alkaline, not due to drugs, but where in spite of this the examination of the sediment is sufficient to indicate the condition to be pyelitis, and a cystitis can be excluded, the presence of a phosphatic calculus in the pelvis may be diagnosticated with a fair degree of certainty. Crystals of acid salts in a freshly voided urine giving evidences of pyelitis may indicate a calcium oxalate, or urate, calculus. As already mentioned when a cystitis is present the diagnosis of an accompanying pyelitis from the urine examination is more difficult. It then becomes largely a matter of finding the large tube casts with pus cells which show the involvement of the tubules in the pyramids of the kidney as an extension of a suppurative pyelitis. In the female it is often essential to obtain a catheterized specimen of urine, and in all cases where a bacteriological examination is to be made, it should be obtained and kept under aseptic conditions and be examined while perfectly fresh.

In considering the etiology of pyelitis we may disregard those cases due to drugs or to the toxins of the acute infections, as the cause is here evident and relatively unimportant except as a predisposing factor to bacterial growth. My own results in the bacteriological examination of urine in pyelitis agree with those obtained by others, that the condition is practically always due to bacteria, that the offending bacterium, whatever its nature, is generally present in pure culture, and that the colon bacillus is the organism most often present. The other bacteria which are less often found as the cause of pyelitis are, however, of importance as some of these like *Bacillus proteus vulgaris* and certain staphylococci are capable of decomposing urine and in this way are factors in the production of phosphatic calculi in the pelvis. In females the colon bacillus is by far the most common invader according to all reports (von Albeck, Lenhart, Brown, Rovsing). In males (Rovsing) it appears to be much less common. And here mention should be made of the comparative frequency with which the tubercle bacillus is the cause of pyuria, from the involvement of the pelvis and lower portion of the kidney substance. Any pyelitis with an acid urine, which cannot be satisfactorily explained by other bacteria present, should be considered as possibly tuberculous, and a careful microscopic search should be made for the tubercle bacillus. It is as a rule not easily found and repeated examinations may be necessary and often animal inoculation before it can be demonstrated.

The presence of such common bacteria as the colon bacillus and the staphylococci as the active cause of pyelitis brings up the question of how they invade the pelvis of the kidney. I shall take but little time in discussing the route by which they reach the kidney. It has been well established that bacteria reach the kidney frequently through the blood, the ureters, and through the lymphatics, at times apparently coming directly through the wall of the colon to the kidney. The ascending route through the ureters is probably much less common than formerly believed. Even when pyelitis is secondary to a chronic cystitis the route may or may

not be through the lumen of the ureter. This question of the route of invasion, though of scientific interest, does not appear to me to be of as much importance as are the underlying causes which favor infection of the kidney by the colon bacillus and other organisms. Under normal conditions the urine is germicidal and the epithelial lining of the urinary tract from the pelvis down is resistant to bacteria. The predisposing factors of pyelitis are such as cause a local lessening of resistance to bacterial invasion or such as cause an increased virulence of the organism. Of these the former seems the more important. The most common appears to be some anatomical condition which interferes with the outflow of the urine, and particularly when this interference has already been followed by the development of a cystitis. I need only to mention this, as it is so well recognized as seen in cases of hypertrophied prostate, strictures, etc. The movable kidney with its passive congestion and often compression of its ureter with resulting slight hydronephrosis is not so often considered in this connection as it deserves. There are numerous other factors, only two of which I will mention. The first of these is constipation. As shown by Posner and Lewin the intestinal wall becomes pervious to bacteria in various pathological conditions, and such lesions of the mucous membranes as may occur in constipation may allow bacteria to enter the blood stream. Moreover, the virulence of the colon bacillus is increased in diarrhea and other intestinal diseases. Digestive disorders may thus play a somewhat important part as accessory factors in the production of pyelitis. Another factor is pregnancy including the puerperium. This is always mentioned as one of the common conditions predisposing to pyelitis but is forgotten until impressed upon one by meeting striking examples of it. I happen to have seen several of these cases occurring during the puerperium, mistaken for a late puerperal sepsis, and the error is such a natural one and the symptoms so confusing, that it seems worth while to emphasize the condition here, although I have already referred to it. The patient may have done well following delivery for a few days, but the chart often shows a slight rise of temperature during this time. After a week or ten days or more there is a chill, a sudden rise of temperature to 103° or 105° F., and a rapid pulse, the syndrome of an acute infection but often with almost no localized symptoms. A characteristic finding in these cases is the lack of tenderness in the region of the uterus. Nor do the lochia give evidence of uterine infection. A catheterized specimen of urine at once shows the pyuria and careful palpation on the right side over the kidney will elicit slight tenderness there. This variety of pyelitis most often involves the right kidney. Opitz in sixty-three cases found it limited to the right side in sixty-six per cent.; while Ward, in 187 cases, found the right side alone involved in fifty-five per cent., in ten per cent. the left side alone, and in thirty-five per cent. both sides involved. The greater tendency of the right kidney to be involved is well worth remembering for diagnostic purposes. Cumston, in discussing this infection of the kidney complicating the puerperium, aptly says "this as

many other affections is not diagnosticated simply because it is forgotten."

The rational treatment of pyelitis as well as of pyuria in general has been advanced during the past year by the results of studies upon the action of hexamethylenamine. These have come from several sources and have added considerably to our knowledge of the way in which it may be used more effectively in these conditions.

At the meeting of the American Urological Association in 1912, Burnam reported upon a research which he had undertaken primarily to determine the capacity of infected kidneys to excrete hexamethylenamine. The important features of his paper are first, to emphasize what was previously known but not sufficiently appreciated, that this drug is not in itself a germicide at all, but that its germicidal action is due entirely to the formaldehyde set free in its decomposition; secondly, to provide what was lacking before, namely, a simple test for free formaldehyde in the urine in contrast to one for hexamethylenamine; and thirdly, to show that when the drug is given in the small doses usually employed no free formaldehyde is found in the urine in a very large proportion of cases. When five to ten grains were given three times a day, not more than two patients out of ten showed any decomposition of the drug into formaldehyde at all. This was also true when the same doses were given to normal individuals. On the other hand, when twenty to thirty grains were given every four to six hours, over sixty per cent. of the patients showed free formaldehyde in the urine. He emphasizes the inference which can obviously be drawn from his results that there is no fixed dose of hexamethylenamine; that in each case this must be determined by testing the urine, and increasing the quantity of hexamethylenamine until free formaldehyde is found in the urine; and that the first toxic effect of the drug is shown by irritability of the bladder and is due to free formaldehyde, and that the dose of this drug may be safely increased until formaldehyde appears.

Jenness, experimenting with 200 men, was able to confirm Burnam's statement regarding the frequency with which formaldehyde appeared in the urine after the usual dose. These men were divided into two groups of one hundred each. Each man of the first group was given ten grains of hexamethylenamine twice daily and the urine examined at the end of five hours. All but two of the urines were acid in this group, but only forty-two per cent. showed free formaldehyde. In the second group, each man was given twenty grains of the drug in the morning and the urine was examined in two hours. Here fifty-three per cent. were positive; an average for the two groups of forty-seven and five tenths per cent.

The results of other studies on the same topic have since appeared, the latest that of Smith reported before the American Urological Association at their meeting this year. These confirm the value of Burnam's test for formaldehyde and the necessity of increasing the quantity until free formaldehyde appears in the urine. For this purpose the urine should have been recently voided. Burnam's test is so simple that it can be readily used by any

one.<sup>1</sup> These studies also show that the setting free of the formaldehyde occurs in the urine itself, and with one exception agree with Jordan's results that the antiseptic power of hexamethylenamine in alkaline or neutral urine is almost nothing, and that in urine only slightly acid to litmus the decomposition of the drug may or may not take place. Smith and others has found acid sodium phosphate (one half to one teaspoonful directly after meals) the most effective drug tried for rendering the urine acid. By this means he has been able to find free formaldehyde in a much larger proportion of cases than Burnam did.

Because of our lack of any effective urinary antiseptic for use in an alkaline urine the results obtained by Jordan with sandalwood oil in his experimental work are interesting. He found that this drug (twenty minims three times a day) apparently has a selective action upon staphylococci, both in acid and alkaline urine. It has no effect upon the colon bacillus or putrefactive organisms. He did not try its action upon the gonococcus or tubercle bacillus.

The vaccine treatment of pyelitis I shall refer to only briefly. From the use of autogenous vaccines in a limited number of cases I am not enthusiastic over this means of treatment as a cureall. In some cases the symptoms may be improved by the use of such vaccines. I do not, however, recall any case in which the bacteriuria has completely disappeared under vaccine therapy. I feel that vaccine therapy should not be resorted to until the proper use of hexamethylenamine has proved ineffective. When vaccines are to be used they should always be autogenous, for the different strains of the colon bacillus vary so much that stock vaccines cannot be relied upon. Another point to be borne in mind in the use of bacterial vaccines in general, is that they deteriorate to some extent after a couple of months even when kept cold and, if their use is to be continued longer than this, they should be replaced by a freshly prepared vaccine.

There are numerous phases of this subject of pyelitis which I have not referred to and which I hope will be brought out in the discussion. One of these is cystoscopy, which is often of the greatest assistance in confirming a diagnosis of pyelitis from the appearance of the ureteral openings in the bladder; and it is cystoscopy together with ureteral catheterization which must give the final evidence as to whether one or both kidneys are involved; and this in conjunction with the functional tests of the kidney, now so fully developed particularly by Rowntree and Geraghty, must in the future be relied upon to show whether one kidney if uninvolved can functionate sufficiently for the entire body before nephrectomy is done. I have also omitted discussion of the irrigation of the pelvis of the kidney with formaldehyde or with silver solu-

<sup>1</sup>Burnam's test, as given by him, "consists in adding to the suspected fluid three drops of 0.5 per cent. aqueous solution of phenylhydrazine hydrochloride, and then three drops of a five per cent. aqueous solution of sodium nitroprusside; then an excess of a saturated aqueous solution of sodium hydroxide. It is important that the solution to be tested, as well as the sodium hydroxide, be slightly warmed to a little more than body temperature. When formaldehyde is present in solutions of one in 20,000, or stronger, an intense blue color appears, which gradually changes to green, and then after a few minutes to brown. In solutions of less than one in 20,000 the first color is an intense green which passes off into a brown. The test is delicate down to one in 150,000 or less."



tions for therapeutic purposes; also the recent method of pyelography by means of the x rays after dilating the pelvis with collargol in determining the extent of the kidney destruction and the degree of dilatation of its pelvis. Though very valuable, these are works to be done by specialists.

The few things that I have been impressed with in studying pyelitis is the frequency with which it occurs and is overlooked, the ease with which it is recognized by simple methods available to all, and the greater chance for improvement or cure if these cases can be recognized early. And it is these points which I wish to emphasize.

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183 BISHOP STREET.

## THE MENTALLY DEFECTIVE IMMIGRANT.

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The problem of mental defectiveness, in so far as it relates to the administration of our immigration law, is a peculiar one.

Section three of the immigration law provides among other things, that all idiots, imbeciles, and feeble-minded persons shall be excluded from admission into the United States. Further than this the law does not take upon itself to define these conditions, and a rational carrying out, therefore, of the provisions of this law implies the existence of a common understanding as to the meaning of the terms idiocy, imbecility, and feeble-mindedness as symbolizing definite, well characterized mental states. For this reason any rational approach to this problem must have as its starting point the question of definitions. For practical purposes we may confine ourselves in this discussion to the term feeble-mindedness, inasmuch as the terms idiocy and imbecility are intended solely to convey the idea of a more profound grade of mental enfeeblement.

Furthermore, no great difficulty need be encountered in reaching a common understanding concerning the meaning of the terms idiocy and imbecility. These conditions are so well characterized symptomatically, the idiot and imbecile differ so essentially from what is generally conceived to be a normal human being, as to cause no diagnostic difficulty. Even in our work among immigrants no difficulty should be encountered in diagnosing these conditions. The Russian idiot is not likely to impress us very much differently than the Italian idiot. It is, however, a very much different

situation when we come to consider the feeble-minded.

What then is meant by the term feeble-mindedness? We might safely assume that to the minds of most of us this term conveys a more or less clear concept of a state of mental enfeeblement or defectiveness.

Such a concept, however, does not necessarily signify a knowledge of the nature of the condition thus spoken of. It is merely an abstract idea of the meaning of this symbol. We may go a step further and say that some of us when using the term feeble-mindedness have both an abstract conception of a certain state of mental enfeeblement and a knowledge of certain characteristics which by common consent are wont to be considered as indicative of feeble-mindedness. Still a mere knowledge of these characteristics and the finding of them in a given individual is not sufficient to justify a diagnosis of feeble-mindedness. For it is not primarily the condition as such that we are endeavoring to diagnose, but the personality, the feeble-minded person created by this condition. Defective attention and memory and a diminished capacity for constructive imagination, or a lack of this capacity, are given as some of the characteristics of the feeble-minded. Still the finding of these conditions in an individual is certainly not sufficient to justify a diagnosis of feeble-mindedness. The mental processes concerned in enabling one to reach a conclusion in a given case must embrace a sizing up *in toto* of the personality created by these anomalies and defects, and a comparison of this personality with a mental picture of that which constitutes a normal man. Obviously, therefore, a knowledge of the normal mind, of the infinite possibilities for variation within the range of normal, of the various determining factors, such as race, age, sex, degree and kind of formal education, the complexities and variations in the mental, moral, and physical environments, factors which play their parts in bringing about these variations in what is still normal man, must be had before an attempt is made to diagnosticate the abnormal.

As in other fields of medicine, we must have a clear conception of the physiology—of the normal state of an organ—before any rational attempt can be made to evaluate the pathological phases of that organ. But while these problems have been solved to a large extent for most of the functions of the human organism, the human mind, that most complex of all body organs, is still as much of a riddle to us as ever.

'Tis true we have solved many problems in this field of biology. We have succeeded in isolating a number of the constituent factors which enter into the production of normal thinking, feeling, and acting, we have learned a good deal concerning the parts played by volition, attention, memory, apperception, etc., in bringing about that exquisite whole which constitutes a rational human being, still when we are asked, for instance, what constitutes a normal mind we shall encounter almost insurmountable difficulties in defining it. The best we can do is to say the normal mind is the usual, the common, the everyday mind as we encounter it determining the

usual, the common, the everyday human conduct and behavior.

To attempt a more precise or exact definition of the normal mind would be useless. For although experimental psychology has demonstrated the possibility of applying instruments of precision to the investigation of mental functions, the human mind, and by that I mean that sum total of mentation which constitutes personality, individuality, can neither be weighed nor measured and, not being able to analyze it with any degree of precision, it still remains more or less of a mystery to us and therefore indefinable. And yet, every one of us has some sort of conception of what constitutes normality in a human being. Empirically, we have learned to reason that that organ which performs the functions it was destined to perform in a proper, adequate, efficient manner must be looked upon as normal. Applying this mode of reasoning to the human mind, we would say that in the business of life that human being who goes through life with the least amount of friction, with the most efficient capacity for an adequate adaptation to the environment in which he happens to be placed, and who possesses the elements which enable him to so modify his immediate environment as to make it productive of the most good to himself and the community, or as has been tersely put by Dr. David Starr Jordan, "that individual who can take care of himself and have something left over for the common welfare," that individual we must look upon as normal. Even this definition has its limitations and objections. In considering the human mind as a whole, as an organism in its relation to its environment, we cannot speak of absolute but only of relative values.

At all times, we must keep in mind the infinite possibilities for variation within the limits of normality. At all times we must likewise keep in mind the various factors enumerated elsewhere, each of which plays its distinct part in making man just what he is. The definition given above will suffice, however, for all ordinary intents and purposes; at any rate, it will give us a working basis for a clearer understanding of what might be meant by the term feeble-mindedness. Keeping this definition of normality in mind, we shall, in our efforts to detect the abnormal, use as a criterion the individual's capacity to fulfil those requirements.

It will be seen, then, that primarily any definition of feeble-mindedness must be a social one, and in line with this several workable definitions have been evolved. The one adapted by the British Commission for the Study of the Feeble-minded is perhaps as good as any—namely, the feeble-minded are individuals who on account of incomplete cerebral development are unable to perform their duties as members of society in the position of life to which they were born. In this manner has been defined the pathological state commonly known as feeble-mindedness, but unlike in the realm of the physical, we were not enabled to reach this definition by means of experimental investigation. It was Nature's experiments in Nature's own laboratory, the everyday life about us, which gave us a clue to this definition. It is for this reason that we term it a

social definition in contradistinction to the artificial one of which we shall speak presently.

As our interest in the subject of feeble-mindedness increased, and as we began to realize more and more the importance of this problem in relation to the ultimate welfare of the race, an attempt was made to improve upon Nature's crude and often cruel method of pointing out to us the feeble-minded. It was felt that if the feeble-minded individual could by some means be detected before his deficiency was manifested through an inability for a proper adjustment to his environment, an untold lot of suffering could be spared both the individual and the community. There was only one way of doing this, namely, the creating of an artificial environment with its artificial complexities and problems, the subjecting of the individual to this artificial environment, and the observation of how efficiently he adjusted himself to it, and how successful he was in solving its problems. In other words, it was in a way an attempt at emulating the laboratorian's method of reaching a diagnosis, and as the latter must have a conception of the normal, the usual, the physiological, before he is able to recognize the pathological, so here the normal, the average, the physiological, if you please, in adaptation to this artificial environment must be known before we are able to recognize the abnormal. All tests devised for the examination of the feeble-minded rest upon this principle, and the value of any one of them is in direct proportion to the amount of knowledge we possess concerning the normal average individual's ability to solve it. It is here where the psychologist and his fellow investigator in all other fields of medicine begin to diverge. For the anatomist or physiologist it is sufficient to learn what constitutes a normal human heart or kidney or liver to be able to pass judgment upon all variations from the normal in every other human heart, kidney, or liver. Not so with the psychologist who deals with the human mind. He may by the process already outlined succeed in finding out what constitutes the normal mind or intellect or intelligence of the average child of a given race and a given age; this by no means tells him, however, what the normal, average mind or intelligence is of every other child of the same age. The human mind is at any given period the end result of all the moral, mental, and physical influences to which it had been subjected, all of which played their part in making it just what it is. This is what determines the differences between peoples, between races. It is this which makes for the distinction between the average American of to-day and the average African savage.

Thus any artificial definition of feeble-mindedness can only be considered dependable when viewed from this standpoint. Artificially, we can only define feeble-mindedness in that group of people, in that particular race, whose average intelligence we know and are able to use for comparison. It would be utterly absurd, for instance, to use what represents the average normal intelligence of the American as a means of detecting the feeble-minded African savage. Not that essentially feeble-mindedness in the African savage differs from feeble-

mindfulness in the American. The difference lies in the means of detecting the condition, in the standard for what represents the average normal mentality used for comparison. Viewed from the standpoint of the average normal intelligence of the American, whole tribes of African savages might easily be considered feeble-minded, yet if we consider the situation from the standpoint of social definition of feeble-mindedness the average normal individual of these same tribes of savages is able to perform his duties as a member of society in the position of life to which he was born. At best any artificial definition of feeble-mindedness can only serve to augment the social one. It can never supplant it. It can only be relied upon when employed within the limits of its usefulness.

Just along these principles is based the so called Binet-Simon measuring scale of intelligence which appeared in 1908, and which in the words of one of Binet's most enthusiastic followers, has proved to be a most marvelous measure of the intelligence of the child. The nature of these tests is so well known as to require no special description here. The standard of intelligence this measuring scale represents was obtained from an examination of a number of French school children, and so far as we know, originally at least, it intended to represent the average intelligence of French children. Since then Goddard and others have succeeded in elaborating an American modification of this measuring scale.

The principle upon which these measuring scales of intelligence are based is a correct one and, without entering into a detailed discussion of the subject, we are inclined to concede their dependability at least as far as French and American children are concerned, especially when we note the tremendous popularity which these tests have attained in this country, and the degree of reliance placed in them by a number of our most eminent investigators in this field. Nevertheless, a great deal of adverse criticism has been directed against them from many quarters. Some of this criticism is absolutely justified, and all of it, to my mind, was provoked through the attempt on the part of some of the followers of Binet to supplant entirely the social definition of feeble-mindedness by this wholly artificial one. It is hard to conceive how this will ever be accomplished, how the mere inability of an individual to pass a certain set of tests will ever be looked upon as absolute proof of feeble-mindedness. The experiments herein reported illustrate some of the difficulties in this problem. Several years ago, however, the following terminology was adopted by the American Association for the Study of the Feeble-minded: 1. Idiot, mental age below two years. 2. Imbecile, mental age between two and seven years. 3. Moron, mental age between seven and twelve years.

The foregoing is based upon mental ages as represented by the Binet-Simon scale. We shall leave the decision as regards the correctness and reliability of this terminology to those particularly interested in mental defectiveness in American institutions, for after all the chief value of a classification which leaves out entirely the consideration of the social definition of feeble-mindedness can only be

a means of classifying the inmates of an institution.

Ours is the problem of the immigrant, and since an attempt has been made by some of the followers of Binet to detect feeble-mindedness among immigrants by means of their measuring scale of intelligence, we shall have something to say concerning this phase of the problem. Since our immigrants belong to a large number of races, who come to us from practically all parts of the world, and since it was attempted to diagnose the feeble-minded from among all these races by means of the Binet-Simon scale, and since further we know that a diagnosis by artificial means of feeble-mindedness consists in a comparison of the individual's intelligence with a given standard of average normal intelligence, it may be safely assumed that these investigators considered the Binet-Simon scale of intelligence as the standard of the average normal intelligence of all these various peoples which furnish our immigrants. Is this so? Does the Binet-Simon measuring scale of intelligence or its American modification, evolved as these were from French and American children, represent the average normal intelligence of practically the entire human race? Assuredly not. We are convinced of this both from experience with the immigrant and actual experimental investigation of the subject, and were it considered necessary to adduce facts to prove the fallacy of such a contention, these could easily be gotten from the hundreds of case histories on file at Ellis Island. No such proof, however, is deemed necessary. The Binet-Simon scale was never intended to assume such wide spheres of usefulness and application. Binet, to my knowledge, never stated that it represented anything but the average normal intelligence of the French child. We are told that it accomplishes this, and are inclined to think that as far as it goes it does represent what might be taken as the average, the ordinary, the everyday intelligence of French children. We may say that viewed on a Parisian boulevard, the average French school child or the intelligence it represents, is the average, the common, the everyday occurrence in this particular environment. But we may just as safely say that this same French school child or the mentality which it represents, viewed in some provincial town of southern Italy, would be quite the unusual, the uncommon, the rare in this particular environment.

I have before me the case history of a thirty-five year old southern Italian who was picked from the examining line on the suspicion of being mentally defective. Confining myself to that part of the history which deals with tests similar to, and in some instances identical with, those of the Binet-Simon scale, I find that at most this particular individual could be placed somewhere between eight and ten years of age mentally, and thus would have to be classified at least as a moron. On further scrutinizing this history, I find that this individual had been in the United States on a former occasion for two years, that he worked as a common laborer at \$1.75 *per diem*, that during this period he sent home for the support of his family 2,000 liras, approximately 400 dollars, and that on returning home after the expiration of his two years' res-



idence in this country, he took with him 2,000 lire more. I further find that he is married, is the father of two children, owns some property in Italy which he acquired with the aforementioned savings and that his chief object in returning to this country is to repeat what he had done once before. I have no doubt that he will succeed in doing this, and without going into further detail of this case I am very strongly inclined to doubt the value and dependability of the findings of the first part of this history. I am inclined to assume in this case the existence of strongly presumptive evidence that this particular individual is not feeble-minded, basing my conclusions on those facts which point conclusively to this individual's ability to lead a normal life and take his place properly as a member of society in the position of life to which he was born. In other words, having the choice of the two definitions of feeble-mindedness, I base my conclusions on the social one in preference to the artificial one.

It is the only rational way of approach to this problem if we believe, and we are justified in doing so, that any artificial definition of feeble-mindedness can only serve to augment the social one, that it can never entirely replace it, and that being based upon artificial results a definite idea of the average standard with which these results are to be compared must be had, before any rational conclusion can be reached in a given case.

We have seen thus far, therefore, that in our efforts to reach a common understanding concerning what constitutes feeble-mindedness, we have evolved two modes of defining this condition—namely, a social one, having as its criterion the individual's ability for a proper fulfillment of his tasks as a member of a given society, and an artificial one having as its criterion the individual's ability to solve a certain set of artificial problems. We have endeavored to point out the respective values of the two, their usefulness and limitations, and it now remains to see how far these considerations can be applied to our problem, i. e., to the carrying out of the provisions of the immigration law so far as these concern the mentally defective immigrant.

Before doing this, however, it is essential to point out the nature of our problem, its peculiar characteristics and the various points wherein it differs from the problem of mental defectiveness in general. During the fiscal year ending June 30, 1913, something like 960,000 immigrants entered at the various ports of this country. Upon the officers of the United States Public Health Service devolved the tremendous problem of picking from this vast army of people, among others, the feeble-minded, imbeciles, and idiots. These people come to our shores as total strangers, no information aside from that embodied in the manifest sheet, which by the way is not obtained for the benefit of the medical officers, is had concerning them. Whatever medical examination was done had to be done essentially and primarily in a more or less objective manner.

The practice of psychiatry at a port of entrance, therefore, has very little in common with the practice of psychiatry in general. Here, unlike in general practice, attention to a mentally diseased or

defective individual is not attracted through some insane act, or through the inability of the individual to adjust himself to his environment, data without which no psychiatrist would consider himself justified in finally passing upon a given case. In our work such presumptive evidence of mental defectiveness or insanity is entirely wanting.

The examining officer must content himself with merely observing the passing stream of humanity and picking from among them, for further examination, those whom he suspects of being mentally diseased or defective.

The work, then, broadly speaking, divides itself into two parts. The first is the primary picking out of those suspected of being defective, while the second consists in the final diagnostication of those so put aside. Concerning the former we shall have very little to say, beyond commenting on the really remarkable degree of efficiency in objective diagnosis which obtains among the medical officers at Ellis Island. During the past fiscal year, for instance, the large number of between six and seven hundred mentally defective and diseased immigrants were detected at this station, primarily, almost wholly, by this purely objective form of diagnosis. These figures can only be properly appreciated when one is acquainted with the almost insurmountable difficulties under which this work has to be accomplished.

The real difficulty, however, begins when the final diagnosis of the suspected cases is to be made. As we have already indicated elsewhere, no great difficulty should be experienced in diagnosticating the idiot or even the imbecile, but what of the feeble-minded?

This twilight state between day and night, this borderline mental state which stands between the absolutely fit and the absolutely unfit is by no means easily diagnosticated. We must remember that here we are not in the least assisted by Nature in pointing out to us the defective, we have no means of any reliability concerning a social definition of feeble-mindedness. We must therefore depend wholly upon an artificial definition of this condition. What means have we of doing this? What, if you please, constitutes the yardstick by which these people are to be measured? We hope that we have succeeded in showing that the various measuring scales of intelligence cannot be of any assistance to us, aside from pointing out to us the *modus operandi* whereby we might establish some dependable standard by which to measure the immigrant. We must create for these people an artificial environment, with its artificial complexities and problems, and observe what is the average normal way in which the immigrant should solve these problems. What will eventually constitute the standards evolved by these means cannot be foretold, but if they are to be carried out on the principle that artificially we can only define feeble-mindedness in that group of people, in that race whose average normal intelligence we know and can use for comparison, there can be little doubt that whatever the standard will be it will at least be a dependable one.

We cannot enter here into a detailed discussion of the way in which this is to be accomplished, besides the experiments herein reported will in a

measure indicate the mode of procedure, but we might state that any set of tests which might eventually be evolved will have to reckon with the elements of time and language, and will have to take into consideration the mental state of the immigrant upon his arrival to this country.

Where hundreds and not infrequently thousands of people have to be inspected daily, and where at least even under the most conservative estimate one per cent. of those inspected should be examined in detail for mental defectiveness, the time element necessarily assumes tremendous proportions, and no set of tests will be absolutely desirable which will require a large amount of time for carrying them out.

The hundreds of thousands of immigrants which come to our shores annually speak an untold number of languages and dialects, and practically the only route through which access may be had to an individual's mentality, language, is closed to the examiner unless he is able to speak the alien's language. Dependence upon interpreters is very undesirable in the carrying out of this work, I am convinced of that. The tests, therefore, should be as far as possible performance tests so as to eliminate to the greatest possible extent the element of language.

One must have been actually engaged in the work among immigrants to adequately appreciate the importance of taking into consideration the mental state under which the alien is laboring upon arrival to our shores. The state of apprehension, anxiety, and severe fatigue, from which many of them suffer on arrival, must be reckoned with if our data on which to base a diagnosis are to be dependable.

In the experiments herein reported it was attempted to follow out in a general way these outlined principles. Unfortunately the work had to be performed under a good deal of difficulty, and for that reason among others the results obtained, while throwing some light upon this important problem, are far from having solved it. Certain phases which should have been investigated, unfortunately, had to be omitted, and the number of subjects used is hardly sufficient to justify the drawing of any definite conclusions. The tests used, while in the main proper ones, could likewise be much improved upon.

#### NATURE OF THE EXPERIMENT.

At the outset it was felt that if a correct idea was to be gained of the average normal intelligence of a given race, only such individuals should be tested who were as far as possible free from the benefits of artificial, purposive education. It was the average native ability which was sought. For this reason fifty individuals, who in their outward appearance suggested nothing abnormal, were picked off at random from the inspection line. None of them had ever attended school or knew how to read or write. They were between the ages of eighteen and forty, and, in this instance, of the Polish race.

The material used consisted of the following series of tests:<sup>1</sup>

A. Questions intended to bring out the mental stock of the individual tested.

B. Tests of pure intellectual capacity.

C. Associative ability, i. e., tests intended to bring out the individual capacity to grasp a rather unusual experience by means of new mental associations.

D. Tests of ability to acquire new knowledge.

E. Orientation.

F. Recent memory.

G. Discriminative ability, and ability to perceive differences in size and form.

#### SERIES A.

1. Number of months in the year.
2. Names of the months.
3. Number of days in the year.
4. Number of days in the week.
5. Name the days of the week.
6. Number of weeks in a month.
7. Name of the Capitol of native country.
8. Name of the ruler of native country.
9. Names of the native coins, and number of units in the piece.
10. Number of the commandments of God.
11. Significance of Easter.
12. Ability to tell the time by a watch.

The results from the examination of the fifty immigrants in this series were as follows:

Question number.	Correct answers by	Per cent. correct.
1	49	98
2	39	78
3	25	50
4	50	100
5	50	100
6	49	98
7	47	94
8	30	60
9	48	96
10	16	32
11	33	66
12	45	90

The results from this series serve to illustrate how profoundly ignorant some of these individuals were, and yet we had convinced ourselves by means of exhaustive examination that none of these particular individuals were feeble-minded. It seems that these people, limited as is their opportunity for acquiring an education, confine themselves to the acquisition of those facts which are absolutely essential in their struggle for existence.

The question of the relation of ignorance to feeble-mindedness is a difficult one to decide. The facts which we possess would seem to indicate that the relation, if any exists, is but a slight one. The figures of the last United States Census for the State of New York are interesting in this connection. These figures show that while the illiteracy of the foreign born white population is 13.7 per cent., that of foreign or mixed parentage is only 0.7 per cent. These figures are very enlightening, especially when we are told in the same report that the illiteracy of whites of native parentage is 0.8 per cent., or 0.1 per cent. higher than in children of foreign or mixed parentage. This shows that what most of the illiterate immigrants need is an opportunity for acquiring an education, and that the fact that they are illiterate upon arrival to this

<sup>1</sup>With but slight modifications, the tests used were taken from a list prepared by Dr. E. H. Mullan, United States Public Health Service.

country does not necessarily have any bearing upon their intellectual capacity. On the whole we are convinced from our own experience with the immigrant that tests which intend to bring out the intellectual stock, or the amount of knowledge a given individual possesses, are of very little value in this work, unless we are dealing with one who has had the benefits of a formal education. Even in the latter case one must be cautious in reaching conclusions based upon the amount of facts an individual has been able to retain. The emotional value of the facts in question must be taken into consideration, as well as the length of time elapsed since their acquisition. It is one of the chief safeguards of the human mind to forget things which have no particular effective value.

#### SERIES B.

##### Pure intellectual capacity.

###### Number.

1. 5+4.
2. 7+9.
3. 2+3+4.
4. 15+17.
5. 5x3.
6. 4x7.
7. 10-7.
8. 12-5.
9. 18-7.
10. What number added to 2 makes 15?
11. Divide 20 apples into 4 equal parcels.
12. How many legs have 3 horses.

The results under this series were as follows:

Question number.	Correct answers by	Per cent. correct.
1	50	100
2	39	75
3	41	82
4	33	66
5	49	98
6	35	70
7	49	98
8	36	72
9	28	56
10	46	92
11	48	96
12	47	94

#### SERIES C.

##### Associative ability.

No. 1. Name the days of the week backward.

No. 2. Count backward from twenty to one.

Of the two questions under this series, the former was answered by all of the individuals examined, i. e., 100 per cent. correct, while the latter was solved correctly by forty-two out of the fifty, or ninety-two per cent. correct.

The results of series B and C, illustrating, as they do, primarily intellectual capacity, serve to further emphasize my contention that the stock of knowledge an individual possesses, even when one confines himself to everyday common facts, is no criterion of a person's intellectual capacity. The average correct percentage of answers to series A (questions testing the intellectual stock) was 80.16, while that to series B and C (questions of intellectual capacity) was 85, a considerably better showing.

#### SERIES D.

##### Ability to acquire new knowledge.

No. 1. Name of the ship on which passage was made.

No. 2. Port of embarkation.

No. 3. What force drives the ship?

It must be remembered that the questions under this series have nothing to do with knowledge such as is acquired through purposeful, systematic training. As will be seen the questions only intend to test the extent to which the individual has familiarized himself with the new surroundings into which he was thrown.

On first glance these questions may seem altogether too easy to throw any light on the subject at hand, but when we remember that we are dealing here with illiterates, and that whatever knowledge they have acquired was through inquiry, and due to a spontaneous sense of inquisitiveness, the questions will be seen to be quite appropriate. The criticism which might be justly offered is not concerning the nature of the questions, but rather their number. This is true of the entire experiment, but when we consider that it is not at all an uncommon occurrence at Ellis Island to have to examine five thousand immigrants in one day, and when we further remember that these examinations have to be made in practically all the known languages, it becomes at once obvious that simplicity and brevity are quite as important in this work as is thoroughness.

The results under this series were as follows:

Question number.	Correct answers by	Per cent. correct.
1	17	34
2	45	90
3	49	98

Thus it will be seen that only seventeen of the fifty learned the name of the vessel on which they spent anywhere from seven to eleven days. This certainly, on first consideration at least, does not speak very well for the character of the present day immigration. One might justly ask how are we to expect such people to familiarize themselves with our institutions and form of government, when after having spent days upon a ship they do not even know its name? This lack of intelligence, however, is only an apparent one and is due to definite psychological causes. The question of the name of the ship is quite devoid of emotional value in the mind of the average immigrant, who is making one of the most important moves of his life. The thing that is foremost in his mind is the successful passing of the gates to our country, and with many of them this idea is so predominant as to exclude everything else from consciousness.

#### SERIES E.

##### Orientation for time.

No. 1. Name of the current month. No. 2.

Date. No. 3. Day of the week.

The results under this series were as follows:

Question number.	Correct answers by	Per cent. correct.
1	43	86
2	30	60
3	50	100

Considering that we are dealing here with illiterates, the results in this series might be looked upon as fairly satisfactory. At any rate, the results obtained illustrate the limited value which these tests have in deciding the question of feeble-mindedness.



edness. In the Binet-Simon scale these questions are included under the nine year old tests, while we are dealing here with individuals between the ages of eighteen and forty.

#### SERIES F.

##### Recent memory.

While the following questions are included under this heading, it is, of course, understood that it is not the faculty of memory alone which is concerned in the solution of these problems.

No. 1. Repetition of four digits.

No. 2. Repetition of five digits.

No. 3. Repetition of six digits.

No. 4. Repetition of seven digits.

The results under this series were as follows:

Question number.	Correct answers by	Per cent correct.
1	48	98
2	26	52
3	7	14
4	2	4

Here, above all, a comparison with the Binet-Simon scale will be illuminating. In the scale of intelligence referred to, seven digits should be repeated by a twelve year old child if the latter is not to be considered feeble-minded. Here we see seven digits were only repeated by two out of the fifty, and as has already been stated, these individuals were not feeble-minded by far.

#### SERIES G.

Discriminative ability, and ability to perceive differences in size and form.

No. 1. Give three physical differences between a horse and an ox.

No. 2. "Healy" rack puzzle.

The first was answered by forty-four out of the fifty cases, or eighty-eight per cent. correct. The originator of the "Healy" rack puzzle, Dr. William Healy, of Chicago, director of the Psychopathic Institute of the Chicago Juvenile Court, states that it is intended to test the perspective of relationship of forms, and also the individual's method of mental procedure for the given task, particularly his ability to profit by the experience of frequent trials, in contradistinction to the peculiar repetition of impossibilities characteristic of the subnormal and feeble-minded groups. The time required for solving the puzzle is given by the author as ranging between twelve seconds and two minutes. In the cases herein reported the puzzle was solved by all, the time ranging all the way from thirteen seconds to three minutes. Unfortunately no record was kept of trial and error.

Summing up the results of the foregoing experiments, we find that the thirty-eight questions submitted to fifty illiterate, male Poles, between the ages of eighteen and forty, were solved in the following manner:

Number of questions.	Answered by	Per cent answered.
6	50	100
6	49	98
2	48	96
2	47	94
2	46	92
2	45	90
1	45	88
1	44	

Number of questions.	Answered by	Per cent answered.
1	43	86
1	41	82
2	39	78
1	36	72
1	35	70
2	33	66
2	30	60
1	28	56
1	26	52
1	25	50
1	17	34
1	16	32
1	7	14
1	2	4

We furthermore see that these fifty individuals who in the matter of sex, race, and educational advantages were absolutely alike, and in whom the conditions for uniform results should have been, therefore, ideal, actually showed the following wide variations in results with the thirty-eight questions asked:

Number of persons.	Questions answered.	Number of persons.	Questions answered.
1	38	5	30
1	37	2	29
2	36	3	28
5	34	4	27
8	33	3	23
7	32	3	21
5	31	1	18

The last case in the series may have been a borderline case, but a very extensive examination by another officer and myself failed to satisfy us beyond a doubt that the boy was actually feeble-minded.

While, as I have already stated, I feel that no definite conclusions should be drawn from these experiments, it might not be amiss to call attention to the last table. This table shows beyond a doubt the enormous variations which exist within the limits of normality, and how dangerous any absolute and unequivocal reliance upon any rule of thumb method may become, especially in immigration work.

Here we have fifty individuals who were as near alike in most respects as is possible among human beings. Under circumstances which were as near alike as possible, these individuals were given the same thirty-eight problems for solution, and the results of correct answers varied all the way from eighteen to the full thirty-eight.

Nevertheless it is my firm belief that a set of tests could be evolved which would represent, as near as is possible, what the average immigrant of a given race should be able to accomplish mentally, if he is to be considered normal.

At any rate it is the only way by which we will ever be able to solve this problem. Doctor Salmon, of the National Committee of Mental Hygiene, has amply emphasized the need of experimentation such as is herein reported in his recent work<sup>2</sup> on "Immigration and the Admixture of Races in Relation to the Mental Health of the Nation," and it is sincerely hoped that the future will offer the opportunity for more extensive and thorough research into this problem.

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<sup>2</sup>Modern Treatment of Mental and Nervous Diseases, edited by White and Jelliffe, Philadelphia, 1912.

## GENERAL PARALYSIS IN THE NEGRO.

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Writing in 1891, Witmer referring to the negro used the term colored race, because as he said it was probable that there were no full blooded African negroes in the United States at that time, and as a class they could not properly be spoken of as negroes for the race had become a mixed one. Although five years later Babcock criticises this position of Witmer's I believe to-day we, with more certainty and accuracy, may use the more comprehensive term colored race instead of negro, and such will be the meaning given the word negro as used in the title of this communication.

The release from bondage formed the turning point in the mental and physical welfare of the colored race. Such is the consensus, both medical and statistical. McKie, Mays, Powell, Rogers, and others all concur in the opinion that tuberculosis and insanity were extremely rare in the colored people of the Southern States prior to the Civil War, and statistics patently show that there has been an enormous increase of both of these diseases in the colored race since the emancipation. Powell attributes this increase, in part to lack of hygienic surroundings imposed upon the freed negro primarily, and secondarily to the laxity and freedom of action which came concomitantly with emancipation from slavery. The projection of civilized vices into an uncivilized class, Aryan admixture rapidly decreasing the proportion of negro ancestry tended toward a weakening of the formerly high racial resistance, and increased disproportionately the vulnerability toward constitutional diseases of every type. Hecht thinks that miscegenation with its resulting hybrid negro has been a most potent factor in the production of this lowered resistance, and we here have an excellent example of the influences of race amalgamation on the production and initiation of disease processes. Witmer, speaking of the considerable diversity of opinion with reference to the difference in types of insanity affecting white and colored people, says: "My impression is, *ceteris paribus*, that they are essentially the same in both," and further in the colored, "that there is no race immunity from attacks of the ordinary types of insanity, and that the manias are largely in excess of any other form," about one third of all cases. Bannister and Hektoen state that insanity, as met with in the United States African, "is especially and predominantly of the excited or maniacal type. This is what would be most naturally expected judging from the general characteristics of the Southern negro." Da Rocha, studying Brazilian mulattoes, and Babcock, working with the American type of negro, likewise found mania very common.

If we now narrow our scope and fix our attention upon the occurrence of a single type of mental disease, general paralysis, in the colored race, we find at first that the increase in mental disorder as a whole in this race since the war applies equally well to paresis. Babcock writes that Roberts of North Carolina in 1883 had never seen a case of general

paralysis among his colored patients, nor had Powell of Georgia in 1886 in a "full blooded negro." Witmer found thirty-eight paretics among nine hundred and six colored patients admitted under his care between 1855 and 1889, a period of thirty-four years. Of eight hundred and four patients admitted to the same hospital within the past five years, seventy-four were paretics. These figures show obviously the increase in total admissions of colored insane to the hospital as well as the disproportionate increase in the number of paretics. The common belief, as stated by Chase, was to the effect that paresis was long supposed to be confined to the Anglo-Saxon race, and Hecht finds that tabes almost exempts the negro. Burr states that paresis is rapidly becoming as common in negroes who have an admixture of white blood as it is in Caucasians, though in real negroes it is almost unknown. This same writer offers the generalization that the gross syphilitic diseases of the nervous system, which are primarily vascular and not nervous disorders, are common in negroes while the parasyphilitic diseases are very rare. The effect of change of environment upon the resistance of the colored race to paresis is recognized by Chase as follows: "It is said the disease was unknown among the slaves of the Southern States and unreported among free negroes until they came to the centres of population. At present (1902) in Baltimore, as an instance, paresis claims the same percentage of negroes according to the population, that it does among the Caucasians." Also, Kiernan makes this same point when he says: "The increased percentage of paretic dementia among negroes is due to the fact that the negro in Chicago (1886) is treated as an equal in commerce and politics, and is thoroughly under the influence of the speculative atmosphere which permeates the commerce of the city." Kiernan found that nine per cent. of his cases were paretics, while in New York, Spitzka (cited from Chase) found 8.9 per cent. among the colored insane. Kraepelin states that the North American negro is relatively more prone to the disease than the whites, and on the basis of figures obtained from seven large North American insane hospitals, he shows that the average incidence rate for paresis was 11.2 per cent. for men, and three per cent. for women, while among the negroes it was twenty-eight per cent. for men, and 8.1 per cent. for women. Da Rocha, in Brazil, on the contrary, finds paresis very seldom among the colored, no case occurring in the series of fifty-seven colored insane studied by him. Finally, Bannister and Hektoen conclude "that general paralysis is not a disorder to which any race is immune, but one that depends upon causes independent of racial or national peculiarities."

Witmer's impression that the types of insanity affecting the white and colored people were essentially the same in both has been previously quoted. I believe, however, that this is only partially true, and in a previous paper I have pointed out that among paretics the colored suffer from hallucinations more than twice as frequently as the whites. Kiernan recognizes this when in speaking of the credulity, belief in Voodooism, etc., in the negro, he says: "The psychic peculiarities dormant in the race crop out very prominently in these (paretic) cases, and it would appear certain from these that the

\*Read at the meeting of Alienists and Neurologists of the United States, Chicago, June 25, 1913.

question about the influence of the superstitions of the race must be answered in the affirmative."

Numerous papers dealing with statistical data relative to paresis in the white have been written, but I have been unable to meet with any similar work done on colored paretics. My attention was first directed to this subject while studying the occurrence of hallucinations in paretics. As has been mentioned, in that study it was found that colored patients suffering from paresis gave evidence of hallucinatory disturbances more than twice as frequently as did the whites—39.6 per cent. in the former, and 17.3 per cent. in the latter. This was to a degree unsatisfactorily explained by the recognition of a fundamental difference in mental development in the negro as compared with the white race. It was assumed that in the stage of development the colored race occupies a lower level, is nearer, it may be said, the perceptual life of a primitive people. Therefore, on this assumption, when disease disrupts acquired characteristics, one might expect a ready return to this lower level with its more primitive tendencies.

Having noted this striking difference in one symptomatological phase, the question immediately arose as to whether the colored paretics differed in other respects from the white. To determine if such might be the case, the records of all patients under observation during the period of five years ending March 31, 1913, where a diagnosis of paresis was made, were gone over and so far as the material available was satisfactory, the important points have been statistically studied. As a basis of comparison with the white race, the excellent work of Junius and Arndt, which deals in a thorough and most comprehensive manner with paretic statistics, has been chosen.

During the five years period covered by this study there were admitted

	Male		Female		
	White.	Colored.	White.	Colored.	Total.
Total .....	2,050	463	552	341	3,406
Paretics .....	194	58	20	16	258
PERCENTAGES.					
Total .....	60.2	13.5	16.2	10.1	
Paretics .....	9.46	12.52	3.62	4.69	

These figures give us the following ratios:  
 White male to white female paretic..... 9.7 to 1  
 Colored male to colored female paretic..... 3.6 to 1  
 White total to colored total patients admitted..... 2.9 to 1  
 Total colored patients to colored paretics..... 10.8 to 1  
 Total white patients to white paretics..... 12.1 to 1

Compared with the figures of Junius and Arndt we find that they give 26.5 per cent. of all admissions as paretics, almost twice as great a number as found here. However, the class of patients which were admitted to Dalldorf will in part explain this, the institution being a large one for chronic insane, receiving patients from the city wards after an initial period of observation. White males are about four times more frequently paretic than white females (9.7 to 1) as compared with Junius and Arndt (23.5 to 1). Paresis is relatively more frequent in colored than white females, the ratio of colored male to female being 3.6 to 1. Paresis is relatively more frequently met with in the colored race (10.8 to 1) than it is in the white (12.1 to 1), or 9.2 per cent. and 7.4 per cent. respectively of colored and white patients admitted.

Of the total number of two hundred and eighty-eight paretics, seventy-four were colored. Of these, in fifty-nine a diagnosis was verified either by au-

topsy or positive cytoserological examinations. One patient was admitted twice, so there are actually fifty-eight cases with confirmed diagnosis and only these fifty-eight will be utilized in the following study. Forty-seven were male and eleven female. Two were cases of juvenile paralysis, one female and one male, the former seventeen years of age and the latter thirty.

The remaining part of the statistical work can be best shown in tables, which need but little if any explanatory comment. Owing to the comparatively small number of cases considered here, no fixed, final conclusions can be drawn from slight differences in figures met with, so only the more striking and other important points will be emphasized.

AGE ON ADMISSION.

	Male.	Female.	Total.
16-20 .....	..	1	1
21-25 .....	..	2	2
26-30 .....	6	1	7
31-35 .....	11	4	15
36-40 .....	12	2	14
41-45 .....	8	1	9
46-50 .....	4	..	4
51-55 .....	3	..	3
56-60 .....	2	..	2
61-65 .....	..	..	..
66-70 .....	1	..	1

This table shows that the most frequent age of admission, and this may be taken also with slight modification as the age of onset, is between thirty-six and forty years in males, and thirty-one and thirty-five years in females. This agrees very closely with the figures of Junius and Arndt, who found 28.6 per cent. of the male and 22.9 per cent. of the female paretics between the ages of thirty-six and forty.

HOSPITAL RESIDENCE IN MONTHS.

	Male.	Female.	Total.
1 .....	5	..	5
2 .....	..	..	..
3 .....	3	2	5
4 .....	2	1	3
5 .....	6	1	7
6-10 .....	9	5	14
11-15 .....	7	1	8
16-20 .....	..	..	..
21-25 .....	5	..	5
26-30 .....	1	..	1
31-35 .....	3	..	3
36-40 .....	2	..	2
41-45 .....	..	1	1
46-50 .....	1	..	1
51-55 .....	1	..	1

The greater number, about twenty-five per cent. of all cases, were under treatment from six to ten months, a somewhat greater number than this being under treatment for five months or less. Figured in this table are seven males and three females still under treatment.

DURATION ON ADMISSION IN MONTHS.

	Male.	Female.	Total.
1 .....	5	2	7
2 .....	4	1	5
3 .....	2	..	2
4 .....	1	1	2
5 .....	2	1	3
6 .....	3	..	3
7 .....	1	1	2
8 .....	2	1	3
11-15 .....	7	..	7
16-20 .....	1	1	2
21-25 .....	3	2	5
26-30 .....	1	..	1
Unknown .....	15	2	17



In about half (twenty-six) the duration on admission had been eight months or less; in fifteen, from eleven to thirty months, and in seventeen unknown. This would bring the average about one year, the figures usually given (Junius and Arndt, Gudden, Ascher, Heilbronner).

Junius and Arndt found that the average time under treatment was for men nine and one third months, and for women, ten months. Heilbronner and Ascher (cited by Junius and Arndt) give about fifteen months as the duration of treatment for males, and this would nearer correspond with my figures.

As to nativity, all were born in the United States, fifteen in the District of Columbia, seventeen in Virginia, seven each in Maryland and unknown States, three each from North Carolina and Tennessee, one each from Alabama, Arkansas, Georgia, Indiana, South Carolina, and Texas. As might be expected, more than half came from the District of Columbia or bordering States. Some of those having come from more distant parts of the country have been admitted through military or penal channels. In this connection we find that males were admitted from some branch of the military service and, as is usually found, all of these had given a number of years of valuable service, ranging from five to twenty-three. Among these were two noncommissioned officers. Regarding criminal record in paralytics, we find among these cases the usual run of affairs. None of the females had a criminal record, while six males had come within the purview of the courts for criminal acts. One of these only had made a homicidal attack, and this act was committed at a period considerably antedating the appearance of any symptoms of the parietic mental disorder, there being in the record no reason to suppose that his diseased mental state had any connection with, or bearing upon, the criminal act. Among the five others, there was not an habitual criminal, in each instance the infraction of the law had been of the nature of some petty larceny of misdemeanor, very obviously resultant upon the mental disease.

As to religion, education, and occupation, we find nothing unusual for the people of the colored race. Twenty-eight were of the Baptist faith, four Catholic, seven Methodist, eight Protestant unspecified, the remainder unknown. In twenty the education is given as good, meaning thereby the customary common and grade school advantages; in twenty-two as poor; in twelve, none, and in four, unknown. Thirty-five of the males were laborers, the remaining number being distributed among barbers, butchers, waiters, undertakers, clerks, etc. Of the females, all were cooks or domestics. As to the civil condition, twenty-three were given as single, one unknown, and the remainder married (widowed or divorced.)

Relative to the predisposing etiological factors, the greater number of the case records offers uncertain information. Among the antecedents, nervous and mental diseases were noted in twelve cases, alcohol in twelve, tuberculosis in twelve, syphilis in one (the juvenile case). In the personal history there was found a record of alcoholism in twenty-nine cases, syphilis in twenty, head trauma in six, and tuberculosis in four. The records show

that only one of the noted cases had been excessively alcoholic prior to the beginning of the present mental disease, and it seems more probable that in the others we have the alcohol predominating as a symptomatic rather than a causal factor. It must be borne in mind that obtaining accurate anamneses from colored patients is as a rule quite impossible, and a truer history might show more evident alcoholism. In no case where the head trauma is noted does it seem to have been of great importance, certainly not more than a necessary cause. This is in accord with the generally expressed opinion that trauma as a prime factor in the etiology of paresis is very unusual. In one case the trauma, received many years before the development of paresis, supposedly resulted in a traumatic epilepsy.

In fifty per cent. of the cases seizure attacks of various types occurred. In forty-nine patients the general physical health on admission for treatment was good, in the remainder poor. Speech disorders incident to the disease were noted in fifty-six cases as present, and in one as absent.

The ocular signs of disease were found present or absent as follows:

	Anisocoria.	Pupillary irregularity.	Absence of direct light reaction.	Absence of consensual light reaction.	Errors of accommodation.	Palsies.
MALE.						
Present..	19	8	15	17	47	5
Absent..	22	18	20	29	4	18
FEMALE.						
Present..	7	1	3	3	11	3
Absent..	4	1	8	8	..	5

In more than half (sixty-three per cent.) of the cases some abnormality of the ocular apparatus was demonstrable, these figures being much lower than those given by Junius and Arndt.

Tendon reflexes were not recorded with sufficient detail to make satisfactory study possible. On this account, as with the eyes, no attempt has been made to determine whether one or both sides were affected equally, if at all, or to what extent.

	MALE.			
	Patellar.	Tendo Achillis.	Ankle clonus.	Babinsk.
Present .....	32	19	4	3
Absent .....	8	..	18	26
FEMALE.				
Present .....	10	8	1	..
Absent .....	1	1	10	11

Junius and Arndt found the patellar reflex increased in fifty-four per cent. of their cases and from weak to absent in 29.6 per cent. The data at hand are sufficient to permit of any comparative computation with the cases under consideration.

The cytoserological findings in the blood and cerebrospinal fluid, where an examination had been performed, were in every case record positively indicative of paresis, according to our present conceptions of the diagnostic value of these laboratory examinations. Although a history of syphilis in the patient was obtained in only twenty cases a positive Wassermann reaction with the blood serum was obtained in forty cases, and with the cerebrospinal fluids in thirty-four. The Noguchi protein test was positive in the spinal fluid of forty-three patients. The cell count of the latter fluid ranged from fourteen to four hundred and fifty-one in the males, and from thirty to one hundred and thirty in the fe-

males, an average of one hundred and nine in the former and seventy-two in the latter. (In forty-one cases counts were made.)

The onset and course of the disease show nothing unusually striking by way of difference from that noted in the Caucasian. In thirteen the onset was sudden, in thirty-four, gradual. In some of the thirteen suddenly onsetting cases, a seizure was the first recognized manifestation of the disease. The course might be characterized as gradual in thirty-six cases, rapid in twenty. In fifty the disease process progressed without noted interruptions, being of the characteristically progressive type. Definite remissions occurred in eight instances, about thirteen per cent. Of the fifty-eight cases, forty-five died, three were discharged to relatives or other institutions, and ten remain under observation. In forty-one cases autopsy was performed and the diagnosis of paresis confirmed.

By some it is believed that the demential type of paresis is more commonly met with in the colored race than in the white. The grouping of the cases according to types has been made here although it is fully recognized that this division is of little interest or value, the writer agreeing with Binswanger that we cannot divide paretics into these separate types as such classification is more or less arbitrary and dependent largely upon the stage of the disease process during which the patient is observed.

Type of disease	Male	Female	Total
Demential	31	9	40
Expansive	5	1	6
Depressive	1	1	2
Agitated	7	..	7
Mixed	..	..	1
Juvenile	1	1	2

Sixty-nine per cent. of these cases are classed as of the demential type, being almost twice the number found by Junius and Arndt among whites. It is apparent that there is some justification in the belief in the frequency of the occurrence of the demential type among the colored paretics.

Other elements of the symptomatology which might be mentioned are the delusions and hallucinations. Twenty-four males and five females exhibited delusions of one or more types, i. e., fifty per cent. of all cases. The statement of Kiernan, that the superstitious traits of the negro character flourish preeminently in the colored paretics, does not appear to be particularly well borne out by these delusional cases. It is true that the delusions of an expansive character are possibly more absurd and show a greater lack of critic than in the white, as a rule, but this can as well be due to the low grade of educational advancement attained, as to a fundamental characterological anomaly of the race. Whites, with as meagre an education, as frequently show a similarly low grade of critical power. Another explanatory feature may perhaps be found in the fact, that a larger portion of colored paretics are to be found of the demential type. In a few isolated instances the delusions were of an allopsychic nature, and found expression in mystic form, as persecution by witches, evil spirits, the devil, etc. These instances are not, however, met with in sufficient frequency to permit of a characteristic or par-

ticular coloring of the delusional ideation of the negro paretic. They are met with as frequently, and indeed more often, in the colored precox. The delusions in other respects do not differ essentially from those met with in the white paretic.

Mention has already been made of the disproportionate frequency of the occurrence of hallucinations in the colored as opposed to the white paretic, fallacious sensory perceptual disturbances being present in the former with twice the frequency demonstrable in the latter. Auditory hallucinations are by far the more frequent, those of other senses either occurring alone or in association with another are to be noted. Of the fifty-eight patients twenty-three, eighteen males and five females, showed hallucinations of one or more senses. Alcoholism appears to have played no important rôle in their occurrence. The hallucinatory content is, in the colored, of a more elementary character, and especially is this so of the auditory hallucinations. In this sensorial realm, more than in the delusional, we find a more evident justification of Kiernan's remarks concerning the racial characteristics, as they may find expression in the colored person whose brain is the seat of the paretic destructive process. Voices of the devil's emissaries, mysterious messages of spiritual origin, sometimes of a pleasant, laudatory character, again of a fearful, terrifying content, as a rule the content harmonizing fairly closely with the prevailing emotional tone of the patient, are no doubt more frequently exhibited by the colored paretic than by the white when afflicted with the same disease, and very plausibly may be taken as evidences of the outcropping of a characteristically primitive racial credulity, and absence of full adaptation to advances in the present day intellectuality—civilization.

Of previous attacks of a mental disorder there are four instances recorded. One of traumatic epilepsy, one of alcoholic psychosis (delirium tremens?), one of feeble-mindedness (a juvenile case), and one of hysteria (?), the attack having antedated the present illness by five years. One patient had a hemiplegia of several years' duration.

#### RÉSUMÉ.

The term negro as applied to the United States African less accurately designates this class of people than colored race, the latter term being the more comprehensive and at the same time conveying the added meaning of the racial admixture. This hybridization of the race by miscegenation and amalgamation may be taken as the explanation for the fact, that general paralysis, a disease to which the full blooded negro was practically immune a half century ago, has not only become prevalent among this people, but even occurs with greater frequency than in the whites living in a similar environment.

Taking into consideration the short life of this mixed race, it might be anticipated that there might be found, in a given disease such as paresis, certain symptoms which arose more or less from the original racial subsoil, and that this characterological influence might lead to a modification of the symptomatology of paresis as observed in the white. Such anticipation is in part justified in

several respects, most notably in the greater frequency of the occurrence of hallucinations, the predominance of the demential type of the disease, and the greater frequency of paresis among colored females than among the whites of the same sex.

Twenty-three and six tenths per cent. of all patients admitted during the past five years were colored; 9.2 per cent. of these were paretics, while 7.4 per cent. of the whites admitted were paretics. Paresis is more frequent among the colored race as a whole than the white, and nearly three times as frequent in the colored female as in the white. Fifty per cent. of the cases of paresis were admitted between the ages of thirty and forty years.

In about fifty per cent. the duration of the disease on admission was eight months or less, the balance having been in existence for a longer period, bringing the general average duration prior to the beginning of hospital treatment up to about one year plus, the period usually given for whites. In fifty-eight per cent. of the cases the onset was gradual and in sixty-two per cent. the usual gradually progressive course was followed. Definite remissions in the course of the disease occurred in thirteen per cent. of the cases.

Hereditary taint such as alcoholism, nervous or mental diseases, syphilis, tuberculosis, etc., was noted in about twenty per cent., but in only one instance, a case of juvenile paresis, was it possible to prove a similar heredity. Fifty per cent. of the patients were alcoholic, but only one excessively so, and it is believed that the alcohol in these cases is more symptomatic than causal. Head trauma was noted in only six instances, and in none could a definite connection between it and the paresis be established. Previous attacks of mental disorder in colored paretics are rare, having occurred in this series in but four patients, and in no instance was the attack similar to the symptoms manifested by the patient as a paretic.

Those colored males admitted through military channels, as is likewise customary with white paretics from similar sources, had records of good and faithful service rendered over a prolonged period of years, and some had been promoted to higher grades upon the basis of examinations or meritorious service. Criminality among the paretics was in these cases, as is the rule, rare and, excepting for one instance, was of the occasional type, and the crime itself evidently dependent upon the disease for its commission.

Religion, education, and occupation show nothing unusual for the race under consideration and no bearing upon the question of paresis could be ascertained. The recorded civil status likewise offers nothing of especial interest.

The frequency of the demential type of paresis among the colored race has been commented upon, this type comprising sixty-nine per cent. of the patients examined. In about fifty per cent. of the cases, seizures of one type or another occurred. Anisocoria was present in forty-four per cent.; pupillary irregularity in fifteen per cent.; the direct light reaction was absent in fifty-eight per cent., and the consensual light reaction was absent in sixty-three per cent. of the cases. Quantitative description of the tendon reflexes is impossible because of

inadequate notation of examination and that the knee jerks were present in seventy-two per cent. of the cases is the only statement which seems warranted. The cytocerological examinations made of the blood and cerebrospinal fluid were positively indicative of paresis in all cases so examined. About fifty per cent. of the patients entertained delusions of one or more types, and thirty-nine per cent. were, at some period, generally early in the disease, hallucinated in one or more senses, their occurrence being noted with more than twice the frequency with which they are observed in the white paretic (17.3 per cent.). The hallucinations in the colored paretic tend to assume a mystic character, which more or less accords with the primitive intellect of the colored race. This trend cannot, however, be looked upon as in any way characteristic of the paretic, similar trends being observed as frequently, and in as pronounced form, in other forms of mental disorder, as observed in the colored race.

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1402 SOUTH GRAND AVENUE.

## REPORT OF A CASE OF RETROPHARYNGEAL ABSCESS IN AN ADULT.

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Noticing the statement of the infrequency of retropharyngeal abscess in the adult in the article by Doctor Alexander and Doctor Montague, appearing in a recent issue of the *NEW YORK MEDICAL JOURNAL*, it occurred to me that a brief report of such a case might not be without some slight interest.

The patient in question, a superintendent in an apartment house, living in the basement, thirty-three years old, and married, came to my office with a history of having been healthy since childhood, except for attacks of acute articular rheumatism coming with some regularity in the spring and fall. Occasionally the attack would fail to develop at the expected time, "throat trouble" taking its place invariably. He had felt ill for three days past—having a painful cough, fever, and several chills, followed by sweating. He also complained of severe pain in the back of the throat, with a sense of fullness, making swallowing nearly impossible. He had, however, kept at his



employment in a desultory fashion. On examination his temperature was 103.4° F.; pulse, 106; respiration, 20. His heart and lungs were normal. Tongue badly coated, teeth decayed. A mass, fluctuating in the centre and very tender, projected from the left posterior pharyngeal wall. The tonsils were both slightly swollen and the whole pharynx reddened and tender. As the patient refused incision he was put to bed. Aspirin, ten grains every four hours, with astringent gargles and ice bag to neck being ordered. The swelling was also painted twice a day with tincture of iodine. On the second day spontaneous rupture occurred, the patient spitting out considerable pus, probably two or three tablespoonfuls. A rapid fall in temperature and an uninterrupted recovery followed.

330 WEST NINETY-FIFTH STREET.

## A NEW METHOD OF DIAGNOSTICATING MASTURBATION IN GIRLS.

BY BERNARD KAUFMAN, M. D.,  
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The rôle that masturbation plays in the diseases of childhood seems to have been lost sight of, for I am sure that some of the more common conditions seen by the general practitioner are due almost entirely to this habit, and with the checking of the practice the conditions will clear up.

J. P. West<sup>1</sup> reported a case of an infant six months old who was supposedly suffering from epilepsy, but who was exhibiting the effects of masturbation, and in whom everything cleared up when the correct diagnosis was made and provision made to prevent its continuance.

Such a case has come under my notice and the method of diagnosis being, I think, original and at the same time simple and easy of application, I deem it worthy of publication.

"Masturbation is practised with the finger or with some foreign object of one sort or another. Digital masturbation consists ordinarily in *little girls* in friction of the clitoris and of the inner surface of the labia; there is nothing in these manipulations that can injure the hymen."<sup>2</sup>

"Hofman<sup>3</sup> has, furthermore, examined with this object in view idiotic and imbecile girls of all ages, such as abandon themselves to masturbation passionately, as we know; he has never seen ruptures or traumatic notches of the hymen."

According to Havelock Ellis<sup>4</sup> it is impossible to diagnosticate masturbation by the size of the clitoris, and yet, according to Freud<sup>5</sup>, masturbation is directed almost entirely toward the clitoris in very young girls.

This shows the close relation, during the act, of the fingers to the urethral orifice, and this accounts for the readiness and ease with which the diagnosis can be made. It also shows that while a critical examination of the hymen might seem to be of value, yet in practice it is left alone and remains intact.

As to its frequency, we have no accurate means of telling, but it must be very common. "Among women of a good class, there are some indications that it is by no means uncommon, as for instance,

where one thousand consecutive gynecological cases showed well marked vulvar hypertrophies in over one third. By one third of this third, full admission was made, so that it is fair to attribute the findings in the remainder to the same cause especially as categorical denial was forthcoming in only one in fifty."<sup>6</sup>

This being the case with reference to "women of a good class," what can we expect with young children, who have no ability to judge of the propriety of the act.

Among younger children, the proportion who masturbate is also very high. According to Berger<sup>7</sup> ninety-nine per cent. of young men and women give themselves up to this practice. Debreyn<sup>8</sup> quotes a curé, in France, that among the little girls who came for their first communion, eleven out of twelve were given to masturbation.

Now that some idea of its prevalence has been shown, how can we prove it in doubtful cases? Kelly<sup>9</sup> gives minute details for the diagnosis in women after it has continued over fairly lengthy periods. But how about young children who have just started to practice manipulation. The method I use is as follows: First take a specimen of urine and examine it microscopically to determine the absence of yeast. Have the mother prepare some yeast and make the child play with it at night time just before it is put to bed. It is better to have the yeast fairly moist at first, as it then cakes on the hands better. Then, without allowing the child to wash its hands, put her to bed, using a shortened nightgown. Next morning, have a thoroughly cleansed vessel for the child to urinate into, and bring the specimen to the physician's office. This is centrifuged, and on putting the sediment under the microscope, the yeast can be readily recognized. The presence of the yeast fungus is proof positive of the practice of masturbation.

The following case is of interest, as it was from the microscopic findings in this case, and the deductions following these findings that not only solved this case, but led to this method of diagnosis.

CASE I. E. C., aged seven years, was brought by her mother to my office. The mother had noticed the child was not well, but although she had watched her closely, she could detect nothing definitely wrong with her. She had lost five pounds within four months, had no appetite, did not sleep well, awoke every morning about 4 a. m. and from that time on dragged herself about the house, always listless and restless and not playing with the other children.

Examination revealed nothing abnormal. Blood normal; no malarial parasites; hemoglobin normal. Urine contained no albumin and no sugar; microscopically, showed an abundance of yeast present.

On questioning the mother whether she made her own bread, I received an affirmative answer, and on further questioning, I learned that the girl was in the habit of playing around the table at such times. I then came to the conclusion that this was the source of the yeast and that the child carried some of it still on her hand when manipulating herself, which was afterward to be found in the urine.

On announcing my diagnosis to the mother, she became indignant and left my office, but returned in four days to tell me that she had observed the child in the act.

Suitable precautions were then instituted, and as the

<sup>1</sup>Medical Standard, November, 1895.

<sup>2</sup>Medical Aspects of Moral Offenses. L. Thoinot, p. 75.

<sup>3</sup>Hofman. Quoted by L. Thoinot.

<sup>4</sup>Ellis, Havelock: Studies in the Psychology of Sex, v. p. 131.

<sup>5</sup>Freud, S.: Drei Abhandlungen zur Sexualtheorie, p. 62.

<sup>6</sup>Kelly, Howard A.: Medical Gynecology, p. 292.

<sup>7</sup>Berger, Oskar: Archiv für Psychiatric, vi. 1876.

<sup>8</sup>Gynecologist, p. 64.

<sup>9</sup>Kelly, H. A.: Loco citato, pp. 294 and 295.

child was old enough to be lectured, the evils and dangers incident to this habit were vividly portrayed to her, and the child made to thoroughly understand the dangers she was running. The result was a complete change in the child; all the peculiarities which the mother had noted were gradually lost, the girl grew stronger and was apparently well again. Several tests by this method have since been negative.

CASE II. A. E., aged nine years. Female. I was sent for early one morning about thirty months ago and on arriving at the home found the child as though recovering from an epileptic attack. The following history was given: The child awoke apparently as usual and called from her bed to her mother saying she did not feel well. Before her mother could reach her, she let forth a scream and began convulsive movements of the whole body. These persisted about fifteen minutes and then subsided, the child going to sleep and awakening in about half an hour drowsy and stupid. These attacks occurred from time to time at intervals of three or four months, and were always of the same type. The family history on both maternal and paternal sides was negative, both parents denying any nervous ailments in any member of either family. There were five other children of the same parents, two boys and three girls, all living and well and none of them at any time had shown any symptoms of nervous derangement. This girl was the second youngest; the mother's pregnancy was normal with an easy delivery. During infancy the child was free from any serious ailment; likewise free from spasms. She had had measles and chicken pox, both mild attacks, and made apparently perfect recoveries in both illnesses. Aside from these, there had been no sickness.

The physical examination showed an apparently healthy child, well built and well nourished with no organic lesions. The urine was normal in every respect. Suspecting masturbation to be the cause of her troubles, I suggested to the mother the advisability of applying the test as a means of finding out if she indulged in this practice. The mother consented and the details were explained to her. Her urine was examined every day under the microscope for two weeks, but in no instance was any yeast found. To make sure there was nothing wrong in the procedure as far as the test was concerned, I had the mother go over the method she employed. I found that the child after playing with the yeast was allowed to wash her hands before retiring. This was stopped. In the next morning's urine yeast was present in great quantities. The child was brought to my office and thoroughly frightened. This was eight months ago. The test had been repeated with negative results, and the attacks also had ceased.

#### CONCLUSIONS.

This method of diagnosis is not offered as absolutely infallible, but at least it is *prima facie* evidence (of the fact) that the child was handling herself at that time. Whether it was a coincidence, that at that particular time there was a local irritation that caused the child to put its yeast laden hands there, can only be determined in a long series of cases, but at least in these and other cases in my practice it has served a definite purpose and helped in clearing the diagnosis in obscure cases and eliminating this habit as a factor in other cases. It is in this spirit that it is offered as a help to the busy general practitioner.

404 D STREET.

**Treatment of Cystitis.**—W. Gross is credited, in *Paris médical* for May 17, 1913, with the following formula of a mixture to be taken internally in cystitis:

R Copaiabæ, .....3i (4 grammes);  
Acidi benzoici, .....gr. lxxv (5 grammes);  
Acacia, .....  
Sacchari pulveris, } .....ââ 3ii (8 grammes);  
Olei gaultheriæ, .....3v (20 grammes);  
Aque camphoræ, .....3vi (200 grammes).

M. Sig.: One dessertspoonful every five hours, after the acute inflammatory symptoms have subsided.

## Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXXVIII.—How do you treat insomnia? (Closed September 15th.)

CXXXIX.—How do you treat chancroids? (Answers due not later than October 15th.)

CXL.—How do you treat the symptoms of senility, without organic disease, but showing approaching dissolution? (Answers due not later than November 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXXVII was awarded to Dr. W. C. Hess, of Cresco, Iowa, whose article appeared on page 673.

## PRIZE QUESTION CXXXVII.

### THE TREATMENT OF THREATENED ABORTION.

(Concluded from page 723.)

Dr. Alfred Costales, of Brooklyn, N. Y., holds that:

When called to attend a case of threatened abortion, after satisfying ourselves that the patient is really pregnant, as ascertained by the history obtained, and by a very careful and complete physical examination, at the same time noting the probable duration of gestation—we order the patient to bed, keep her in the recumbent position, and proceed as follows: Washing and scrubbing the hands and arms with soap and hot water, carefully disinfecting the same with bichloride solution, one in 2,000, or alcohol full strength, touching the ends of the fingers with tincture of iodine and smearing the fingers and the whole hand thoroughly with some antiseptic lubricant, we make a vaginal examination and feel the condition of the os uteri and cervix. If the os is found undilated and the cervical canal unexpanded, the hemorrhage being slight and the pains controllable, we have to deal with a *threatened abortion* and recommend absolute rest in bed, forbidding all excitement, etc. The indications are to arrest the further progress of the case by giving the patient a hypodermic injection of morphine,  $\frac{1}{4}$  grain, and atropine,  $\frac{1}{150}$  grain; or pulveris opii,  $\frac{1}{4}$  grain, and gallic acid, three grains, every three hours, for a few doses only, to arrest hemorrhage and pain; or one drachm of the compound tincture of viburnum opulus (National Formulary) every two or three hours. In the majority of the cases we will not succeed because the patients will not carry out our orders, as in the present epoch they prefer to get rid of it.

If the case becomes one of unavoidable abortion, as indicated by a dilated os, profuse hemorrhage accompanied by sharp uterine pains, and the os and cervix are dilated enough to admit one or two fingers, we at once proceed to evacuate the uterine cavity by peeling off the membranes and removing the entire uterine contents, making downward counter pressure on the uterus through the brim of the pelvis, with the other disengaged hand, so that it will be helpful in our manipulations; or we can introduce an irrigating curette properly sterilized, and remove all rough surfaces found therein, by gently curetting and using at the same time a hot intrauterine bichloride douche, one in 5,000, at about 115° F., or using the tincture of iodine, one drachm, to the quart of hot water. If necessary, we may bring down the uterus with a forceps or a tenaculum, thus facilitating our purpose. Give the patient one drachm of fluid extract of ergot, every three hours, for a few doses. If the os and cervix are not dilated, we must have recourse to dilatation by mechanical means, as follows: After introducing a large vaginal speculum and locating the os and cervix, we insert Hegar dilators in succession, or use any good cervical dilator and gradually dilate the canal until it is large enough to admit of packing, say one quarter of an inch or more. We then pack the cervix and vagina with long strips of iodoform or other antiseptic gauze or, if preferred, we may insert, to advantage, a medium or a large sponge or tupelo tent instead, which will have the effect of at once arresting the hemorrhage, however severe, and in from four to six hours we will find either the fetus expelled into the vagina, or the cervical canal so pervious that operative measures are at once available, either with the fingers (always to be preferred) or with the curette. A correct procedure in these cases, where hemorrhage is alarming and the cervix undilated or nearly so, would be to call an assistant, anesthetize the patient, and proceed at once by manual dilatation to evacuate the womb, using an abundance of sterilized lubricant for the hands, which will greatly facilitate the operation; never forgetting to use the hot antiseptic douche of bichloride, or the tincture of iodine, as mentioned, and, if need be, a hypodermic injection of ergotin, thus:

R Ergotini, ..... 3i;  
Aque destillata, ..... 3iij.

M. Sig.: Sixteen minims for hypodermic injection in buttocks, every three hours until effectual.

Or the following:

R Cotarnina hydrochloridi, ..... grs. i;  
Ergotini, ..... grs. ij;  
Aque destillata, ..... 3iij;  
Strychnine sulphatis, ..... gr. 1/50.

M. Fiat capsula No. i. Tâles doses No. xii. One every three hours.

Or pituitrin may be given hypodermatically.

*Dr. M. Auslander, of New York, observes that:*

Treatment should be directed to overcome the tendency to abort, and later to avert a recurrence. The immediate treatment for a single case is about as follows: The patient is placed in a room alone to insure quiet for mind and body. She should re-

ceive a sponge bath of luke warm water and soap followed by a water and alcohol rub, and then be thoroughly dried and placed on a level bed and ordered to remain flat on her back. A suppository containing one grain of extract of opium is given morning and night and one drachm of fluidextract of viburnum prunifolium three times daily. Her diet should be very light. Milk and two slices of buttered toast for breakfast, a plateful of chicken bouillon for dinner with bread, butter, and a baked apple. Milk, a soft boiled egg, and bread and butter for supper. Carbonated water in moderation may be given as a drink. Her bowels should move at least once in two days. If the bowels are not sufficiently active, two drachms of fluidextract of cascara may be given every twelve hours. Three grains of chloral and five grains of strontium bromide may be given in conjunction with one grain of extract of opium or eight minims of laudanum by the mouth every four hours. If under this treatment for several days bleeding and cramps show no tendency to subside then it will most likely continue and become, what is called, an inevitable abortion. Whereas, if the symptoms show a tendency to abate then treatment should be continued. When the symptoms have disappeared the patient should be allowed a gradual increase in diet, and more liberty to roll about in bed, or to sit up, as soon as the bleeding stops. A day or two after she is permitted to get out of the bed, and gradually resume her duties.

When the patient has recovered from the present attack we must look for the underlying causes that have brought it about. These are as previously stated of a general or local nature. In general illnesses, as contagions of infectious diseases, poisons accumulate in the maternal blood and these excite uterine contractions. Treatment is directed more for the cure of the patient than to prevent abortion. In phthisis and luetic infection no effort should be made to avert a threatened abortion. In blood disorders or pernicious anemia accompanying threatened abortion, after the patient has been tided over her present attack she should receive arsenic and iron and a nourishing diet. In asthma and uncontrollable coughing, rest in bed with sedatives are advocated and, if possible, a change of air. Nervous disorders as chorea, hysteria, and epilepsy, cause spasmodic muscular contractions and may affect the uterine muscle. Here again treatment consists of sedatives and rest. Of local conditions we must consider irritable uterus and displaced uterus. Here again we give sedatives and avoid excitement and if possible correct any displacement. Persistent vomiting may bring on a tendency to abortin because of the constant muscular contractions. If sedatives and rest do not stop the vomiting then it were best to allow no interruption of the abortion.

*Dr. Edward Swift, of Los Angeles, Cal., emphasizes the fact that:*

The cardinal feature in the treatment of threatened abortion is rest in the recumbent position. This is essentially the first element of treatment and should be insisted upon. The next thing in order is a careful bimanual examination of the patient to determine the degree of dilation of the cer-



vix—if such exists—and thus settle the question definitely as to whether or not expectant treatment should be undertaken as preferable to the more radical treatment of dilatation and curettage.

Packing the vagina with sterile gauze is unquestionably of value, but in carrying out this procedure care should be taken to pack the anterior and posterior fornices. The packing should be removed in twenty-four hours and then replaced if the bleeding continues. Packing in this manner holds up the uterus and by thus relieving the congestion decreases the amount of bleeding.

Uterine sedatives have a place here, particularly in those cases where the uterus has a tendency to cramplike contractions. Fluidextract of hydrastis, in doses of twenty minims, given in a little water, every three hours, or fluidextract of viburnum, given every three hours in doses of one drachm in water, usually have the desired effect. If the pain is severe one half grain of codeine sulphate, by hypodermic injection, will be found serviceable. Morphine, though used by many, seems to have a tendency to prolong the nausea if not to increase it. Where nausea and vomiting are not present morphine in dose of one fourth grain may be used with good results but should rarely be repeated.

The treatment of the cause is naturally the only course to pursue. When due to constitutional conditions such as syphilis, tuberculosis, chronic nephritis, or cardiac lesions, expectant treatment is of little avail. Though it may relieve the condition and alleviate the symptoms temporarily, inevitable abortion usually supervenes, and then curettage is the method of choice.

Those cases which are most amenable to treatment are due in a large majority to a toxemia. This must be recognized and should be sought for in every instance. The leading symptoms, aside from those of the threatened abortion itself, are: Headache, vomiting, high tension pulse, and pain in the pit of the stomach. A careful examination of the urine will reveal the presence of acetone and diacetic acid, together with an increase in the amount of indican. Albumin is a rare constituent of the urine in these early cases. Acetone is often present without the presence of diacetic acid, but when the latter does appear it denotes a more severe degree of toxemia. Tests for these substances should not be overlooked but they should constitute part of the routine examination of the urine throughout pregnancy. In the cases due to this early toxemia the treatment essentially resolves itself into that of an acidosis. Free elimination, careful diet, plus large doses of sodium bicarbonate is the treatment indicated.

From the diet all raw fruits, meat, and eggs should be eliminated. Broths, soups, zwieback, and buttermilk should be the extent of the feeding for the first few days. As improvement takes place the patient may be allowed fish (if this can be obtained fresh), baked apple, apple sauce, baked potato, and finally a little white meat of chicken. Gradually as improvement takes place, as indicated by the clinical symptoms and the amount of toxic substances in the urine, the diet may be increased

until the patient is again enjoying her accustomed dietary.

For the treatment of the nausea and vomiting cerium oxalate in ten grain doses given in a little milk every two or three hours will be found efficacious. This may be augmented by the administration of choral hydrate in doses of fifteen grains each, combined with thirty grains of sodium bromide, given by the rectum, night and morning.

To increase the elimination one bottle of citrate of magnesia, or one ounce of epsom salts, may be given every morning. The first dose of saline may or may not be preceded by two and one half grains of calomel, given in doses of one half grain every twenty minutes for five doses.

For the acidosis thirty grains of sodium bicarbonate, every three hours, should be given. The urine should be examined every day and, as the acetone or diacetic acid or both decrease, the amount of the sodium bicarbonate may be gradually lessened.

In some cases the injection of glucose (one drachm to the pint of water) has proved serviceable in overcoming the toxemia. This injection should be given by the rectum by the Murphy drop method.

*Dr. Herbert K. Thoms, of New London, Conn., believes that:*

Hospital treatment is of great value, and even the small country hospital has many advantages over the modern home, for we must be ready to treat any of the more severe complications which may supervene. The matter of moving these patients must be left to the judgment of the physician.

The first essential is rest in bed away from the influence of friends and relatives. Every form of mental excitement must be eliminated as well as the characteristic pain. For this purpose one fourth grain of morphine should be given at once, hypodermatically. The two chief symptoms are pain and hemorrhage. Having secured absolute freedom from pain, our next step is to determine as far as possible the source of the hemorrhage. A careful bimanual examination may reveal a placenta prævia, a ruptured bag of waters, or even a foreign body, such as a bougie or catheter.

If the pain is under control and the flow is not severe, our treatment is an expectant one. Good nursing and vigilant watching are of paramount importance. Whether pain recurs or not, it is advisable to keep the patient as quiet as possible, and a rectal suppository containing one grain of extract of opium should be used every four to six hours. In mild cases or at any later period a suppository of codeine combined with extract of hyoscyamus and extract of viburnum prunifolium may be substituted.

In regard to diet, a restricted, nonstimulating, fluid diet should be instituted at first, which of course may be changed as the case progresses. The bowels should be kept freely opened, especially at first. This should be accomplished by enemas in order to avoid any straining.

The amount of blood lost should be carefully

noted. If the amount does not exceed that of an ordinary menstrual flow, we may continue our expectant treatment. However, if the flow exceeds this, and if the patient shows signs of anemia, the uterus should be emptied by appropriate means. In the majority of cases the treatment as outlined suffices.

In some cases, however, the hemorrhage persists, to some degree, for one or even several weeks. In these cases the question of the viability of the fetus must be answered. This can only be done by waiting two or three weeks and then at a reexamination determine whether or not there has been the proper enlargement of the uterus. In the absence of such enlargement and of the other usual signs we may be sure that the fetus is dead, and the uterus should be emptied under aseptic conditions. We must bear in mind that in this instance abortion will inevitably occur sooner or later and the immediate emptying of the uterus secures less chance of infection. After all pain and hemorrhage have ceased we should insist that the patient shall remain in bed for at least a week. Following such an attack the patient should be carefully instructed as to a careful mode of living to avoid any further trouble.

*Dr. M. L. Currier, of Vincennes, Ind., states that:*

If the threatened abortion is due to a dead fetus in utero, evacuation of the uterus should take place immediately.

In threatened abortion due to any other cause, the cause should be ascertained and removed if still existing (such as hair pins, lead pencils, or catheters within the uterus).

The direct expulsion of the fetus is due to uterine contraction and the treatment of threatened abortion is directed at the uterus to abolish its muscular activity. The rational procedure for this end is complete rest in bed, with an ice cap over the pubic region and morphine hypodermically, in sufficient doses to entirely relieve the uterine cramps.

The patient should not be permitted out of bed until the uterine cramps have completely subsided.

Unless the bowels move of their own accord after the administration of the morphine, a soap-suds enema should be used for this purpose. Following this a mild laxative may be given if necessary.

### Therapeutic Notes.

**Treatment of Puerperal Endometritis.**—P. Delmas, in *Presse médicale* for June 7, 1913, is credited with strongly advising the use of tampons soaked in oil of turpentine in puerperal endometritis. After exposure of the cervix by means of a speculum, a strip of gauze varying in length according to whether the uterus is abortive or puerperal, is dipped in the turpentine and inserted systematically with long forceps into the uterine cavity. One end of the strip is left in the vagina, from the walls of which, previously irrigated with boiled water, it is kept separated by a tampon of cotton. All burning of the vulva is avoided if the parts are first co-

piously covered with petrolatum. The intrauterine strip is removed only after twenty-four hours.

In a first series of cases, the author used the turpentine where, with retained membranes, digital or instrumental evacuation of the uterus, followed by iodine, failed to overcome fever. The successful results noted then led him to employ it regularly after evacuation or curettage. It was found that after turpentine the pulse and temperature fell progressively during two or three days until fever was entirely gone.

The turpentine probably acts in several ways. Thus in the first place it is almost a specific antiseptic to the streptococcus, and also hinders the development of other organisms. Again, it causes a pronounced local afflux of leucocytes. Finally, it is effectually absorbed by the uterine mucosa, with its widely dilated vessels, and enters the general system, as shown by the odor of violets given off by the urine, which lasts for several days. Thus, as in the case of subcutaneous injections of turpentine solutions, the opsonic index of the blood is notably increased. The simplicity and efficacy of the turpentine treatment warrants, according to Delmas, its general adoption.

**Treatment of Latent Acute Infections.**—Guido Baccelli, in *Paris médical* for May 24, 1913, asserts that he and his coworkers have obtained excellent results in severe, obscure, acute infections by administering intravenous injections of mercury bichloride. Whatever be the true explanation of its action, he is certain that it favors destruction of bacteria and toxic substances and tends to maintain the integrity of the leucocytes. The formula he uses is as follows:

R Hydrargyri chloridi corrosivi, gr.  $\frac{1}{6}$  (0.01 gramme);  
Sodii chloridi, ..... gr.  $\frac{1}{4}$  (0.075 gramme);  
Aque sterilisatæ, ..... 5iiss (10 grammes).  
Solve.

This may be injected, in very grave cases, two or three times in the twenty-four hours. The theoretical objection that injury to the kidneys might be produced has found no justification in the author's experience. Promptly after the introduction of the mercury salt in the blood the temperature shows a fall, which may exceed one degree centigrade. At the same time the general condition is favorably influenced. Several cases are referred to in which the mercury injections unmistakably saved life.

**Treatment of Pernicious Anemia.**—Byrom Bramwell, in the *Proceedings of the Royal Society of Medicine* for May, 1913, discusses the results he has obtained with salvarsan in this disease, reporting thirteen cases. Comparing the effects with those achieved with arsenic, he is favorably impressed with salvarsan. Though he has witnessed remarkable temporary cures under arsenic, he has not seen in any series of thirteen cases such good results under arsenic as in those in which salvarsan had been given. In some cases there was no apparent benefit, but in others striking improvement. As two years is the longest time that has elapsed since treatment in any of the thirteen cases, the likelihood of recurrence cannot as yet be stated; but the author regards salvarsan as a remedy of very great use in pernicious anemia.

**Treatment of Diphtheria.**—R. Oppenheim, in *Progrès médical* for February 8, 1913, advises that throughout the period of administration of antitoxine the following mixture be given daily both in order to avoid serum intoxication and as tonic:

R Calci chloridi, .....	℥iiss (6 grammes);
Syrupi aurantii, .....	℥ss (40 grammes);
Spiritus frumenti, .....	℥i (30 grammes);
Tinctura cinnamomi, .....	℥iiss (5 grammes);
Aque destillata, q. s. ad.....	℥iii (100 grammes).

M. Sig.: Two tablespoonfuls a day.

The patient should be kept in a large, well ventilated room, in which a panful of water heated over an alcohol lamp, and with the addition of a tablespoonful of the following solution, should be kept constantly evaporating:

R Olei thymi, ... }	℥iiss (10 grammes);
Olei eucalypti, ... }	
Benzoini, .....	℥i (10 grammes);
Alcoholis, .....	Oss (250 grammes).

M. Ft. solutio.

Every three hours in the daytime, and once or twice at night, the throat should be thoroughly washed with one quart (litre) of the following solution:

R Aque hydrogenii dioxidi, .....	℥iiss (50 grammes);
Aque destillata, .....	Oii (1000 grammes);
Sodii boratis, .....	q. s. ut neutralisat.

Fiat solutio.

For fetid and gangrenous throats a one in 500 iodine solution, or a one in 1,000 potassium permanganate solution is preferable. To necrotic areas there should be applied, after the irrigation:

R Acidi salicylici, .....	gr. xv (1 gramme);
Alcoholis, .....	℥iiss (6 grammes);
Glycerini, .....	℥vi (25 grammes).

M. Ft. solutio.

A few drops of the following should also be introduced in the nostrils:

R Eucalyptolis, .....	℥viii (0.5 gramme);
Olei olivæ, .....	℥i (30 grammes).

Misce.

In severe forms of diphtheria with adynamia, a tendency to collapse, and signs of myocardial impairment or adrenal insufficiency, injections of camphorated oil, of saline solution to which epinephrin has been added, and of strychnine and sparteine may be given.

R Strychninae sulphatis, .....	gr. ⅞ (0.02 gramme);
Sparteinae sulphatis, .....	gr. viiss (0.5 gramme);
Aque destillata sterilisata, .....	℥iiss (10 c. c.).

M. Sig.: Inject fifteen minims (1 c. c.) twice daily.

Powdered suprarenal substance should also be prescribed in the dose of from three to five grains (0.2 to 0.3 gramme) a day.

**Treatment of Mitral Stenosis of Rheumatic Origin.**—Pierret and Leroy, in *Echo médical du Nord* for March 25, 1913, report a case of mitral stenosis occurring on the tenth day of acute articular rheumatism in which injections of fibrolysin gave striking results. Beginning on the tenth day after the advent of the presystolic murmur, when acetylsalicylic acid had shown itself to be entirely without effect on the endocarditis, ten injections of fibrolysin, each of two cubic centimetres, were given on alternate days. By the fourth injection, the reduplication of the second heart sound had disappeared and the presystolic murmur become almost imperceptible. The drug appeared to have acted as it does in cicatricial stricture of the esophagus or

urethra. While results in a single case are not conclusive, the authors intend to repeat the procedure in subsequent cases. In the patient referred to, a return of articular swelling took place which might perhaps have been due to the action of the drug on the fibrous tissues at the joints.

**Treatment of Chancroid.**—Szanto, in *Nouveaux Remèdes* for May 24, 1913, is credited with the following ointment to be applied to chancroids after the latter have been thoroughly cleansed:

R Acidi salicylici, .....	gr. xv (1 gramme);
Tinctura benzoini, .....	℥ss (2 grammes);
Petrolati, .....	℥i (30 grammes).

Misce. Ft. unguentum.

**Treatment of Enteritis in Infants.**—W. M. Salter, in the *Southern Medical Journal* for January, 1913, states that where this condition is secondary to gastric irritation, the alimentary tract should be thoroughly cleansed. Castor oil acts well if there is no vomiting; otherwise, calomel, rhubarb, and soda should be used. If vomiting is frequent and accompanied by retching, the author usually resorts to stomach washing with some alkaline solution. This is just as necessary as thorough irrigation of the lower bowels.

A twenty-four to thirty-six hour rest, only a little boiled water being allowed, is then required. In the breast fed child, it is usually safe to begin nursing on the third day, but care must be taken never to permit the child to have the full allowance of breast milk at first. The child should be given barley water or five per cent. milk sugar water before each nursing, to dilute the breast milk. This dilution should be continued throughout the excessively hot weather. In the bottle fed infant, if microscopical examination of the stools shows the proteids to be at fault, a course of barley water, whey, peptonized milk, and modified raw milk may appropriately follow the period of restriction to boiled water.

In the later stages, reduction of sugars and fats, increase of casein, and the addition of lactic acid bacteria are the measures of treatment generally suitable. The different foods used are: (1) Plain buttermilk; (2) artificial buttermilk made from the two strains of lactic acid bacilli; (3) buttermilk cooked with flour and sugar; (4) casein milk. At first the child may not like fresh buttermilk, and it may cause vomiting; but if it is persisted in, good results will appear in a few days. Buttermilk with flour and sugar is often used; one quart of buttermilk is cooked for twenty minutes, suitably diluted with barley water, and cane sugar added to make up the required caloric value. The value of this preparation seems to lie in the low percentage of fat and the presence of a different proteid, as well as of the lactic acid. Casein milk, advised by Finkelstein, is made by heating a quart of milk to 100° F., adding half an ounce of essence of pepsin, stirring well, allowing to stand at the same temperature one half hour, then filtering. The curd is forced through a fine sieve several times, and finally, one pint each of water and buttermilk added. This food has given gratifying results in all grades of intestinal disturbance. It may be given for some time, until the stools are normal and a gain in weight has begun, when return should be made to the regular milk mixture.



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## THE SOCIAL ASPECT OF MEDICINE.

It seems that the solution of the question of social hygiene, in the narrower sense of the word, will be accomplished by physicians rather than by social reformers. The recent epoch making developments of modern medicine, with regard to the diagnosis and treatment of syphilis and gonorrhea, have pointed to a more certain method of checking the ravages of these diseases than the former puerile and futile attempts through the control of prostitution by segregation, inspection, licensing, etc. The medical man is becoming a social benefactor, not only by the mere application of his stupendous scientific achievements, but also through his readiness and unselfish devotion to serve the cause of humanity by all means at his disposal. The efforts of the American medical profession in this respect are known to all of us. Recently, the British have taken up the matter actively. On July 22d, a letter signed by thirty-eight eminent physicians, among them Thomas Barlow, Rickman J. Godlee, William Osler, and T. Clifford Allbutt, was published in the *London Morning Post*. The letter points out that among the various efforts to promote health and prevent disease there is noteworthy omission, due to the criminal

conspiracy of silence on the part of society as regards venereal disease. The letter calls the attention of the public to the seriousness of the problem and estimates that the new cases of the gravest form of the disease arising in the United Kingdom number a hundred and thirty thousand every year. In conclusion, an appeal is made for the appointment of a Royal Commission "to investigate the facts and to recommend what steps, prophylactic and therapeutic, should be taken to cope with these diseases." A resolution to that effect was unanimously passed by the British Medical Association and is receiving the careful consideration of the government. The International Congress of Medicine recently held in London went further in this direction by passing a resolution calling upon the governments of all the countries represented at the congress to institute a system of confidential notification of the disease to a sanitary authority, wherever such notification does not already obtain, and to make systematic provision for the diagnosis and treatment of all cases of syphilis not otherwise provided for.

The recent ruling of the Department of Health of New York city, which is in accord with the sentiment expressed in these resolutions, has not as yet the complete sympathy of the majority of the medical men of the city. It is significant, however, that when the matter of the resolution prepared by the Public Health Committee of the New York Academy of Medicine came to a vote at one of the meetings of the academy, it failed to pass by a very narrow margin only. It is to be hoped that when the advantages of notification are made more apparent, the Department of Health will have the full measure of support.

A NOVEL PROCEDURE FOR THE RELIEF  
OF HEADACHE.

In the *Southern Medical Journal* for September Dr. Max Henning, surgeon to the Memphis City Hospital, reports, with some hesitancy, a case of cure of headache of long standing following the removal of superfluous skin around the neck. The patient, it seems, was a physician, forty-eight years old, who from about the age of thirty had suffered from gastric and intestinal indigestion. After a time this became accompanied by headaches, which finally grew so severe that he was almost entirely incapacitated for his professional duties. These would occur about twice a week and last from half a day to three days, and any straining or lifting, or any sudden excitement, would at once bring one on. Hot applications to the head were the only measure that afforded even partial relief, until one occasion

when the patient suffered so intensely that he threw himself across the bed and involuntarily grasped the back of the neck firmly with his hand. Within ten minutes, much to his surprise, the pain almost ceased, and the same thing occurred in subsequent attacks; though when the pressure was removed the pain would gradually return. He first consulted Doctor Henning early last spring, and under the treatment prescribed by him there was some improvement in his digestive trouble; but the headaches continued much as usual. The doctor had noticed a relaxed condition of the skin of the neck, and at length it occurred to him that inasmuch as the pressure of the hand, tightening the skin, had produced temporary relief, the removal of the superfluous skin might perhaps afford permanent alleviation. Accordingly, in two operations he cut away four elliptical strips of skin, about four inches long and one inch wide, two of which were taken from the sides and two from the front of the neck. The result was most gratifying, for since the second operation the patient has been entirely free from his headaches.

This case certainly presents many interesting features. Habitual headache has been attributed to innumerable causes, of the most varied character, but never before has an instance been recorded in which it was apparently due to redundancy of the skin of the neck. It is not very probable that the cure in the case was the result of the moral effect of the surgical treatment, for only partial relief was afforded after the first operation, when the two pieces of skin were taken from the sides of the neck, and it was only after the second operation, when an additional quantity of skin was removed, that the relief from the headaches was complete. Then we must remember that the patient was a practising physician forty-eight years of age, and so not likely to be affected by such psychic influence. The explanation suggested by Doctor Henning is that the removal of the considerable amount of skin from the neck "tightened up the skin enough to support the circulation there."

#### THE RADIUM TREATMENT OF CANCER.

If, as reported, Mr. Coleman DuPont intends to devote the output of several radium mines to philanthropic purposes, thus enabling the profession at large to employ radium therapeutically, he will not only confer a blessing upon a multitude of sufferers, but also contribute much toward a marked development of our knowledge of its therapeutic properties, its cost at the present time rendering its use practically prohibitive for any but few practitioners.

Indeed, its therapeutic value in the treatment of cancer is asserting itself increasingly. The recent International Congress in London brought out a galaxy of progressive papers; few, however, received greater attention than one by Doctor Robert Abbe, of New York, on the use of radium in malignant disease. Basing his remarks on some 750 patients including 250 epitheliomas, in various regions, and 180 carcinomas of peripheral tissues, breast, tongue, throat, esophagus, etc.; fifty sarcomas of the skin, parotid, etc.; and various other types of growth, he urged that provided the gamma rays (the alpha and beta rays being removed by filtration through lead, thus producing a form of radiation analogous to x rays and of very great penetrating power) be used and correct doses be the rule, the outlook of this method of treatment was decidedly promising. There is established a retrograde degeneration of the malignant cells, which in a relatively large proportion of cases leads to a cure.

While surgical methods should continue to be given preference wherever at all possible, with radiumization of the bed of the wound to obtain degeneration of what malignant cells the exposed tissues may contain, the fact remains that radium has earned for itself the position of "next best" with fair promise to outstrip the knife. It has besides many advantages over the latter. As emphasized a few months ago by Williams and Ellsworth (*Journal of the American Medical Association*, May 13, 1913) the application of pure radium bromide in sufficient amount, properly used, is a painless and efficient method of treating early superficial new growths. This in itself is a distinct advantage over the knife, for a patient will almost invariably postpone surgical methods until the malignant tumor is well advanced, while practically no one would hesitate to undergo the absolutely painless exposures to radium, thus insuring early treatment and increasing greatly the chances of success. Again, radium seems to be more successful when it is the first treatment employed than when it is used after operation, x rays, or other forms of treatment. In face cancers, the cosmetic results are also to be taken into account, surgical removal of a growth of the lid, lips, etc., entailing almost always a disfigurement, which radium, though equally effective, would avoid. Moreover, it does not entail the danger of burns, though destruction of tissues by radium (as Doctor Abbe has good reason to remember, through the occurrence of a trade dollar hole in his leg some ten years ago, owing to his habit of carrying radium in his trouser pockets) is not impossible through abnormally long

exposures. Such effects do not occur, however, in the course of its therapeutic use. On the whole, it is to be hoped that whether through philanthropic, or other means, the use of radium will some time soon be within the reach of all.

### TYPHOID EPIDEMICS.

The July number of the *Journal of Infectious Diseases* contains an account of a waterborne epidemic of typhoid fever occurring in a city of about 40,000 that should prove instructive. An outbreak of cases attracted the attention of the city authorities and experts were sent to ferret out the source of the disease. The investigation revealed the usual unsanitary arrangements and reckless disregard of the public health that seems so widespread here.

Apparently no attention is paid until a score or more fall ill or die. In this particular instance the examiners found conditions that would be considered dangerous by the most casual observer. An intake pipe, thirty inches in diameter, composed of wooden staves, extended fourteen hundred feet out and up the river, from whence the water supply was received. Two blocks above the pumping stations one of the largest of the main city sewers emptied into the river at a point but little below the upper end of the intake pipe. There was, therefore, the ever present possibility of a leak in the wooden pipe, and such had occurred, although it had been repaired some months before the epidemic. Moreover, changes in the water level or a diminished rapidity of the current would permit the sewage to flow directly into the intake. The consequence was that some two hundred cases of typhoid fever, with sixteen deaths, occurred. A heavy toll to pay for either ignorance or carelessness, or both! It would be well if the smaller towns and cities would examine closely into their water supply and correct faulty conditions before serious results occur therefrom.

### GOAT'S MILK AND MALTA FEVER.

A bulletin has been compiled in the Bureau of Animal Industry of Washington, D. C., which is of practical interest to all who raise goats and to those people who use goat's milk as a diet. The bulletin is based upon the now conclusively established proofs that the transmission of Malta or mountain fever to man is accomplished by the milk of infected goats. The sickness appears usually after the kidding season, during the months of April, May, and June. The general opinion is prevalent that the United States is free from Malta fever and that the disease has only occurred through importations. But it now seems evident that Malta fever has existed in Texas and New Mexico for at least twenty-

five years. As is well known, the fever takes its name from the island in the Mediterranean, where the disease has been prevalent among the British soldiers and sailors. It has also been observed in other subtropical and tropical localities, among them our possessions in the Pacific Ocean. The most striking symptoms is an attack of fever with periods of normal temperature, associated with severe headache, pain in the back, and a general feeling of malaise. The mortality in man is estimated at three per cent. Pasteurization of infected milk for twenty minutes at 145° F. is sufficient to destroy the organism which transmits the disease. While the disease has no active effect on goats, its eradication must be considered important, especially as there has been lately a tendency among physicians to advise the drinking of goat's milk for children and invalids.

### WHERE DO RATS GO TO DIE?

Victor G. Heiser, the chief quarantine officer of the Philippine Islands, raises this interesting question in the *Public Health Report* for July 25, 1913. It is a well established fact that the rat population of any country is at least equal to that of the human. Notwithstanding the fact that the average life of the rat is only five years and that the death rate from natural causes must necessarily be great, no one has yet been able to find the carcasses of the rats in anything like the numbers which their death rate would seem to warrant. This death rate for the city of Manila should be at least 2,500 rats a month or an average daily mortality of about eighty-two rats. As a matter of fact practically no dead rats are found at all. Heiser searched all the known places where it would seem likely that the rodents would go to die without finding any of their dead bodies. As further evidence that no considerable number of rats die in out of the way places, he states that it has been the experience of the gangs of rat destroyers amounting to over 300 men, seldom to find a dead rat that has not died of poison, or from some other readily explainable cause. Live rats are frequently encountered in these operations and are promptly killed by means of dogs or clubs. Many hundreds of city blocks have been cleaned in this way, and yet it is most exceptional to find a dead rat. The contention that the dead are eaten by the living is answered by the fact that it is exceedingly rare to find skeletons of rats or any partially consumed remains. Heiser concludes that at least in Manila many hundreds of rats disappear each month by natural means, the exact nature of which is unknown, but that if it could be discovered, a useful clue might be obtained as to the best manner in which to undertake wholesale rat destruction.



## THE EFFECTS OF THE DUCTLESS GLANDS UPON DEVELOPMENT.

"Despite the immense amount of work which is now being done upon the ductless glands," says Hastings Gilford, in the *Lancet* for September 6, 1913, "we still have to go to clinical and pathological evidence as the basis of our knowledge." Two kinds of research pursued in the study of their functions—the experimental and the pathological—tend to run along lines which are either parallel or divergent, but which can seldom be brought to a focus at any point. He contends that there is a tendency for those who approach the problem from a laboratory side to become lost in the mazes of abstract science, while those who approach from the hospital side incline to come prematurely to conclusions which are unscientific. In order to be practical and to get at the truth, Gilford thinks that we must turn to pathology for most of our information. "The normal action of these glands is so delicate, so complex, and so abstruse that we can best judge of what happens in health by drawing inferences from that which takes place when their action is magnified or diminished by disease." Acting upon this basis, Gilford discusses the relation of these glands to development, remarking that the problem is that of studying the inhibition or the reinforcement of those bodily correlations which are carried on through the medium of chemical secretions or hormones. In the matter of development the initial correlations are possibly set going by the mechanical penetration of the spermatozoon into the ovum, and they probably continue for a considerable time, before the ductless glands are developed, without the influences of these glands, and it is highly probable that some faculty of adjustment and correlation persists throughout life which is quite apart from the action of the nervous system or the ductless glands. Thus it is hard to understand the adjustments which occur in achondroplasia, in rickets, and microcephaly unless we adopt some explanation which leaves out the ductless glands. Though the ductless glands are of great importance, we are led to suppose, therefore, that they are only a part of the machinery of adjustment.

## AN APPENDIX OF UNUSUAL SIZE.

At a recent meeting of the Medical Society of Montpellier, France (*Revue de Chirurgie*, August, 1913), A. and M. Romieu exhibited the appendix of a young man who had succumbed to septicæmia, measuring no less than twenty-four centimetres (ten inches) in length. The organ was found extending into the pelvis, and was compressed near its inferior extremity by an adhesion which held it against the pelvic wall near the rectum and had produced a terminal cystic dilatation. The lumen was otherwise almost entirely free, and contained near the lower end of the organ, above and below the constricted section, a small quantity of fecal matter, not in the form of concretions, and about twenty fig seeds with their pericarps or akenes.

## News Items.

**The Wesley M. Carpenter Lecture.**—This lecture was given on Thursday evening, October 16th, at a stated meeting of the New York Academy of Medicine, by Dr. William H. Park, of the Department of Health of the City of New York, his subject being Antitoxine Doses, Anaphylaxis, and Active Immunization Against Diphtheria.

**Appointments at the University of Pittsburgh.**—Among the new appointments made at the University of Pittsburgh for the coming year are the following in the school of medicine: Dr. J. H. Heard has been appointed professor of medicine, Dr. X. O. Werder, professor of gynecology, Dr. J. McMeans, instructor in clinical pathology; Dr. C. Gardner, assistant demonstrator in anatomy.

**Clinical Lectures on Diseases of the Skin.**—The governors of the New York Skin and Cancer Hospital announce that Dr. L. Duncan Bulkley will give the fifteenth series of clinical lectures on diseases of the skin in the outpatient hall of the hospital, on Wednesday afternoons, at 4:15 o'clock, beginning on November 5th. These lectures will be free to the medical profession on the presentation of professional cards.

**Medical Society of the County of Dutchess, N. Y.**—At the annual meeting of this society, held on the afternoon of Wednesday, October 8th, the following officers were elected: Dr. L. C. Wood, of Poughkeepsie, president; Dr. R. H. Breed, of Wappingers Falls, vice-president; treasurer, Dr. Lewis H. Marks, of Poughkeepsie; secretary, Dr. F. J. Mann, of Poughkeepsie; censors, Dr. Howard Carpenter, of the Hudson River State Hospital, Dr. J. H. Cotter, of Poughkeepsie, and Dr. D. H. MacKenzie of Millbrook.

**Professor Schmidt to Lecture in New York.**—Dr. Adolph Schmidt, professor of medicine in the University of Halle, Germany, will deliver the second Harvey Society lecture on Saturday evening, October 18th, at 8:30 o'clock, at the New York Academy of Medicine, his subject being Severe Anemia in Gastrointestinal Diseases. He will also give a lecture on Chronic Pancreatitis at the New York Postgraduate Medical School and Hospital on Tuesday, October 21st, at 4 p. m. All members of the medical profession are invited.

**Norwegian Hospital Alumni Association.**—This association, which was organized fifteen years ago, met in the hospital building on Wednesday, October 8th. Dr. G. H. V. Hunter read a paper on Sex Determination, Dr. C. E. Lack spoke on percentage infant feeding, and Dr. R. E. Coughlin paid a personal tribute to the late Dr. Henry Cushman Turner, formerly dean of the medical staff. The officers of the association are: Dr. Robert G. Moore, president; Dr. Louis Stork, vice-president; Dr. Henry Spelman, secretary and treasurer.

**Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.**—Monday, October 20th, Philadelphia Clinical Association, Medical Society of the Woman's Hospital, and the Northwestern General Hospital Medical Society; Tuesday, October 21st, West Branch of the Philadelphia County Medical Society, and the Philadelphia Laryngological Society; Wednesday, October 22d, Philadelphia County Medical Society; Thursday, October 23d, Pathological Society and the Germantown Branch of the Philadelphia County Medical Society; Friday, October 24th, Neurological Society, Northern Medical Association, South Branch of the Philadelphia County Medical Society, and the directors of the Medical Club.

**The Medical Association of the Greater City of New York.**—A stated meeting of this association, the first of the season of 1913-1914, will be held in Du Bois Hall, New York Academy of Medicine, on Monday evening, October 20th, at 8:30 o'clock. The programme will include the following papers: Tuberculosis Patients Treated by a Special Method and Control of Cure, by Dr. C. A. Ende; Theory and Treatment of Diabetes, by Dr. William Edward Fitch; Diabetes Azoturique of the French, by Dr. Anthony Bessler; Diabetes in Children, by Dr. Louis Fischer. Among those who will take part in the discussion are Dr. Edward E. Cornwall, Dr. Robert L. Watkins, Dr. J. Wallace Beveridge, Dr. Charles Herrman, and Dr. Eli Long.

**Dengue in Savannah, Ga.**—Surgeon C. H. Lavinder, of the United States Public Health Service, reported by telegraph on October 8, 1913, that dengue was prevalent in Savannah, Ga.; the number of cases of the disease was not known.

**Cholera in Rumania.**—During the week ending September 11, 1913, there were reported in Rumania 401 new cases of cholera, with 163 deaths, making a total from the outbreak of the disease of 1,452 cases, with 623 deaths. In addition to this number 23 cases of cholera were reported on September 11th at Silistria among Greek and Turkish refugees.

**Honorary Degrees Conferred by the University of Birmingham.**—At the annual meeting of the British Association for the Advancement of Science, held recently in Birmingham, England, the honorary degree of doctor of laws was conferred upon several foreign guests, among them being Doctor Arrhenius, director of the Nobel Institute for Physics and Chemistry, at Stockholm; Madame Curie, director of the Physical Laboratory at the Sorbonne, Paris; Doctor Keibel, professor of anatomy in the University of Freiburg, Germany; Dr. H. A. Lorentz, professor of physics in the University of Leyden, and Dr. R. W. Wood, professor of experimental physics in the Johns Hopkins University, Baltimore.

**The Eastern Medical Society.**—A symposium on the education of the public in regard to cancer was presented at a meeting of the Eastern Medical Society, held on Friday evening, October 17th. Papers were read as follows: The Suspicion of Malignancy, by Dr. Howard Lilienthal; Cancer in Women, and the American Society for the Control of Cancer, by Dr. Le Roy Brown; Some Cancer Problems in Greater New York, by Frederick L. Hoffman, Esq., statistician of the Prudential Insurance Company of America. The subject was discussed by Dr. Willy Meyer, Dr. George E. Brewer, Dr. Herman J. Boldt, Dr. John A. Bodine, Dr. Louis J. Kadinski, and others. The meeting was open to the public and there was a good attendance.

**American Röntgen Ray Society.**—The fourteenth annual meeting of this society was held in Boston on October 1st, 2d, 3d, and 4th, under the presidency of Dr. H. K. Pancoast, of Philadelphia. About one hundred physicians from the United States and Canada were present. An excellent programme was presented, an interesting feature being a symposium on the value of the x ray in the diagnosis of diseases of the stomach and duodenum. Among those who contributed to the symposium were Dr. Lewis Gregory Cole, of New York, Dr. A. W. George, of Boston, Dr. A. W. Crane, of Kalamazoo, Mich., Dr. A. H. Pirie, of Montreal, Dr. G. E. Pfahler, of Philadelphia, Dr. J. T. Case, of Battle Creek, Mich., and Dr. F. H. Baetjer, of Baltimore. Many of the papers were illustrated by lantern slides. Officers to serve for the ensuing year were elected as follows: President, Dr. Sidney Lange, of Cincinnati; secretary, Dr. W. F. Manges, of Philadelphia; treasurer, Dr. Leonard Rue, of Buffalo.

**Personal.**—Dr. John R. Slattery, of Boston, has been created a Knight of the Holy Sepulchre by Pope Pius X. This order is one of the most ancient in the church and was at one time confined to the nobility. It is said that Doctor Slattery is the first layman in this country to receive the Order of the Holy Sepulchre.

Dr. Chester H. Heuser, of Harvard University, has been appointed to a fellowship in anatomy at the Wistar Institute of Anatomy, of the University of Pennsylvania.

Dr. A. H. Ryan, until recently assistant professor of physiology at the University of Pittsburgh, has accepted the chair of physiology and pharmacology in the State University of Alabama.

Dr. Wayne A. Smith, for two years superintendent of the St. Louis City Hospital and formerly superintendent of the Washington University Hospital, has resigned to become general manager of the Harper Hospital, Detroit. Doctor Smith will assume his new duties on November 1st. His successor at the St. Louis hospital has not yet been appointed.

Dr. Victor Vance Anderson, an assistant instructor in psychology at Harvard Medical School, has been appointed assistant probation officer of the Municipal Court of Boston, and will begin his new work on October 6th.

Dr. C. T. Roome has been appointed health commissioner of Evanston, Ill., to take the place of Dr. Victor Balderson, who resigned recently in order to devote more time to his private practice.

**A New Hospital Building for Temple University.**—Plans have been arranged whereby Temple University, Philadelphia, will have the largest hospital, not a government or municipal institution, in the United States. The dental college at Eighteenth and Buttonwood Streets will be moved to one of the other Temple University buildings and the building now occupied by the dental, pharmaceutical, and medical departments added to Garrettsen Hospital, with one hundred and fifty-two private rooms, several large wards, and a large operating room. There will be built an entirely new hospital, with one hundred and twenty-five private rooms, which, in addition to Samaritan Hospital and the Garrettsen Hospital, will give the medical students of Temple University unrivaled facilities for pursuing their studies. At Samaritan Hospital the State of Pennsylvania is now constructing a laboratory building, a memorial to the late Dr. Elmer E. Brown, for many years vice-president of the university.

**New York and New England Association of Railway Surgeons.**—The twenty-third annual meeting of this association will be held at the Hotel Astor, New York, on Wednesday, October 23d, under the presidency of Dr. John W. Le Seur, of Batavia, N. Y. There will be two sessions. At the morning session the annual address of the president will be delivered by Doctor Le Seur, and Mr. Ralph Peters, president of the Long Island Railroad, will deliver an address. In the afternoon Dr. Hugh H. Young, of Baltimore, will deliver the address in surgery. In addition to these addresses fifteen papers are listed on the programme. On Thursday, October 23d, two clinics will be held for the visiting surgeons; in the morning at the Polyclinic Hospital, and in the afternoon at the Post-Graduate Hospital. The officers of the association are: President, Dr. John W. Le Seur, of Batavia, N. Y.; first vice-president, Dr. C. A. Pease, of Burlington, Vt.; second vice-president, Dr. W. H. Marcy, of Buffalo; corresponding secretary, Dr. George Chaffee, of Brooklyn; recording secretary, Dr. J. H. Reid, of Troy, N. Y.; treasurer, Dr. J. K. Stockwell, of Oswego, N. Y.

**Section in Obstetrics and Gynecology of the New York Academy of Medicine.**—The meetings of this section will be held in future on the fourth Tuesday of the month, instead of on the fourth Thursday as heretofore. At the next meeting, which will be held on the evening of October 28th, the programme will be furnished by the staff of the Lying-in Hospital. Dr. E. S. Gushee will present a review of the craniotomies recently done in the service of the hospital. Dr. J. R. Losee will report a case of congenital fatal deformity of the esophagus. Dr. J. W. Markoe will exhibit a set of obstetrical instruments available for the general practitioner. Dr. E. D. Truesdell will give a lantern demonstration of birth injuries of the extremities. A statistical review of the work of the hospital during the past five years will be presented by Dr. Ross McPherson. Papers will be read as follows: Additional Experiences with the Dialysation Method for the Serodiagnosis of Pregnancy, by Dr. C. F. Jellinghaus and Dr. J. R. Losee; Magnesium Sulphate Treatment of Puerperal Streptococemia, by Dr. J. A. Harrar. A general discussion will follow. Dr. George Gray Ward, Jr., is chairman of the section and Dr. George W. Kosmak is secretary.

**State Medical Society of Wisconsin.**—Dr. Charles Sheldon, of Madison, was elected president of this association, at the annual meeting held recently in Milwaukee. Other officers were elected as follows: Dr. C. A. Evans, of Milwaukee, first vice-president; Dr. E. J. Combs, of Oshkosh, second vice-president; Dr. E. H. Kinney, of Elkhorn, third vice-president; Dr. J. P. McMahon and Dr. A. W. Gray, of Milwaukee, and Dr. F. F. Bowman, of Madison, committee on public policy and legislation; Dr. M. P. Ravenel and Dr. C. Harper, of Madison, Dr. Gilbert E. Seaman and Dr. Hoyt E. Dearholt, of Milwaukee, and Dr. Thomas Hay, of Stevens Point, committee on prevention of tuberculosis; Dr. Edward Evans, of La Crosse, Dr. E. S. Hayes, of Eau Claire, and Dr. W. H. Washburn, of Milwaukee, committee on medical education; Dr. A. W. Meyers, of Milwaukee, Dr. J. C. Reynolds, of Lake Geneva, and Dr. E. L. Boothby, of Hammond, committee on necrology; Dr. C. A. Bardeen, of Madison, delegate to act with the board of public instruction; Dr. C. A. Patek, of Milwaukee, delegate to the national legislative council; Dr. Henry B. Hitz, delegate to the council of medical education; Dr. J. M. Dodd, of Ashland, delegate to the American Medical Association.

## Pith of Progressive Literature.

MUNCHENER MEDIZINISCHE WOCHENSCHRIFT.

September 2, 1913.

**Prophylactic Ferments as Specifics. The Blood Serum of Pregnant Animals; Its Relation to Different Organs.**—E. Abderhalden and E. Schiff state their result of tests with the blood of over five hundred pregnancies of women and animals. Another organ was always used as a control along with the placenta. They proved that the prophylactic ferments have a specific action. In about one hundred and five examined patients there was a disintegration of the hepatic tissue. In about thirty other patients there was a disintegration of the thyroid gland. The more accurately the experiments were conducted, all errors being eliminated, the more convincingly were the prophylactic ferments proved to be specifics. In organs free from blood the reaction was negative. The serum of a patient with severe contusion of muscular tissue and a large hematoma showed disintegration of neither the liver nor the placental tissue by the action of the prophylactic ferments; but a very marked solvent action on the muscle tissue was observed. When the technic was carefully observed decomposition of no organ takes place except the placenta and other organs containing blood. In this connection it may be added that, at the Physiological Institute, all the organs of one hundred healthy horses, cows, and pigs were tested with the prophylactic ferments. In three per cent. of all cases the organs were disintegrated. Generally it was the liver which gave a positive reaction, although possibly some parts of it contained blood, it being difficult to keep the liver free of blood.

**Pause in Audible Breathing.**—R. Geigel, in his analysis of respiration, finds that in healthy people there is no respiratory pause between the act of inspiration and expiration; real pauses occur only in pathological conditions. The seeming pause in audible respiration of the healthy is not in reality a pause, because respiration continues even though it cannot be heard. In patients with fever respirations are more rapid. The pause ceases and returns when breathing becomes slower. It grows clearer, longer, and deeper with a decline in the temperature. When one can observe the existence of pauses, whether marked or absent, it is possible to estimate any increase in number without counting. This is of value at times when, on account of crying, coughing, or talking, one cannot count the respirations at all. In listening to five sick infants under fourteen months old, the author detected pauses between each respiration which numbered twenty-six to the minute; shorter pauses in thirty to the minute; none at forty-two nor at fifty; and after about one hundred such observations are made it is easy to distinguish whether the respiratory count is dependent upon age or disease solely by the presence or absence of the pause.

September 10, 1913.

**A New Leucemia, Splenocytic Leucemia, and Its Significance in the Independent Life of Its Cells.**—H. Reschad and V. Schilling contribute the following modern classification of systemic

leucemias; myocytic and lymphatic, either acute or chronic. The present form, according to the authors' observation, are acute leucemias with large mononuclear and transition cells or splenocytes of independent growth. This is therefore designated as independent splenocytic leucemia. This places a new systemic leucemia along with the myelogenous and lymphatic varieties.

**Serology in Psychiatry.**—A. Fauser states as a result of his experiments that aside from the disturbed function of the thyroid and other ductless glands, the cells of the cortex are found to be imperfectly functioning. The disturbed function of each organ is shown in various ways. This is well known of the thyroid gland, as in one instance a Basedow psychosis is seen and in another a different psychosis develops. The same may be said of the placenta and other glands with internal secretion. Each organ and cell is one of internal secretion. It may be assumed that the differential diagnostic significance of serological findings may have to be narrowed down to the process of dialysis for the present. It is to be hoped, and Abderhalden's investigations with respect to normal and pathological pregnancies make it probable, that this method will give us knowledge of the different forms of disturbed function. Then also, for instance, the key to diagnosis, which may be drawn from the different forms of gland cells, will become more simple. We are as yet at the beginning of a new and important investigation. It will require much work to solve this great problem. Our large insane asylums which have housed the sick each have a staff who for many years have observed the different stages of development of the inmates' diseases. These are specially called to aid in their branch of the work.

**Metabolism in Mental Diseases.**—A. Bornstein, from the results of his experiments during the past ten years, concludes that there exists a disturbed function of the sexual glands in dementia præcox and that the decreased function brings about a pathological mental exaggeration at puberty, and accordingly we have a disturbed metabolism which expresses itself in a psychic derangement. The author's former conclusions coincide with the results of Abderhalden and Fauser, who found that the serum, in dementia præcox, decomposes sexual gland substance, and at the same time there is a disturbed function of the internal secretion of the ovaries and testicles.

**Contribution to Infantile Paralysis.**—J. Brunt reports the history of some patients living in isolated districts, where some animal belonging to the family, as a dog, goat, chicken, or cow, died of paralysis. As these sporadic cases had come in contact with no other children, it is assumed that in each case the patient's infection could be traced only to the animals of the respective households that had died of paralysis shortly before.

September 16, 1913.

**Radiological Studies on the Function of the Stomach.**—F. Eisler and R. Lenk conclude the results of their experiments with lecithin as follows: Neither the chemical production of the gastric juice nor anomalies in the vegetative nervous system, either alone or combined, effect



any constitutional disturbance in the motor function of the stomach.

September 22, 1913.

**Experimental Arteriosclerosis and Cholesterinemia.**—L. Wacke and W. Hueck contribute the following: By increasing the cholesterin content of the blood in rabbits for a month it was possible to bring about a diseased condition of the aorta which resembled sclerosis of the aorta in man. This would suggest hypercholesterinemia as a pathogenetic in human arteriosclerosis. They have also found through animal experimentation that excessive nourishment and muscular exercise, dyspnea, certain poisons, epinephrin, and extirpation of the suprarenal capsule, all produce a powerful influence on the increase of the cholesterin content of the blood.

**Thorium X in Internal Diseases.**—O. Meseth demonstrates from his experiments that in anemias (except the pernicious form) in sciatica, as well as in secondary chronic joint affections, the treatment with thorium x is thoroughly effective. The author therefore wishes to strongly recommend its use in these diseases, especially since its effects appear to be superior to the therapeutic measures used heretofore. The use of thorium x may be carried out in general practice. It is only necessary to have it freshly prepared on the day of its use. A continuous leucocyte count is not only desirable but, in the author's opinion, indispensable.

#### ZENTRALBLATT FÜR CHIRURGIE.

September 6, 1913.

**Treatment of Syndactylia.**—Guido Lerda reports a case which he treated successfully by the division of the web and the interposition of Thiersch flaps over the entire raw surface.

#### FOLIA UROLOGICA.

Vol. VII, No. 6.

**Kidney Stones.**—Illyes has observed eighty-one and operated on sixty-three patients with kidney or ureter stones. In some of the cases the so called "crossed colic" has been observed, the stone being on one side and the colic being referred to the other. Occasionally the ureter of the affected side showed abnormality, swelling, bulbous edema, etc. Functional methods, especially cystoscopy, showed a decreased function of the affected kidney. If the kidney is infected and the condition has persisted for a long time the opposite kidney may show a toxic nephritis; such a condition does not prevent the removal of the stone kidney. Occasionally the radiograph is negative but the stones are found at operation. The operations of choice are either pyelotomy, or, if the kidney is much destroyed, nephrectomy. Nephrotomy is performed only when pyelotomy is impossible. In one of the author's cases of anuria which had persisted for four days he introduced a urethral catheter nine centimetres up the ureter of the affected side and met an obstruction. He injected ten centimetres of sterile oil through the catheter, and in four hours the patient voided 550 c. c. of oily urine; the stone which passed into the bladder was removed later. In another case he did a unilateral nephrotomy. The anuria had persisted eight days. The patient voided plenty

of urine through the wound made by the nephrotomy; but three days later anuria again set in and the patient died.

**Two Cases of Nearly Complete Removal of the Bladder for Tumor.**—Nicolich removed nearly all of a carcinomatous bladder, leaving the trigone, in a patient seventy-two years old. The entire bladder space was plugged and the peritoneum was sewed to the upper margin of the abdominal incision. Fifty-two days after the operation the patient was able to urinate every three or four hours and able to completely empty his new formed bladder. He was well up to ten months after the operation. In a second patient, forty-four years old, who had been operated upon twice before for multiple papilloma the same operation was performed. The patient recovered and twenty-two days later the wound was closed and the patient urinated normally every four or five hours.

Vol. VII, No. 7.

**Tuberculosis of the Prostate.**—A. Gotzl believes that the prostate is almost always secondarily infected by tuberculosis. This secondary infection takes place by the blood, the lymph, or by contact. If by means of the blood stream the prostate is alone attacked, or simultaneously with the kidney, seminal vesicles, or epididymis. Infection through the lymphatics always follows the direction of the lymph stream. Infection by contact is always secondary to infection of the kidney, seminal vesicles, or epididymis. Most cases develop during the period of sexual activity. Any persistent urethral discharge not due to the gonococcus excites his suspicion of tuberculosis of the prostate. He has found that general treatment, for tuberculosis, local and tuberculin treatment, are alike effective in coping with this disease. He believes in prostatectomy, although he says in some cases that dissecting out the fistula and curetting the prostate give good results.

**Bladder Cysts.**—R. Hottinger describes a rare case of a cyst of the anterior bladder wall of the size of a cherry. The patient was forty-six years old; had pain on urination and a residuum of from 100 to 200 c. c. There was no stricture present and the prostate was normal. The cystoscope revealed the cyst; which was removed by cystotomy. The cyst was probably an enlarged bladder gland.

Vol. VII, No. 8.

**Bladder, Prostate, and Urethral Stone.**—P. Steiner has performed lithotomy in twenty-eight patients thirty times; two patients requiring a second operation for return of the bladder stone. One of these returned one year after the first operation and the other four years, and the cases were complicated by prostatic hypertrophy (not operated on). Two patients died: One a sixty year old man with diabetes and prostatic hypertrophy; and the other a seventy-six year old man with prostatic hypertrophy. Fourteen cases occurred between the ninth and thirtieth year. He did a cystotomy on forty-two patients forty-six times; four patients requiring a second operation. In nine patients prostatectomy and removal of the stone were performed through the suprapubic incision; two of these nine died because of the prostatectomy. Twenty-five cases in which cystotomy was done occurred between

the ages of one and one half years and fifteen years. His mortality, without counting the prostatectomies, was 3.8 per cent. (seventy-six operations); counting the nine prostatectomies, the mortality was 5.7 per cent. In addition to this the author has operated three times for stone in the prostate and seven times for stone in the urethra, with two deaths from uremia.

*Vol. VII, No. 6.*

**Simple Bladder Ulcer.**—L. Buerger reports two cases of simple callous ulcer of the bladder. The clinical symptoms are dysuria, urgency, frequency, hematuria, and pyuria. The course which they ran was chronic. The author believes that chronic cystitis and contracted bladder are often caused by solitary ulcerations. They are most frequently found in the trigone. Cauterization or fulguration are of no use in the treatment of this type of ulceration which should be excised by means of the "author's operating cystoscope and punch forceps." (Is it possible that another operating cystoscope might do as well? EDITOR.) Histological examination showed a characteristic pathology, there being a superficial deposit of urinary salts, a layer of necrosis and ulceration, and a stratum of newly formed connective tissue, with active evidence of inflammation. The margin of the ulcer showed intense vesicular and inflamed mucosa and submucosa.

**Stricture of the Urethra and the Genital Function.**—G. F. Demo says that inflammatory strictures of the urethra are apt to alter or abolish the sexual function. If the urethra does not remain elastic and contractal erection is hindered, there may be delayed ejaculation, sterility, impotence or atrophy of the testicles.

*Vol. VII, No. 10.*

**The Relation between Abnormality of the Kidney Vessels and Hydronephrosis.**—J. Borelius believes that abnormality of the kidney vessels of the lower part of the kidney hilus can influence the development of the hydronephrosis if entering the posterior part of the hilus before the ureter, or the anterior part of the hilus behind the ureter. He also believes that there is another factor in every case which is probably that of the mobility of the kidney. These two together cause the pelvic dilation.

**Carcinoma of the Prostate, Bladder Stone, Congenital Stenosis of the Ureter, Etc.**—F. Putzu had a patient forty years old who since his tenth year had painful urination. On entering the hospital the patient was marasmic, had intense pain in the hypogastrium and perineum; had pyuria, hematuria, and dysuria; a large mass could be felt in the bladder and a swelling and tumor of the right hypochondrium. The patient was operated upon and a 214 gramme stone removed suprapubically. He died forty hours later. Autopsy showed carcinoma of the prostate with metastasis of the bladder and lymphatics, stricture of the urethra, congenital urethral stricture, and pyonephrosis of the right kidney.

*Vol. VII, No. 11.*

**Endovesical and Endourethral Treatment with the High Frequency Current.**—R. Bachrach has, after the method of Beer, used the high frequency

current in twenty patients who had papillomatous growths after cystotomy for removal of these. The patients have remained free from recurrence for more than a year. He says that the method is not practical for large and extensive papilloma or carcinoma.

## ZEITSCHRIFT FÜR UROLOGIE.

*Vol. VII, No. 6.*

**Supernumerary Ureters.**—Hartmann reports a female patient of thirty-three years who had been treated for incontinence of urine since early childhood. No physician had discovered the very small ureteral opening just below the orifice of the urethra. Colored fluid injected into the minute fistula did not color the urine in the bladder and a vaginal incision showed the ureter running to the right kidney. The lower dilated segment was cut and the ureter implanted in the bladder wall. The recovery was uneventful.

**Staphylococcus Infection of the Urinary Passages.**—Goldberg says that, as a rule, staphylococcus infection is of brief duration and easily cured. Chronic infection is rare and is generally secondary to marked phosphoruria, or occurs after gonorrhea; albuminuria accompanies it. If the kidneys are attacked the resulting sepsis is dangerous; Otten had 80 per cent. mortality in twenty-two cases, and Bettelmann 70 per cent. mortality. The symptoms which Goldberg's first four cases gave were tenesmus and pain on urination, urinary frequency, scanty and turbid urine filled with epithelium cells and cocci.

*Vol. VII, No. 7.*

**Cystic Dilatation of the Vesical Part of the Ureters.**—Rumpel reports a case of a young woman of twenty-five who had polyuria and disuria. A cystoscopic examination showed both ureteral orifices much enlarged and cystic in appearance when urine was excreted, and collapsing between times. He operated suprapubically, put catheters into the orifices of the cysts, cut away the bladder mucous membrane and sewed the mucous membrane of the ureters to that of the bladder.

## LYON MÉDICAL.

**Traumatic Acute Anterior Poliomyelitis.**—A. Gonnet and R. Rendu report the case of a boy seventeen years of age, probably but not certainly, with a congenital syphilitic taint, in whom, after he had been struck violently at the junction of the cervical and dorsal portions of the spine by a cart, there developed signs of pure, uncomplicated degeneration of the anterior horn cells, viz., muscular atrophy in all four limbs, reaction of degeneration, and fibrillary contractions, without evidences of pyramidal or sensory involvement. They believe it likely that congenital syphilis acted as a predisposing cause in the development of the acute diffuse poliomyelitis which followed the traumatism.

## PARIS MÉDICAL.

*August 23, 1913.*

**Treatment of Chancroidal Bubo.**—H. Costantini recommends the following procedure in the treatment of chancroidal buboes that are about to

or have already "pointed": After painting the skin with tincture of iodine make a stab incision from four to five millimetres long at the point of most distinct fluctuation. Evacuate the pus cavity by gentle pressure, and inject into with a syringe a one per cent. solution of silver nitrate. The syringe should not be withdrawn for three or four minutes, in order that the solution shall be held in for this period of time. The solution is then allowed to run out, no direct pressure, however, being exerted. A piece of silkworm gut, doubled upon itself, is then introduced into the cavity as deeply as possible, and a tight dry dressing applied. The same procedure is gone through on the second day, and if it be thought desirable, on the succeeding days until the seventh, when, after injecting the silver nitrate solution, silkworm gut need not be reinserted. Recovery is practically complete by the tenth day, though a drop of serous fluid may exude upon pressure a few days longer, and a protective dressing, to be changed every two or three days, should therefore still be used for a time. In case drainage proves imperfect in using this form of treatment, a grooved director should be introduced through the incision and obstructing tissues broken up. The advantages of the treatment are that it is simple, requiring no special instrumentation or surgical skill, and that healing takes place very promptly, with practically no residual scar.

August 30, 1913

**Vibropalpatory Method of Estimating the Blood Pressure.**—Finck points out that when the arm circulation is gradually occluded, the lower brachial pulse being simultaneously palpated, a series of pulsations of increasing amplitude are felt, followed suddenly by a single very distinctly vibrating, whiplike pulsation, and then by a series of pulsations of less and less vibratory character, until the pulse weakens and finally stops completely. In taking the blood pressure the observer holds the brachial artery below the cuff against the humerus, pumps air into the cuff until the first vibrating pulsation is felt, reads off the pressure on the mercury or dial manometer, continues pumping until the pulsations cease, then lets air out gradually, noting the pressure at which the pulse loses its vibratory character. This pressure averages five mm. lower than the first. The mean of these two pressures is taken, and indicates, within two or three mm., the diastolic blood pressure in the subject under examination. Five minutes later, in order to ascertain the systolic pressure, air is pumped in until the pulse ceases, the pressure at which this occurs noted, the pressure raised one cm. more, decompression then begun, and the pressure at which the first returning pulsation appears observed. The mean of the two figures is the systolic pressure. In this method, when a dial manometer is used, the first vibrating pulsation is found to coincide with the first large oscillation of the needle. In practical work, however, it is often easier to feel the first vibrating pulsation than to detect the first large oscillation—an advantage of the author's procedure over the frequently used oscillatory method of estimating the diastolic blood pressure.

**Device to Prevent Air Embolism in Giving Intravenous Injections.**—P. Barthélemy and G. Bossy describe a small attachment for the "606" apparatus consisting of an ovoid glass bulb into one extremity of which enters a small glass tube, which dips down to the lowest part of the bulb. The outer end of this small tube fits into the platinum-iridium needle which is introduced into the vein, while the other extremity of the bulb carries a glass cock and is connected with the tube leading from the receptacle for the fluid to be injected. Before starting the injection the bulb is turned upside down and the cock opened. Some of the solution runs into the bulb, and any air in it, collecting at the top, escapes through the small tube. The cock is then closed, the bulb returned to its normal position, the needle introduced into the vein and connected with the bulb, and the cock reopened, allowing the solution to flow into the vein. Any small air bubbles that have remained in the rubber tube until this time are now automatically caught in the upper portion of the bulb, and cannot possibly enter the circulation because of the fact that the small outlet tube dips down to the bottom of the bulb.

September 13, 1913.

**Coma of Cerebellar Origin.**—G. Milian and E. Schulmann report a case of cerebellar softening, with autopsy, and formulate, from their observation of it as well as a study of a few related cases found in literature, the cardinal signs of coma of cerebellar origin as follows: (1) Conjugate deviation of the head and eyes, the former downward upon the chest and the latter under the lower lids; (2) nystagmus, with very slow and vertical oscillations; (3) marked depth of the coma, out of proportion, it would seem, with the extent of the cerebellar lesion; (4) intense general contracture, suggesting meningeal hemorrhage; (5) bilateral corneal anesthesia, with bilateral loss of abdominal and cremasteric skin reflexes; (6) bilateral extension of the toes in Babinski's test; (7) Cheyne-Stokes breathing, more or less typical; (8) progressive rise of temperature up to a very high level, even over 42° C.; (9) lumbar puncture showing a slight rise in pressure, but no lymphocytosis or blood in the event that softening is the cause of the condition. In the case reported the lesion was limited to the superoanterior and superomesial cortex of the left cerebellar lobe, all other portions of the central nervous system being normal.

**Support for the Upper Extremity in Traumatic Cases.**—Dupuy de Frenelle takes two strips of cloth, each twenty centimetres wide, sews the end of one to the centre of the side of the other, forming a T, encircles the forearm, hand, and chest horizontally with the strip representing the upper limb of the T, passes the other under the forearm and up in front of the chest, and splits it longitudinally into two portions, which are passed over the shoulders and fastened to the horizontal strip behind.

**Laxity of the Fingers as an Index of the Mobility of the Coccyx.**—L. Plantier asserts that in women with loosely jointed fingers backward rotation of the coccyx to admit passage of the fetus during labor always takes place easily, while in parturients with closely knit and rigid digital joints



the coccyx regularly offers considerable resistance to the presenting part, thus greatly delaying the terminal stage of labor and causing alternate marked advances and recessions of the child before the head finally passes the perineum. Examination of the fingers of the patient has often enabled the author to reassure old primiparæ who dreaded a slow second stage, and on the other hand to realize the advisability, even in certain young women, of resorting early to instrumental intervention and thus avoiding prolonged, fruitless efforts on their part.

#### PRESSE MÉDICALE.

September 6, 1913.

**Cultural Studies on the Virus of Rabies.**—H. Noguchi describes the corpuscular bodies observed by him in cultures from the brains and cords of animals inoculated with rabies. Photomicrographs are reproduced showing nucleated corpuscles, of protozoan appearance, dividing actively, the products of fission or budding remaining for a time in a common sheath, then being replaced by numerous small granular bodies and still smaller free corpuscles. Inoculation of dogs, rabbits, and guinea-pigs with these bodies reproduced the disease.

September 10, 1913.

**Effect of Artificial Pneumothorax on the Lung of the Opposite Side.**—R. Burnand asserts that artificial pneumothorax, as employed in the treatment of pulmonary tuberculosis, has but little influence on the opposite lung. If the latter is healthy or embodies only mild or latent foci of disease, pneumothorax seems to improve its function and exert a favorable effect on the tuberculous lesions. If the opposite lung is seriously involved, with rapidly progressing foci, the procedure is contraindicated. Where it is the seat of extensive but sluggish disease, pneumothorax does not appear to affect it markedly either for better or worse. In a very few instances, artificial pneumothorax causes serious progression of the disease areas in the opposite lung; but this appears to be due almost always to a too rapid or copious introduction of gas. Much more frequently the opposite side shows signs of a mild congestive condition, very often in the regions of the basal pleura or the interlobar fissures. This complication must probably be attributed, in the majority of instances, to a pleuritic process developing on the operated side, or, again, to excessively sudden and dyspnea producing insufflations.

#### SEMAINE MÉDICALE.

September 10, 1913.

**Calcium Estimation and Its Diagnostic Significance.**—G. Rodillon describes a simple, "bed-side" technic for the estimation of the calcium excreted in the urine. Excessive calcium elimination, being an early manifestation of tuberculosis, may be of diagnostic significance where the physician does not suspect or is in doubt as to the presence of this disease. The material necessary for the "calcireaction" consists of: 1. A flat bottomed glass cylinder, fifteen millimetres in diameter, graduated in cubic centimetres; 2, a dropper yielding twenty drops to the cubic centimetre of water; 3, a white plaque or

card upon which has been traced with black ink a straight line two or three millimetres in cross section; 4, a reagent consisting of pure neutral ammonium oxalate, three grammes; glacial acetic acid, five grammes; and distilled water, forty grammes. To calibrate the cylinder, it is filled to the five c. c. mark with the oxalate solution, then to the ten c. c. mark with a solution consisting of 0.357 gramme of C. P. calcium carbonate, one gramme of acetic acid, and distilled water, enough to make one litre. After mixing and allowing to stand five minutes, the tube is placed vertically over the black line on the card, and some of the mixture removed with the medicine dropper until the line just becomes visible through the precipitate of calcium oxalate. The figure then read off on the tube—approximately 2.4 c. c.—when divided by 5, remains a constant for subsequent urine examinations. In testing urine, the same procedure is gone through, urine being, of course, introduced instead of the calcium carbonate solution. The figure read off, say 3.2 c. c., is divided into the constant,  $0.48 (= 2.4 \div 5)$  and the result, say 0.15, constitutes the amount of calcium oxide in one litre of the urine tested. On a mixed diet the normal adult eliminates from 0.35 to 0.5 gramme of lime daily in the urine. Where the test shows an excretion of 0.7 gramme on a mixed diet, 0.5 gramme on a vegetarian diet, or 0.9 gramme on a meat diet, calcium demineralization, suggestive of tuberculosis, is indicated. Results below these figures but above 0.5, 0.3, and 0.7 gramme, respectively, are suspicious.

September 17, 1913.

**Diagnosis of Tuberculous Salpingitis.**—R. de Bovis, after enumerating the various recognized diagnostic features of tuberculous salpingitis and showing that none of them is very reliable in actual practice, discusses a sign of this affection first described by Bazterrica, viz., periodically increased and then decreased size of the tuberculous annexal tumors, due to temporary obliteration of the tubal lumen or evanescent congestion. The last named condition may be brought on by digestive disturbances, venereal excesses, or other similar causes. The sign is doubtless not strictly pathognomonic of tuberculous disease, but its value has been confirmed by several observers, and in view of the lack of other good diagnostic indications is worthy of some degree of attention.

#### REVUE DE CHIRURGIE.

August, 1913.

**Treatment of Old Fractures of the Patella.**—E. Quénu and J. Gatellier term "old" fractures of the patella those in which six weeks to two months or more have elapsed since the accident. At this period, if any separation of the fragments exists, absence of bony callus is the rule. The two fragments are covered with fibrous tissue and have become smoother and shorter by reason of partial absorption. Retraction of the fibrous tissue may have occurred, hindering flexion of the knee and becoming associated with arthritis, which soon leads to atrophy of the quadriceps muscle. In the treatment the chief desideratum is to obtain coaptation of the fragments. In simple cases this may be accomplished by the same operations as are performed in

recent fracture, care being taken, in addition, to free from fibrous tissue and freshen the bony surfaces to be apposed. Where traction does not suffice to bring the fragments together, V shaped incisions should be made in the quadriceps, or the muscle even severed more or less deeply. If these manoeuvres fail, provided the separation does not exceed one centimetre and the patellar tendon is intact, coaptation may be secured by detaching the tibial tubercle and implanting it above its normal situation. If the separation exceeds one centimetre fibrous and muscular autoplasty should be resorted to. The best technic is that of Ferraresi, which is simple and yields perfect and prompt results. It consists in dissecting from the quadriceps, just above the patella, a flap of tendon two millimetres thick and of the length of the patella, turning the flap downward in front of the bone, and suturing its margins to the patellar ligament and the firm fibrous tissue covering the bone. Among seventy-four cases of old patellar fracture collected by the authors from the literature—all operated since 1893—excellent results were noted in eighty per cent., almost perfect results in seventeen per cent., and failure or death in three per cent.

**Pulmonary Tuberculosis and Surgery.**—P. Gorse and A. Dupuich, discussing the various surgical procedures so far employed in lung tuberculosis, states that direct drainage of tuberculous cavities and pneumectomy have been uniformly unsuccessful. Chondrotomy or Freund's operation is applicable only to incipient apical cases, and these can be cured through medical treatment alone. Friedrich's thoracoplasty is a severe operation and has been abandoned by almost all. Artificial pneumothorax, on the other hand, has yielded remarkable results in grave forms of lung tuberculosis in which medical measures had failed. In serious cases following an acute course it is the only method now at hand to arrest for a time the progress of the disease to a fatal termination and even, in some cases, bring about temporary or permanent recovery.

**Splenectomy and Talma's Operation in the Treatment of Splenomegaly in Association with Hepatic Cirrhosis in the Stage of Ascites.**—I. Tansini and G. Morone report that excellent results have been obtained in four cases of advanced Banti's disease and one of malarial splenic enlargement with ascites by combining Talma's operation (omentopexy) with splenectomy. The greater part of their paper is taken up with a discussion of chronic splenomegaly due to splenothrombosis and pylethrombosis, to which but little attention has so far been directed. In the form due to chronic splenic thrombophlebitis, of which they report a case in detail, the clinical and hematological manifestations may be the same as in primary forms of splenomegaly. The diagnosis is always difficult. Splenectomy is an effectual radical measure in the treatment. In combination with omentopexy it may also yield excellent results where hepatic cirrhosis coexists. The changes in the blood picture after operation are the same as those observed after splenectomy for other splenic affections, *viz.*, the hemoglobin rises nearly to normal; the red cell count may exceed slightly the normal, then gradually return to the condition existing before intervention,

and a slight leucocytosis, with pronounced eosinophilia, persists. Febrile complications of obscure causation may follow the operation, as in the case of other splenic disorders. In pylethrombotic splenomegaly, primary or secondary, medical treatment should alone be employed, three patients treated by splenectomy having succumbed.

#### BRITISH MEDICAL JOURNAL.

September 27, 1913

#### Reaction of the Blood Serum as an Aid to the Diagnosis of Cancer.

—W. D. Sturrock cites the observations of Moore and Wilson, who found that the serum of cancer patients showed a definite increase in alkalinity over the normal. Believing that such a finding might be of some clinical value, Sturrock has modified one of their methods so as to be applicable to clinical needs, and has made a number of observations on both cancerous and normal patients. Blood is collected in a serum tube, being drawn through an antitoxine needle. It is kept sterile and allowed to stand for twenty-four hours in a vertical position. It is then centrifugalized to obtain clear serum. A series of dilutions of sulphuric acid are made, running from  $\frac{N}{4}$  to  $\frac{N}{7}$  and including the 4.5, 5.5, and 6.5 dilutions. For titration a few drops of a one per cent. alcoholic solution of dimethylamidoazobenzol are placed on a filter paper to be used as the indicator. A small quantity of distilled water is drawn into a capillary pipette, then a small drop of air, then serum is drawn up to a point marked by a thread about three centimetres up the tube, a second drop of air is admitted, and finally an amount of one of the dilutions of sulphuric acid is drawn up equal to the amount of serum used. The entire contents of the pipette are blown out onto a porcelain slab and mixed by aspiration. Finally the mixture is blown out onto the test paper. This process is carried out with ascending strengths of the acid until the test paper shows the first change of pink. The average alkalinity of normal blood is 0.170 N, and that of cancer patients' blood (twenty-four cases) is 0.190 N. It would seem from Sturrock's observations that a blood with an alkalinity of 0.200 N, or over, leads to the presumption that cancer is present, and in the author's opinion it is sufficient to warrant an exploratory operation in doubtful cases. It is especially noteworthy that the high readings are most frequently found in the early cases, those in which the general metabolism is not seriously affected. The converse—that a low alkalinity is proof of absence of cancer—is not true.

**The Autoplastic Ovarian Graft and Its Clinical Value.**—Beckwith Whitehouse was compelled to remove both tubes and ovaries from a young woman on account of old pelvic septic inflammation. A portion of one ovary alone was still normal, but it could not be preserved in its normal position. This he cut into small pieces, each of which was implanted into the subperitoneal connective tissue, or into the rectus muscle. Care was taken not to remove the material from the body fluids before it was to be grafted. It was, therefore, allowed to lie free in Douglass's pouch until ready for closing the wound. The grafts seemed to take and to live

for now more than ten months since operation, the patient has regular menstrual phenomena including bleeding from the uterus and headache. The author believes that this operation has a distinct field of usefulness. In cases of pelvic disease in young women where the appendages must be removed, but where the uterus can be preserved, such an operation would seem advisable in order to preserve the source of the ovarian hormones and to preserve the normal sexual functions in so far as possible. In severe cases of dysmenorrhea ovarian grafting may be found to relieve the condition without complete unsexing of the patient by oophorectomy, as now often practised.

**Affections of the Heart in Childhood.**—F. J. Poynton does not regard the elements of cardiac strain as material factors in the development of cardiac disease in childhood. He regards rheumatism as an infective process and as the greatest factor of all in the causation of heart diseases of childhood. Animal experiments have shown that the bacilli isolated from the vegetations in an acute fatal endocarditis are capable of causing vegetations on the heart valve of a rabbit in three days, along with definite myocardial changes. While most of the infections occur through the nasopharyngeal lymphatic tissues, the enucleation of the tonsils is not a certain preventive of such infection. Poynton's views on the treatment of rheumatic endocarditis may be regarded as somewhat heretical. He does not regard the salicylates as definitely proved specifics, and thinks that delicate children do not do well under the large doses often employed. He no longer feels the mysterious dread of meat in the diet of rheumatics, for he regards the condition as one of bacterial infection. He is not convinced of the close relation between bad teeth and septic endocarditis. While he is not a blind opponent of the use of vaccines, he does not think it is justifiable to risk the giving of large doses of these in acute stages of the disease, and has seen acute pericarditis lighted up as a result of their administration. —Carey Coombs is decidedly more definite in his statements than is Poynton, and agrees with him in many important details. He believes, with Poynton, that rheumatism is a streptococcal infection. The infective agent enters the body in most cases, if not in all, by way of the lymphoid tissues of the nose and throat. The organisms reach the heart through the arterial system, and the attack upon this organ is made simultaneously on all parts of its wall. The myocardium is injured in every case, and the mitral valve in most instances. The progress of the infective process is not steady but is marked by periods of complete quiescence, broken by phases of active disease. The histological picture of a mild recurrence differs from that of a severe attack in degree only. Each recurrence is due to the arrival of a fresh supply of microorganisms from without the heart by way of the blood stream. As the recurrences occur so close together, it is not probable that each is due to a fresh infection from without, but it seems that the streptococci are present in the body all the time, and only reach the circulation at intervals. The individual attack tends strongly toward recovery, and the danger lies in the tenacity of the organism rather than in its viru-

lence. Treatment is of little avail in so far as the cure of the disease is concerned when once it has attacked the valves and the myocardium, and a certain amount of damage is done at each attack, which becomes permanent with the development of cicatricial tissue.

#### LANCET.

September 27, 1913.

**Syphilis: Its Dangers to the Community, and the Question of State Control.**—H. C. French expresses the following essential opinions on state control of venereal disease and prostitution, drawn from twenty years of practical experience in many countries. 1. Confidential medical notification of disease on *prima facie* evidence, and treatment in hospital for short periods in the early, active stages when the disease is most contagious. Such notification by medical men meets the difficulty encountered in the great source of syphilitic spread, clandestine prostitution, which is said to be the cause of five cases out of six. 2. Effectual control of public prostitution by adequate police measures for irreclaimable prostitutes. Such measures incalculably benefit both the individuals and the community, and cause a great reduction in the prevalence of venereal disease and a reduction in the number of prostitutes. 3. *Souteneurs*, who act as middle men and live on the earnings of women, must be rigidly suppressed. 4. Protection of orphan children and of minors, with the suppression of street begging by children. No girl under twenty-one years of age should be allowed to live in a brothel in any capacity. 5. Loitering or solicitation in the streets, either by women, or by men acting in their behalf, should be rigidly suppressed. 6. Free voluntary dispensaries should be provided where clandestine prostitutes can secure treatment and be reclaimed. Such dispensaries should be open at hours which are suitable to the working class, preferably in the evening. 7. Disorderly persons should be removed from towns, and measures taken to prevent the return of evicted persons, and to prevent the harboring of diseased prostitutes in brothels. 8. Adequate control of diseased merchant seamen, who are a great source of the spread of venereal disease. 9. Control of persons who seek medical aid from druggists and pharmacists. 10. Circumcision of male infants and of all recruits who enter the army with phimosi; this markedly protects against the contraction of syphilis. 11. Punishment for concealing venereal disease, or for transmitting it knowingly to another. 12. The marriage of syphilitics under ten years after the contracting of the disease should be discouraged by law. "Such measures may not completely deal with this difficult social problem, but they are the condensed experience of practical work as opposed to theoretical considerations. They are the bed rock on which an adequate superstructure can be laid. They do not conflict with public morality, but minimize disease, misery, and death."

**The Bacillus Lepræ: Has It Been Cultivated?**—Henry Fraser and William Fletcher believe that it has not. They base their belief upon the results of their own very extensive experiments using material obtained from thirty-two nonulcerating



cases of leprosy, with which they made 373 inoculations onto the various culture media. They ran the entire gamut of media and methods, and tried some new modifications. They used both the ordinary media and those which had been said to yield a growth of the bacilli. Their inoculations are not open to the contention that they did not introduce enough of the bacilli, for each specimen was examined microscopically and found to be most abundantly filled with the bacilli. Yet in no single instance were they able to discover any evidence of the growth of the bacillus, though in some cases the bacilli introduced seemed to remain alive and in about the same numbers as when the inoculation was made. They find that unless the greatest possible care be observed in the taking of the specimen for inoculation the cultures will be contaminated by one or more of a considerable variety of organisms.

**The Pathology of the Condition Known as Parasyphilis.**—As the result of prolonged study, James McIntosh and Paul Fildes discard the older views and offer a new one. After discussing the evidence for their view, they sum up by saying:

... it is clear that cerebrospinal syphilis is due to a reaction in the altered lymphovascular tissues of the meninges and vessels, and since it is thus focal the brain substance will be little involved. If, however, an exacerbation occurs in a nidus of spirochetes which has been left latent in the nerve tissues from a previous encephalitis, an excessive reaction will follow in these tissues, and will lead to degeneration of the nerve cells (parasyphilis). Thus in our view cerebrospinal syphilis is due to a tertiary hyperallergic reaction in the vascular tissues, while parasyphilis is due to a tertiary hyperallergic reaction in the nerve tissues and accompanying interstitial tissues (neuroglia).

This view, therefore, admits no essential difference between the lesions of encephalitis of the secondary period and encephalitis of the tertiary—dementia paralytica—except in the greater susceptibility of the tissues in the latter.

**The Treatment of Umbilical Hernia in Children.**—John Fraser makes three equidistant radial incisions through the skin at the base of the protrusion, after complete reduction of all the hernial contents. By blunt dissection the skin is raised free from the underlying fascia all the way around the base of the hernia, and through this subcuticular channel is passed a strong elastic ligature, both ends of which are brought out at the lower opening. This is drawn firmly around the neck of the tissue into which the sac protruded, and is fastened by binding with a silk ligature. A dry, sterile dressing is placed over the wound and it is left for six days when the elastic ligature is removed by cutting the silk knot. The opening in the skin closes quickly and the hernia is cured. Such treatment has given most satisfactory results in twenty-one cases. It is not applicable to patients under six months of age, nor to those in which the abdominal opening is large enough to admit freely the tip of the little finger.

#### JOURNAL OF TROPICAL MEDICINE AND HYGIENE.

August 15, 1912.

**Relapses in Malaria.**—J. P. Bates lays stress on the frequency with which relapses follow the primary invasion in malaria, having had under ob-

servation some cases in which the possibility of reinfection could be eliminated and the various relapses closely watched and recorded. The relapses are most troublesome and persistent among children, always active and impatient of control, and among adults whose duties force them out again too quickly after the subsidence of the fever. In these, relapses occur at short intervals such as two or three weeks, up to from one to three months. The intervals bear some relation to the thoroughness of treatment. Discussing the various hypotheses advanced to account for relapse in malaria—parthenogenesis, intracorporeal conjugation, and sexual development in the human host, Bates shows that the connection of these with relapse is purely conjectural, and asserts his belief, supported by the well known facts of latency in malaria, that a few malarial parasites may survive the effects of quinine and development in asexual cycles continue for an indefinite period. Immunity, combined with treatment, finally limits the relapses. The time necessary for the development of immunity to malaria is not known, but one may assume from experience that it is not more than two or three years in most instances. The immunity may later be lost altogether.

#### BOSTON MEDICAL AND SURGICAL JOURNAL.

October 2, 1912.

**Indications for the Relative Values of Tonsillectomy and Tonsillotomy.**—J. L. Goodale says that it has not been demonstrated that complete removal of the tonsils is followed by harmful effects upon the general system. Tonsillotomy usually involves less trauma than does tonsillectomy, but in the latter the method of removal is of primary importance, a sharp dissection down to the tonsillar artery, with snaring of the vessels giving the least amount of inflammatory reaction. Of the two operations tonsillectomy shows a larger percentage of septic complications, due both to the greater trauma and the relatively larger number of septic conditions where of late years an operation is undertaken. The relative frequency of postoperative hemorrhage is not definitely established, but this is no longer a serious complication if dependent on local causes. While gross deformities of the parts involved are not likely to follow tonsillotomy, yet cicatricial occlusion of the lacunar orifices is frequent and may lead to an intensification of the original chronic inflammation. Tonsillectomy in unskilled hands may be followed by marked and injurious distortion, but with good technic should have no other alteration than an approximation and occasionally a partial fusion of the pillars. The indications for operation should be determined by the pathological changes in the tonsils, which are actually a detriment to the individual. Simple hyperplasia, if obstructive or following catarrhal conditions, and if persistent, may be sufficiently treated by a tonsillotomy, especially in children. The systemic effects of chronic tonsillitis may be increased by a tonsillotomy, so here complete removal is preferable, although mild cases of chronic inflammation may be sufficiently relieved by appropriate treatment without excision. Infection of the fauces by virulent microorganisms may not be prevented by removal of the tonsils. Recurrent local infections, or gen-

eral infections originating in the tonsils, require tonsillectomy at the earliest favorable moment; tonsillectomy may be expected to prove inadequate. Recurrent acute catarrhal infections of the throat require complete removal of the tonsils if these show chronic inflammation, though immunity against subsequent attacks is not necessarily secured. Local tuberculosis of the tonsil requires complete removal. The tonsils should not be excised in young children with adenoids that require removal unless they are demonstrably causing injury, or favoring attacks of acute middle ear inflammation. If an impairment of the speaking voice is dependent upon tonsillar disturbances, these may be corrected according to the principles already given, and if a tonsillectomy is indicated, it may be performed without anxiety with proper technic. A slight alteration in the tension of the palatal muscles may influence the voice of singers either favorably or unfavorably. In the case of beginners with harmful alterations in the tonsils a partial or a complete removal may usually be done, if the local or general welfare of the patient demands it. With increasing length of singing experience a correspondingly conservative attitude should be maintained, particularly in respect to truly fine voices.

**Observations on a Series of Ninety-eight Consecutive Operations for Chronic Appendicitis.**—E. A. Codman presents an energetic and logical argument to prove that a routine appendectomy should be performed on every child.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

October 4, 1913.

**Vaginourterine Prolapse and Its Effective Treatment,** by E. E. Montgomery.—See this JOURNAL for June 28th, p. 1367.

**Prolapse of the Uterus,** by F. H. Martin.—See this JOURNAL for June 28th, p. 1367.

**The Anatomy and Surgical Utility of the Sacrouterine Ligaments,** by G. B. Somers and F. E. Blaisdel.—See this JOURNAL for June 28th, p. 1367.

**The Clinical Significance of High and Low Pulse Pressures, with Special Reference to Cardiac Load and Overload,** by W. J. Stone.—See this JOURNAL for June 28th, p. 1362.

**Clinical Aspects of Overtension,** by J. L. Miller.—See this JOURNAL for June 28th, p. 1362.

**Cancer of the Uterus: Some Points to Be Emphasized in the Early Diagnosis,** by R. B. Hall.—See this JOURNAL for June 28th, p. 1367.

**Theoretical and Practical Foundations of a Radical Operation for Carcinoma of the Cervix Uteri,** by E. Ries.—See this JOURNAL for June 28th, p. 1368.

**Injuries Produced by Starch,** by I. A. Abt.—See this JOURNAL for July 5th, p. 40.

**The Treatment of Hemorrhagic Disorders,** by T. B. Cooley.—See this JOURNAL for July 5th, p. 40.

**The Nature, Diagnosis, Prognosis, and Treatment of General Paresis,** by C. R. Ball.—See this JOURNAL for July 5th, p. 46.

**Studies in Auscultatory Blood Pressure Phenomena: The Clinical Determination of Diastolic Pressure.**—L. M. Warfield finds that it may be affirmed that there is both clinical and experimental

evidence to prove that the point at which diastolic pressure should be read, when using the dial instrument, is at the point where the fling of the lever during the gradual lowering of pressure suddenly becomes less, or, better, where the clear sharp third tone suddenly becomes dulled.

**The Responsibility of the Dentist and the Physician in Regard to Mouth Infections and Their Relation to Constitutional Effects.**—T. B. Hartzell says that an infected mouth, with its enormous surface for bacterial growth, may produce four distinct pathological effects: 1. That produced by the dissemination of bacteria through the medium of lymphatic drainage; 2, that produced by bacteria through the open bloodvessel; 3, that damage sustained by the individual through the change in the chemistry of digestion caused by bacterial poisons; 4, that produced by a general bacteremia which not infrequently is a direct result of the dissemination of bacteria in the blood. He would not think of contending that all diseases may be traced to mouth infections, but he has observed many cases of general infection of different characters which have been found due to such infections. Statistics gathered by him show that there is about one case in ten in which severe constitutional lesions occur (lesions which are usually overlooked both by physician and dentist) traceable to the mouth. He then gives the summary of findings in 1,020 cases of mouth infection.

**The Value of Sanitation as Applied to Railway and Other Large Corporations.**—M. C. Thrush, as the result of his studies, makes the following recommendations as applicable to all large railway corporations: 1. All such corporations should have a department of health and sanitation, which should direct and control all matters pertaining to the medical welfare of both its employees and the public. 2. There should be an expert sanitarian in charge of this department who should be a doctor of medicine and who should have the same authority in this department which the general manager has in the operating department of the road. 3. He should work directly in conjunction with the general manager, both being under the supervision of the president of the company. 4. There should be twelve department superintendents, each of whom should have direct supervision of one of the following special departments: Relief; efficiency examination of employees; sanitary inspection of buildings; inspection of road beds; inspection of the rolling stock; inspection of new construction; first aid to the injured; supervision of railway surgeons; medicolegal department; supervision of hospitals and dispensaries; purchasing of medical and surgical supplies; department of statistics. These should be controlled and managed by the medical director. 5. The director's office should be located at the general headquarters of the company. 6. The adoption of this plan would result in more efficient service with less expenditure, and produce a condition of greater safety and protection to the traveling public.

**The Employment of Carmin in Gastrointestinal Diagnosis.**—Seymour Basch finds that in the carmin test we have a simple, safe, reliable, and convenient means for the demarcation of stools,

the estimation of gastrointestinal motility and patency, the detection of fistulous communications of the alimentary canal with the exterior or with other hollow organs, the location of the distal end of a duodenal tube, and the differentiation, with its aid, between esophageal diverticulum and dilatation.

**A Neosalvarsan Fatality.**—M. E. Hagerty reports the death from acute arsenic poisoning of a patient twenty-nine years old after a dose of 0.6 gramme of neosalvarsan, given intravenously. Previously he had had but one other dose of the drug, and this (of the same character) was some six weeks before. The author states that while this is the first fatality occurring to him in over 600 injections of salvarsan, it is the seventh death to his knowledge resulting from salvarsan in the city of St. Louis. The case now reported, he says, is perhaps one of the most striking examples of what may happen following the injection of salvarsan, even under the most favorable circumstance, that is, in one who was not suffering from any serious organic lesion; and it is especially significant owing to its correspondence with a report of Wechselsmann, and also that of Homer F. Swift, of three almost identical cases.

#### MEDICAL RECORD.

October 4, 1913.

#### Colliculitis, or Disease of the Verumontanum.

—In many textbooks not yet considered old, A. L. Wolbarst says, the verumontanum or colliculus is mentioned as a more or less vague and indefinite ridge on the floor of the posterior urethra; little is said about its physiology, except that it is thought to be the seat of sexual feeling, and about its histology and pathology, practically nothing. With the development and perfection of the posterior urethroscope, however, all this has been changed. With the newer instruments the colliculus is seen as a distinct projection from the floor of the urethra, which in general may be said to resemble an enlarged clitoris. As a rule, the utricle is situated at its summit, being flanked on either side by the ejaculatory ducts. Our knowledge of its pathology is not yet sufficient to cover all the ills to which the colliculus may be subject, but it may safely be stated that its most common pathological condition is the inflammatory process following or coincident with a gonococcus infection of the deep urethra and prostate. Hence we must not be surprised to find inflammatory conditions of the organ in cases of premature ejaculation, sexual impotence, sterility, and the male neuroses. Inflammation of the colliculus is not always of gonococcus origin, however, as any persistent irritation involving the sexual function, such as excessive masturbation, may be responsible for the inflammatory process. Treatment consists almost entirely in the application of silver nitrate (preferably in ten per cent. solution) through the posterior urethroscope. Other applications mentioned are diluted tincture of iodine, the galvanocautery, and the Oudin high frequency current; the last named being particularly indicated in the presence of cystic and papillomatous growths or of dilated ducts and glands.

**Venereal Prophylaxis, Past and Present.**—R. A. Bachman reviews the history of venereal pro-

phylaxis and gives some account of the results, particularly in the American army and navy. He expresses the opinion that tube prophylaxis is the only system which can ever give any marked beneficial results because it is the only one that provides for immediate application, without which no success can be expected. The only tube which has received any official recognition in the navy is the one he devised. In this the ointment used is Metchnikoff's 33.3 per cent. calomel salve modified by the addition of one per cent. tricesol. The present Maus tube, used in the army, contains three per cent. phenol, three per cent. camphor, twenty-five per cent. anhydrous wool fat, and forty-four per cent. lard ointment.

**Antityphoid Vaccination.**—A. H. Doty states that his intention is not to minimize the value of this form of treatment within reasonable limits and in the hands of those properly equipped to administer it, but rather to inquire into its range of usefulness and to suggest that we carefully consider its defects, as well as the protection it extends. Having pointed out the differences between this and vaccination for the prevention of smallpox, he says that the protection of soldiers and sailors against infectious disease is a responsibility which very properly rests with the medical officer in charge; furthermore these men are employed for the protection of the public, and must be prepared at any moment to deal with emergencies. In connection with this duty they are frequently transferred from one place to another, and may often be exposed to very bad sanitary conditions; therefore unusual or more extended means of safeguarding their health is justifiable. There are other emergencies in connection with outbreaks or anticipated outbreaks of typhoid fever, and also other conditions, where the vaccine may be useful. He does not believe its employment advisable, however, as a preventive measure in hospitals, stating that if it is depended upon, in some way relaxation will take place in the enforcement of the sanitary measures which are imperative in the care of typhoid. During the past year the public in various parts of the country, and particularly persons about to travel, have been officially advised to secure the benefits of the antityphoid vaccine, but he does not think a general recommendation of this kind proper or wise. Nor does he accept the statement that this means of prevention involves no risk, for it is generally conceded that any acute infectious or organic disease, or impaired health, contraindicates the use of this measure. Hence, those in charge of the public health should deal in the most cautious and conservative way in approving or recommending a serum or vaccine for general use. Doctor Doty believes that those who will give this subject careful consideration will be convinced that the employment of antityphoid vaccine as a preventive measure should be strictly confined to conditions or emergencies where it is deemed justifiable to carry out special means of protection. Under these circumstances unpleasant results may be avoided, and the public mind will not be disturbed, or its faith weakened in modern sanitary methods in which its cooperation is so urgently needed and which are so essential to the preservation of health.



**Extract of the Pituitary Body of the Ox in the Treatment of Rheumatic Arthritis.**—Charlton Wallace and F. S. Child present a preliminary report on this use of pituitrin, giving the histories of ten cases, five of which were hospital cases in children and five in adults in private practice. All the patients showed improvement in the general condition, in the pains, swellings, and motions of the joints affected, and in the effect on the bowels. The blood pressure was elevated throughout the treatment, and had a tendency to remain so. There was a slight, irregular rise in temperature during the first week or ten days. In one of the children the prognosis, under the treatment, was changed from fatal to favorable. The adult patients were slightly nauseated and suffered from head symptoms, such as giddiness, lightness, and headache. Under the aseptic precautions employed the patients gave no sign of needle infection, nor did they have much pain from the intramuscular injections. In some instances as many as twenty-five injections were given. The preparation of the material used is described.

#### JOURNAL OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

July, 1913.

W. E. Casselberry believes that the condition classed as nasopharyngitis, but commonly referred to as postnasal catarrh, is due to an extent not yet realized to infection of the sphenoid sinus, together usually with implication of the postethmoid cells. In point of frequency, however, it is not that grade of infection already known as empyema or suppuration of the sphenoid sinus whose product is typical pus, but it is the attenuated type in which the discharge appears as variously modified puruloid products. The secretion issuing from the sphenoid sinus may vary from pus to mucopus or it may be viscid mucilaginous or sometimes a fetid substance, which, when copious, forms into longropy strings and blocks the nasal passage, defying ordinary means of expulsion. The headaches produced may be indicated by pain at one or more of five points, *i. e.*, the back of the head, the top of the head, the eye, the ear, and the upper jaw. About one third of the author's cases of suppurative sphenoiditis were asthmatic subjects, and the degree of benefit derivable from the surgical treatment of the nasal conditions was found to be proportionate to the thoroughness of the operation.

#### Proceedings of Societies,

##### PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting held on April 9, 1913.

The President, Dr. CHARLES A. E. CODMAN, in the Chair.

**Case of Congenital Diffused Lipoma of the Foot and Leg.**—Dr. J. TORRANCE RUGH exhibited a patient and discussed the symptoms and diagnosis of this rare condition and reviewed the treatment. The patient was a girl, aged six and one half years, with good family history. At birth there was marked enlargement of the second and third

toes of the right foot with a mass of fat underneath the front portion. There was no pain nor tenderness, and the skin was normal in color and consistency. At six months two toes were removed without difficulty. At fifteen months a large mass of fat was dissected from under surface of the foot. Scarlatina developed in four days and part of flaps sloughed but healing took place eventually in two months. At twenty months enlargement of calf began of the same type as in foot. X ray taken at six years showed no enlargement of bony structures. Specimen taken for examination from the foot mass showed a typical lipoma with no evidence of fibromatosis. Removal of masses would be attempted but failure with subsequent enlargement or recurrence of the mass would call for amputation above the margin of the upper mass.

**The Nervous Symptoms of Pelvic Disease.**—Dr. F. X. DERUM remarked that with the coexistence of pelvic disease and neurasthenia the pelvic symptoms might be more readily recognized by the patient and therefore became more prominent, because in neurasthenia the reaction of the nervous system to abnormal or pathological impressions was greatly increased. In hysteria incautious remarks and injudicious statements by a physician might be very injurious. The suggestion of an operative procedure was accepted readily and sometimes a long series of operations had thus its beginning. It was hardly necessary to state that no relation existed between pelvic disease, epilepsy, chorea, and other nervous diseases. The nervous symptoms which could be truthfully ascribed to pelvic disease were pain in the pelvis, pain referred to the back, to the top of the head, to the hips, and to the thighs, with associated signs of general ill health. These symptoms could be dignified by the name of a nervous disorder, but were merely part of the symptom group of the pelvic disease. Operation should be for the pelvic condition itself and not for the relief of an incidental nervous symptom. Operation was done just as we set a broken leg in an insane man, not because he was insane, but because the leg is broken. It was important in considering operations upon neurasthenics to bear in mind that these patients were excessively sensitive to nervous shock. In such cases the operation, if not urgently indicated, might with advantage be preceded by a period of rest.

**A Modification to Obviate the Defects of the Newer Methods of Repairing the Pelvic Floor.**—

Dr. BARTON COOK: HIRST stated that injuries of the birth canal constituted more than half of all the diseases of women. All over the world there was a tendency to discard the older operations on the perineum and posterior vaginal walls, such as Hegar's and Emmet's, and to prefer the transverse incision with dissection of the rectovaginal septum and to expose the levators and deep transverse perineal muscle, a method developed from Lawson Tait's original technic. The reasons for this unanimity of opinion would appear to be the failure in the older operations to expose and directly unite the muscles injured in parturition; the failure to restore to the pelvic floor the support and contour it possessed before childbirth. The newer technic, however, was not yet perfected. With a clear

understanding of the injuries of the pelvic floor it was easy to devise a technic that would actually expose all the muscles at the site of their original injury and that would reunite them in their original anatomical relations. The modern transverse incision of the perineum, the rectovaginal dissection and the junction of the injured muscles in the middle line did not accomplish either of these objects. It was possible to restore each one of the four muscles of the pelvic floor to its original condition as in a nulliparous woman by the following technic: Incisions were made in the perineum and vagina as shown in the diagram. Flaps were then cut away and an incision was made on each side through the pelvic fascia to get at the levators and deep transversus perinei. These muscles were then joined. Finally, the raw surfaces were united over the muscles as in the old Emmet operation, the perineal stitches uniting the superficial transversus perinei and bulbocavernosus muscles where they were inserted in the perineal body. He was convinced that, however this technic might be modified, the principles underlying it must be adopted in the successful operation of the future for the repair of the pelvic floor after childbirth.

*Meeting held on April 23, 1913.*

The President, Dr. CHARLES A. E. CODMAN, in the Chair.

**Marked Arthritis Deformans Greatly Improved by Physical Means.**—Dr. A. B. HIRSH remarked that the patient shown had been through the usual course of treatment and had gone the round of the different spas without benefit. She was very much bent and was obliged to use a cane in walking. The treatment had been by electrical methods alone, the static and high frequency coil currents. Bacterial infection was excluded by the laboratory examinations, and the condition resolved itself into one of long continued absorption of toxins from roots of teeth. The case showed the value of long continued physical treatment in those cases otherwise almost impossible of relief.

**A Modern Extraperitoneal Cæsarean Section and the Best Technic for Its Performance.**—Dr. BARTON COOKE HIRST illustrated the operation by a series of drawings. An incision was made below the umbilicus, and large enough to extract the child's head. After making the incisions in the two layers of the peritoneum they were sewed together, which immediately closed the peritoneal cavity, making the operation extraperitoneal. Then followed the incision in the uterine wall made in the ordinary way, and the extraction of the child's head with forceps. The lower uterine segment was sewed with double catgut and the abdominal wall closed in the usual way. It had been found to increase hemorrhage if the placenta was delivered from the uterine wound. It was rather better to clip the cord off, drop it into the uterus, sew up the uterus, and deliver as usual. If the woman was not in labor it was necessary to extract the placenta through the uterine wound.

In the discussion that followed Dr. JOHN B. DEEVER said that the fact that Doctor Hirst was one of the two who had done this operation in this country and that he had done nine of the ten operations performed spoke for itself from the standpoint of experience. It always appealed to him as

good surgery to deal with the condition extraperitoneally. By Doctor Hirst's technic there might, it seemed to him, be perhaps a little greater danger to the life of the child. Dr. GEORGE M. BOYD observed that the lowered mortality in Cæsarean section had led some of our American surgeons to resort to the extraperitoneal operation. He believed that the Cæsarean section was a child saving operation. Dr. WILLIAM R. NICHOLSON had witnessed two thirds of the operations which Doctor Hirst had performed by this technic. Within five years, he believed, there would be a larger percentage of men doing this operation in selected cases. Statistics did not prove that the true extraperitoneal technic was any better than the transperitoneal method. Doctor Hirst had used a continuous stitch which seemed to be absolutely tight and left a space of eight or ten cm. long and three to five cm. wide. The true extraperitoneal method had not a point of any advantage. If the case was septic the patient would die just as readily no matter which technic was employed. The general obstetric operator who had not the facilities for becoming especially expert in technic would do better to adhere to the intraperitoneal route. Dr. E. E. MONTGOMERY thought that one of the diagrams seemed to show that Doctor Hirst opened the peritoneum and made his operation extraperitoneal by closing up the peritoneum on either side. Without question this was an operation which was preferable to the method known as the pure extraperitoneal. Every operation must be judged by its mortality, morbidity, and the conditions in the event of subsequent pregnancy. Statistics indicated that there was not great demand for an extraperitoneal operation in the ordinary case where there was no reason to suspect infection. The section of the peritoneum in Doctor Hirst's method laid bare the uterus and he would like to know what influence this had upon the action of the bladder. Dr. EDWARD P. DAVIS remarked that Doctor Hirst's description of this technic was an interesting contribution, but the operation was not the extraperitoneal section that he had seen. He welcomed, however, most heartily this method of delivery through a peritoneal fistula. He should like to know what Doctor Hirst would do in cases of sepsis. Personally he should not like to employ this method in the presence of hemorrhage or in cases in which he had doubts as to the condition of the uterine muscle. Dr. JONATHAN LARKIN FORWOOD stated that he had done Cæsarean section forty-two times in the Chester Hospital in a period of ten years. His operations had been intraperitoneal. A vertical incision was made through the abdominal walls in the usual way. He formerly made the incision large enough to lift the uterus out and then opened the uterine walls and delivered. Now he operated by cutting through the anterior surface of the uterus an opening large enough only to deliver the child. Hemorrhage had been controlled by the uterine arteries being held by an assistant placing a hand on either side. He did not cut low down in the lower segment for he believed much of the hemorrhage came from the fundus of the uterus. When the uterus had been sewed up ergot was given hypodermically. In three of the forty-two cases instruments had been applied and there was infection. He operated on one

woman four times, upon three other women, twice. Dr. H. S. WIEDER asked Doctor Hirst what effect this technic has upon the involution of the uterus following labor, and whether there have been any symptoms referable to the bladder from interference with this band of adhesion reaching from the anterior abdominal wall to the lower segment of the uterus.

## Letters to the Editor.

### THE ETERNAL MEDICAL VERITY.

173 LEXINGTON AVENUE,  
New York, October 4, 1913.

To the Editor.

The brilliant article of Dr. W. B. Konkle in to-day's issue of your esteemed JOURNAL is of far reaching importance, for such writing will certainly induce us to keep in view the precious benefits of classical civilization and above all to study the history of medicine. In view of the materialistic tendency of our time it is well to be reminded that there have existed men who paid little attention to those things which are admired above all others at present, who devoted their lives to ideals and to science. When we familiarize ourselves with medical history we imitate Juno, the wife of Jupiter, who took every year the wonderful bath which rejuvenated her. Without studying the history of medicine, without this spiritual revival, without reading of the great physicians of classical antiquity we are in danger of demeaning ourselves. The study of the history of medicine will relieve us from the monotonous, enthusiastic laudation, and nothing but laudation, of modern medicine, which we are accustomed to hear on all sides in the presidential addresses, at our medical congresses and societies.

ACHILLES ROSE, M. D.

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*A Manual of Venereal Diseases.* Introduction by Sir ALFRED KEOGH, K. C. B., Late Director General of the Army Medical Service; History, Statistics, Invaliding, etc., by Brevet Colonel C. H. MELVILLE, R. A. M. C., Late Professor of Hygiene, Royal Army Medical College; Clinical Pathology and Bacteriology, by Brevet Colonel Sir WILLIAM LEISHMAN, K. H. P., F. R. S., R. A. M. C., Professor of Pathology, Royal Army Medical College; Clinical Course and Treatment, by Major C. E. POLLOCK, R. A. M. C. Second Edition. Revised and Largely Rewritten. With New Matter by Major L. W. HARRISON, R. A. M. C., Clinical Pathologist, Military Hospital, Rochester Row. London: Henry Frowde (Oxford University Press) and Hodder & Stoughton, 1913. (Through the American Branch of the Oxford University Press, New York.) Pp. xvi-318. (Price, \$3.75.)

This admirable and scholarly book is written by army surgeons from statistics compiled from army sources and therefore more dependable than the statistics of clinics and probably not as reliable as statistics compiled from private practice. The first chapters deal with the histories of syphilis and the methods of prevention used in various European armies. In commenting upon a reduction in the daily inefficiency caused by syphilis the authors suggest as an explanation that "syphilis is probably contracted in most cases from the degraded class of prostitutes with which an ordinary self respecting man does not consort when sober." I think it is generally believed, however, that practically all prostitutes contract both syphilis and gonorrhea in the first two years of their prostitution. The

chapters on pathology and the serum diagnosis of syphilis are exhaustive. The authors note the interesting fact that by administering a provocative injection of salvarsan a negative Wassermann reaction may be changed to a positive one. A modified reverse of this which the authors make no mention of is the fact that salvarsan injections may be followed by a negative Wassermann reaction in spite of the fact that the patient may be having active symptoms. If the case be still further untreated this negative Wassermann will of course change to a positive. The chapters on salvarsan and neosalvarsan are the best we have seen in any textbook. It is generally believed that neosalvarsan is not as effective as salvarsan but the authors apparently do not subscribe to this belief although most of their work has been done with salvarsan. An interesting table of mercury equivalents for use in the army is given: One injection of one and one half grains of metallic mercury is equivalent to three injections of a soluble salt containing one fifth of a grain in each injection or to seven daily inunctions, using twenty grains of mercury daily, or to twenty-one pills each containing two grains of hydrargyrum cum creta. If the Wassermann reaction is a reliable guide in estimating the values of different kinds of antisyphilitic treatment, then pills given in any way, or in any quantity, do not seem as effective as inunctions or injections of the insoluble mercurials. The complement fixation test is to gonorrhea what the Wassermann test is to syphilis, and yet the authors entirely neglect mentioning it in their "test of cures" for gonorrhea. In the appendix there are a number of interesting formulæ, histories, etc.

*A Practical Manual of Venereal and Generative Diseases.* Spermatorrhea, Impotence, and Sterility in Both Sexes. By GERALD DALTON, Late Assistant Surgeon to St. Francis's Hospital and Lecturer to the Nursing Staff. Assistant to Skin Department, Charing Cross Hospital, etc. New York: William Wood & Co., 1913. Pp. viii-156. (Price, \$1.75.)

The first chapters of this book on gonorrhea (male and female) and syphilis are too incomplete to be seriously reviewed. In the chapters on syphilis comprising twenty-two pages the following peculiarities are found, page 71, "Directly one or more of the secondary symptoms appear, internal administration of mercury must be commenced." This is antediluvian. Page 73, "A third method is by intramuscular injections, or more strictly speaking, injection into the subcutaneous tissues." We all know the result if an intramuscular injection accidentally becomes a subcutaneous one. He dismisses salvarsan and the Wassermann reaction after four and one half pages. He disapproves of the former and is mainly interested in reporting the deaths therefrom. The chapters on generative diseases, notwithstanding one has difficulty in knowing what is meant by the title, are complete and good.

*Sewage Pollution of Interstate and International Waters.* With Special Reference to the Spread of Typhoid Fever. VI. The Missouri River from Sioux City to Its Mouth. By ALAN J. McLAUGHLIN. Hygienic Laboratory Bulletin No. 89. Washington, D. C.: Government Printing Office, 1913. Pp. 84.

This bulletin, in its presentation of conditions along a single one of many important waterways in this country, calls attention to what is almost a criminal carelessness concerning the disposal of sewage. Although typhoid fever may not be completely eliminated, on account of the presence of the typhoid carrier, it can, and should be, greatly diminished. That the water supply is the great source of infection cannot be denied, and when one considers the conditions as shown in this report it seems surprising that there is not more typhoid. This bulletin and No. 83 as well should be obtained and carefully perused.

## Meetings of Local Medical Societies.

MONDAY, October 20th.—New York Academy of Medicine (Section in Ophthalmology); Medical Association of the Greater City of New York; Medical Society of the County of Erie; Elmira Clinical Society; Hartford, Conn., Medical Society.



**TUESDAY, October 21st.**—New York Academy of Medicine (Section in Medicine); Psychiatric Society of Ward's Island; Buffalo Academy of Medicine (Section in Obstetrics and Gynecology); Tri-Professional Medical Society of New York; Medical Society of the County of Kings; Binghamton Academy of Medicine; Syracuse Academy of Medicine; Ogdensburg Medical Association; Oswego Academy of Medicine; Clinical Society of Elizabeth, N. J.

**WEDNESDAY, October 22d.**—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; New York Society of Internal Medicine; Medical Union, Buffalo.

**THURSDAY, October 23d.**—The New York Physicians' Association; Bronx Medical Association; New York Celtic Medical Society; Hospital Graduates' Club, New York.

**FRIDAY, October 24th.**—New York Academy of Medicine (Section in Public Health); Italian Medical Society of New York; Academy of Pathological Science, New York; New York Society of German Physicians; New York Clinical Society; Manhattan Medical Society.

**SATURDAY, October 25th.**—West End Medical Society; New York Medical and Surgical Society; Harvard Medical Society; Lenox Medical and Surgical Society.

### Official News.

#### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending October 8, 1913:*

**Nydegger, J. A.,** Surgeon. Directed, in returning to station from Bartholomew County, Ind., to stop at Indianapolis, Ind., for conference with the State Board of Health. **Pettus, W. J.,** Assistant Surgeon General. Relieved from duty at the Bureau of Medicine and Surgery, Washington, D. C., effective on October 15th, and directed to report to the director of the Hygienic Laboratory for special instruction. **Porter, J. Y.,** Quarantine Inspector. Detailed to represent the Service at the meeting of the Southern Medical Society, at Lexington, Ky., November 18 to 20, 1913. **Ruoff, J. S.,** Assistant Surgeon. Granted one month's leave of absence from September 16, 1913, on account of sickness. **Schereschewsky, J. W.,** Surgeon. Detailed at the request of the chairman to attend the meeting of the Committee on Rural Nursing of the American Red Cross Association, to be held in New York, N. Y., October 22, 1913. **Smith, Howard F.,** Assistant Surgeon. Directed to report to the chief quarantine officer, Manila, P. I., for duty. **Stiles, C. W.,** Professor. Directed, at the request of the State health authorities, to confer with local health boards and present lectures relative to measures necessary to improve sanitary conditions at various places in North Carolina. **Von Ezdorf, R. H.,** Surgeon. Directed to proceed via Raleigh to points within the State of North Carolina, for the collection of data relative to the incidence of malaria and the means necessary to its control. **Weldon, L. O.,** Assistant Surgeon. Directed to report to the medical officer in charge of the Marine Hospital, Baltimore, Md., for duty and assignment to quarters.

#### Appointments.

Dr. Howard F. Smith and Dr. Lon O. Weldon commissioned assistant surgeons in the United States Public Health Service.

#### Boards Convened.

Boards of medical officers convened for the physical examination of applicants for appointment as assistant surgeon and for the presentation of questions for the written examination to meet October 20, 1913, as follows:

Marine Hospital, Boston, Mass., Senior Surgeon Fairfax Irwin, chairman; Surgeon H. W. Wickes, recorder.

Marine Hospital, New Orleans, La., Surgeon J. H. White, chairman; Passed Assistant Surgeon A. D. Foster, recorder.

Marine Hospital, San Francisco, Cal., Surgeon R. M.

Woodward, chairman; Passed Assistant Surgeon J. R. Hurley, recorder.

Marine Hospital, Chicago, Ill., Surgeon J. O. Cobb, chairman; Assistant Surgeon D. S. Baughman, recorder.

Marine Hospital, St. Louis, Mo., Surgeon M. J. White, chairman; Acting Assistant Surgeon H. C. Wakefield, recorder.

#### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending October 11, 1913:*

**Crum, Wayne H.,** Captain, Medical Corps. Granted leave of absence for three months, effective on arrival in the United States. **Culler, Robert M.,** Captain, Medical Corps. Leave of absence heretofore granted is extended one month and ten days. **Freeland, H. L.,** First Lieutenant, Medical Reserve Corps. Granted leave of absence for three months, to take effect about January 1, 1914. **Gilchrist, Harry L.,** Major, Medical Corps. Ordered to proceed to Chicago, Ill., for duty pertaining to the convention of the National Guard Association, to be held at that place on October 6, 7, and 8, 1913, and on completion of this duty to return to proper station. **Huntington, Philip W.,** Captain, Medical Corps. Granted leave of absence for three months, with permission to apply for an extension of one month, effective on or about October 12, 1913. **McCaw, Walter D.,** Colonel, Medical Corps. Granted leave of absence from January 1, 1914, to April 20, 1914. **Sparrenberger, F. H.,** First Lieutenant, Medical Reserve Corps. Joined Fort MacKenzie on September 29, 1913. **Stayer, M. C.,** Captain, Medical Corps. Ordered to Fort Porter for temporary duty on return to Madison Barracks of Major Perry L. Boyer, Medical Corps. **Walkup, J. O.,** First Lieutenant, Medical Corps. Ordered to Albuquerque, N. M., to read a paper before the New Mexico Medical Society, without expense to the government. **Whitmore, E. R.,** Major, Medical Corps. Joined the Army Medical School, Washington, D. C., on October 2d. **Worthington, J. A.,** Captain, Medical Corps. Granted three months' leave of absence, with permission to apply for an extension of one month.

### Births, Marriages, and Deaths.

#### Married.

**Cronin—Potter.**—In Rye, N. Y., on Saturday, October 4th, Dr. Eugene J. Cronin, of Richmond Hill, and Miss Marie Blanche Potter. **Jones—Milliken.**—In Old Orchard, Me., on Monday, September 29th, Dr. Arthur Leon Jones and Miss Cora Lillian Milliken. **Newell—Christien.**—In Detroit, Mich., on Friday, October 3d, Dr. George W. Newell, of Burlington, Wis., and Miss Corona Christien. **Torbert—Townsend.**—In Cohasset, Mass., on Saturday, October 4th, Dr. James R. Torbert, of Boston, and Miss Elizabeth Townsend.

#### Died.

**Arnold.**—In Omaha, Neb., on Thursday, October 2d, Dr. William Arnold, aged ninety-four years. **Baker.**—In Herrin, Ill., on Thursday, October 2d, Dr. James G. Baker, aged forty-three years. **Bradley.**—In Cedar Rapids, Ia., on Thursday, October 2d, Dr. William John Bradley, aged forty-seven years. **Brown.**—In Cleveland, Ohio, on Sunday, September 28th, Dr. George Summers Brown, of Birmingham, Ala., aged fifty-four years. **Hanson.**—In Kenora, Ontario, on Tuesday, September 30th, Dr. Thomas H. Hanson, aged sixty-seven years. **Horton.**—In Gate City, Va., on Friday, September 26th, Dr. Lucian Beauregard Horton, aged fifty-two years. **Martin.**—In Chicago, on Monday, September 29th, Dr. Hiram M. Martin, aged fifty-four years. **Moore.**—In Huntington, W. Va., on Friday, September 26th, Dr. A. H. Moore. **Newman.**—In Penn Yan, N. Y., on Tuesday, October 7th, Dr. Omar E. Newman, aged fifty-five years. **Simple.**—In St. Louis, Mo., on Friday, October 3d, Dr. Nathaniel M. Simple, aged thirty-seven years. **Stone.**—In Indianapolis, Ind., on Friday, October 3d, Dr. Richard F. Stone.

# New York Medical Journal

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### Original Communications.

#### THE LEGAL RESPONSIBILITY OF THE SURGEON AND PRACTITIONER WHICH THE USE OF THE X RAY INVOLVES.\*

BY ELLSWORTH ELIOT, JR., M. D.,  
New York.

In December, 1912, an experienced surgeon was the defendant of a malpractice suit in which the plaintiff recovered a verdict of over \$11,000, on the ground that the care of a simple fracture of the lower part of the shaft of the femur, the result of an automobile accident, had not received due and proper attention. Four weeks after the accident the patient was seen in consultation by the writer and at a considerably later period, in fact after a plating operation by another surgeon, the patient was examined by the late Doctor Bristow. To us both, subsequently associated in the defense of the action in court, the importance of the case and the fact that such a verdict, if sustained on appeal, would make the physician or surgeon hesitate to undertake the treatment of cases of this character, seemed to warrant the presentation of its chief surgical and legal features in the hope that this association might take some action that would, in a measure at least, protect the surgeon in future from unwarrantable suits of this character.

For this task Doctor Bristow kindly volunteered and had prepared or was preparing a paper with the title already cited when his unexpected and most unfortunate death occurred. The importance of the matter was such, however, that notwithstanding the short notice, the writer was impelled to take Doctor Bristow's place in order that the question might be presented to this association for discussion without further delay.

The testimony showed that after the accident the patient was conveyed to the nearest suburban hospital in an ambulance, the fractured thigh having been placed in temporary splints; that, at the end of forty-eight hours after the shock had subsided, the fracture was reduced by the defendant under a general anesthetic and placed in a Buck's extension apparatus; that, at the end of the fourth week the writer found the fragments imbedded in abundant callus with no sign of either axial or angular deformity and with a shortening that did not exceed

one half an inch; that, near the end of the fifth week, the union being sufficiently advanced to permit of active rotation of the thigh, and no false point of motion being elicited, the leg was put in a plaster of Paris splint. The patient was then gradually allowed out of bed on crutches with adequate support to the thigh and with strict injunctions to bear no weight on the affected side, a nurse being in constant attendance. At that time the shortening did not exceed one half an inch.

From this time until her discharge from the hospital, nine weeks after the accident, the testimony was uneventful with the exception of one fact. At the eighth week the plaintiff declared that a slight slipping of the crutch caused her to lose her balance and that although the nurse prevented a fall, the patient involuntarily placed a slight amount of weight on the affected side. The resultant pain was so slight and of such short duration that the incident was not reported to the defendant by either the nurse or the patient. In addition, the testimony of the defendant showed that, contrary to his strict injunction, the patient, at about this same time, had made an effort to get out of bed unaided by the nurse and in her absence and had felt a severe pain at the point of fracture. It was on the following day when the defendant, on measuring the thigh, found a sudden increase in the shortening to almost one inch, that, in answer to his question, the patient reported this incident. Notwithstanding this sudden increase in the shortening the surgeon found no false point of motion and concluded that there had been some displacement of the fragments without actual recurrence of the fracture. In the course of the trial the conversation cited above was indignantly denied by the plaintiff.

At the end of the ninth week and at her own urgent and often repeated request, the patient was discharged from the hospital and referred to her own family physician in New York, with strict injunction to bear no weight on the affected side until four weeks later or until the expiration of the thirteenth week after the accident.

The family physician testified that on several visits for minor ailments before the expiration of this time, he had examined the fractured thigh and had noticed some irregularity but no false point of motion. He also testified that he was present, when, three weeks after leaving the hospital, patient made an effort to bear the weight of the body on the affected side and experienced such terrible pain at the point of fracture that the experiment was not repeated. An x ray, taken four weeks later or sixteen weeks after the accident had occurred, showed an

\* Read at a meeting of the American Surgical Association held on May 6, 1913.

old oblique fracture of the lower end of the shaft of the femur. The line of fracture made an angle of about twenty degrees with the shaft, and although in the anteroposterior plane the alignment was perfect, in the lateral plane the fragments appeared displaced to such an extent that the posterior aspect of the upper appeared to be in touch with the anterior aspect of the lower fragment. The fragment seemed firmly united with callus, there was no false point of motion, and the shortening did not exceed one inch.

Without the knowledge of the defendant a third surgeon saw the plaintiff in consultation four and one half months after the accident and advised an operation in which the fragments were exposed, their ends freshened by the removal of five eighths of an inch from each fragment and after alignment they were secured in the usual way by plates. An x ray, after union had taken place, showed some angular deviation notwithstanding the plates which, in the opinion of the plaintiff's physician, accounted for at least one quarter of an inch of the final shortening. At this stage the patient had been examined by Doctor Bristow and his testimony as well as that of the plaintiff's physician showed that the final shortening did not exceed two inches.

The removal of five eighths of an inch from either fragment together with the one quarter of an inch additional shortening due to the final angular deviation proved conclusively that prior to the operation the shortening could not possibly have exceeded one inch.

It was further shown by the testimony that, three weeks after the accident, at the suggestion of the defendant, an effort was made to secure an x ray with the hospital machine, but the result was unsatisfactory as the machine proved to be out of order, notwithstanding an attempt was made to put it in repair. It was also shown that several months would be required before the machine could have been placed in serviceable condition. The defendant was in no way held responsible for this failure as the machine was the property of the hospital.

No further attempt was therefore made to utilize the hospital apparatus and no suggestion was made by either the defendant or the plaintiff to call an x ray expert from New York. It was in lieu of an x ray that a consultation was suggested by the defendant and accepted by the plaintiff. In the course of the trial the medical testimony of the plaintiff admitted that the treatment as conducted by the defendant was a proper and recognized form of treatment and that the failure of the defendant to suggest the calling of an x ray expert constituted the sole basis for the charge of neglect.

In his charge to the jury the judge called attention especially to the fact that the defendant had failed to suggest the taking of an x ray after the failure of the hospital apparatus by a specialist from New York (twenty miles distant) and, in the opinion of the defendant's counsel, it was the special prominence given this fact that led to the unfortunate verdict.

The first question suggested is as follows: With firm union between the fragments of a broken shaft of the femur and with a shortening of an inch or less, is an operation indicated because on the first

attempt to bear the weight of the body on the affected side, the patient experiences excruciating pain?

This question is easily answered. The opinion would, I am certain, be unanimous that more or less severe pain on the first attempt to bear the weight of the body on the affected side after a fracture of the shaft of the femur had firmly united, would not be unusual, especially in patients who had sustained or were still suffering from some severe mental shock, and that only the persistence of severe pain, unabated, after repeated attempts at walking would indicate operative interference. That displacement in itself is not a cause of pain nor a barrier to union is frequently demonstrated by patients in whom a shortening of three inches or even more from extensive overriding of the fragments has not prevented union sufficiently strong to bear, without pain or other inconvenience than a limp, the superimposed weight of the body. It must be generally conceded that any fracture of the shaft of the femur in which firm union takes place with permanent shortening not exceeding one inch is a satisfactory result, and that instances in which some shortening is not observed are very rare. A moderate shortening in itself clearly indicates a corresponding overriding or displacement due to the failure to counteract by the usual forms of extension and counterextension the stronger pull of the powerful muscles of the thigh. As a matter of fact, this difficulty has led to the devising of more efficient methods of powerful traction applied directly to the lower fragment itself, as well as to the advocating by Lane and others of the plating of every fracture of the shaft of the femur where the general condition of the patient permits.

The question of negligence based on the failure of the attending physician or surgeon to suggest or advise the taking of an x ray photograph in cases of simple fracture, presents a most interesting as well as a most important topic for discussion. It is peculiarly important in that prior to the case reported in this paper there has been no record in either medical or legal literature in which a plaintiff has been awarded damages on such an allegation.

The question may be discussed most advantageously from the medical as well as from the legal point of view. The medical point of view is best approached by a brief résumé of the history of the x ray. Shortly after its discovery some form of apparatus formed a part of the office equipment of many successful practitioners throughout the country. After a comparatively short time experience taught that the care, the development of its operative technic, and in short the intricate detail necessary to procure satisfactory results precluded its general use, and another specialty was born with the result that many costly x ray machines in the possession of the busy practitioner were quickly consigned to the scrap heap.

Ranking from this time with the specialties, those engaged in it formed a group of which the functions were quite analogous to the functions of special consultants in other branches of medicine. Under such circumstances and with such functions their services in aiding the diagnosis and treatment of cases of fracture were essential only when the



bone at the point of fracture was so deeply seated that accurate diagnosis was impossible or if diagnosis had been made, when the excessive thickening of the overlying soft parts made satisfactory reduction of the fragments difficult. Under these conditions the assistance of the röntgenologist became of great value. Is then the function of the x ray specialist to be extended to those cases of fracture in which the attending surgeon by methods of diagnosis and reduction, evolved through centuries of observation and investigation, can be reasonably certain that the fragments are in such apposition that satisfactory union may be expected? The writer believes that this is no more essential than it is to call a special consultant in every case of pneumonia, appendicitis, or strangulated hernia. Is not, as a matter of fact, the consultant called more frequently at the request of the family than with any hope of benefit from his advice? And is it not with the same spirit, the spirit of self protection, that, in cases of fracture or dislocation, an x ray is suggested when the surgeon is morally certain that the fragments are in apposition or that the dislocation has been successfully reduced? Is not the fear of litigation in the event of nonunion or other unfortunate result, in no way the fault of the surgeon, a very strong incentive for generally advising an x ray irrespective of the location of the fracture? The writer believes that these questions must be answered affirmatively and that it is time to establish the principle that the use of the x ray, although in many instances most desirable, yet in many cases is not indispensable to the proper treatment of a fracture. That such a principle should be established is all the more essential in view of the fact that, having become a specialty, the use of the x ray is frequently inaccessible in many cases of fracture. Should any method of diagnosis or treatment be regarded as indispensable when it is not generally applicable? Should the physician in a scattered community, remote from an x ray laboratory, be subject to litigation because he fails to advise or suggest the need of an x ray? This question is best answered by quoting the legal statute of the State of New York as follows:

"A physician is bound to have a reasonable degree of skill and learning, and having that reasonable degree of skill and learning, he is bound to exercise it with reasonable care, and what his reasonable care is, is that care which the ordinary careful and prudent practitioner usually ordinarily exercises in the locality in which the physician is practicing."

In view of this statute the treatment accorded by the physician must be that ordinarily exercised in the community of which he forms a part. In almost no community outside of large cities are efficient x ray machines found, and even in large cities the smaller hospitals are not always provided with adequate x ray apparatus. In the community in which the alleged malpractice occurred no x ray machine was in working order, but this fact did not prevent the judge from connecting this suburb, although twenty miles distant, with New York proper and thereby compelling the defendant to measure up both in knowledge and in efficiency, to

a standard which did not obtain in the community in which he lived.

Finally, is the physician or surgeon liable to damages because of his failure to advise a consultant? Irrespective of the nature of the disease or trauma and irrespective of the locality in which it occurred, how endless would be the resulting litigation if such omission constituted neglect. Whether the object of such a suggested consultation were to aid in diagnosis or whether to suggest a way to prolong the life of one hopelessly ill, the frequency of examples of such neglect would be beyond computation. The writer firmly believes that arrangements for consultation are made at the request or suggestion of either the surgeon or some member of the patient's family, and that in the latter event the fact that such a consultation was not deemed necessary and therefore not suggested by the surgeon can in no wise be construed as neglect.

Lack of time precludes the consideration of the many uncertainties connected with the interpretation of the x ray picture itself. It is a well known fact that on exploration a condition may be found essentially different from that which the x ray seemed to indicate and, similarly, deformities may be either exaggerated or minimized by the manner in which the photograph is secured. Space also precludes the consideration more minutely of the question of the inaccessibility of the x ray owing to distance from large centres, and a most important fact, that even in large centres some hospitals are conducted without the advantages of an x ray apparatus, may not have been duly emphasized. Suffice it to say that after careful consideration of the many phases of the question, although in many instances a most important and valuable aid in the diagnosis and treatment of fractures, the use of the x ray must not be judged indispensable, and the neglect to advise its use should in no instance constitute a basis for the recovery of damages. Should such a principle prevail the time is not far distant when the prospect of litigation will prevent those most competent from undertaking the care and treatment of cases of this character.

34 EAST SIXTY-SEVENTH STREET.

## PERCUSSION OF THE PULMONARY APICES.

BY MAURICE FISHBERG, M. D.,  
New York,

Attending Physician, Tuberculosis Pavilion, Montefiore Home and Hospital.

A study of the literature of physical diagnosis and tuberculosis reveals the most divergent opinions as to the utility of percussion as an aid in our attempts to detect pulmonary tuberculosis in its earliest stages, as well as to the proper technic to be followed. Acknowledged authorities, like Grancher, Bezançon, S. West, Bonney, L. Brown, Henry Sewall, and others maintain that true incipient tuberculosis can be recognized solely through recourse to auscultation, and when dullness is elicited on percussion we may be sure that we are dealing with extensive infiltration—a more or less advanced stage

of the disease. On the other hand, Aufrecht, Krönig, Goldscheider, Ewart, Lees, L. C. Minor, and many others maintain that if we are to detect tuberculosis in its incipency, we must resort to percussion, and that when auscultation shows positive signs, we are dealing with an advanced stage of phthisis.

Similarly, when we consult the various textbooks on the subject we find an amazing, almost bewildering difference of opinion as to the proper technic to be followed. As Mannheim well says: "The art of percussion and auscultation, as well as our knowledge of physical signs, has made little progress during the last decade. At present we have arrived at a stage where we do not understand one another when we speak of certain physical signs." Indeed, such a simple question as whether the percussion stroke should be light or heavy is answered differently by different clinicians of first rank. Austin Flint, senior, advised the use of two or three fingers conjointly when great force was necessary. The modern textbook on physical diagnosis by Cabot says that "it is necessary to percuss very strongly when examining the back of a muscular man"; while in the front of the chest a lighter blow suffices. However, Cabot warns against heavy percussion, which he says is always inaccurate. John C. Da Costa, in his recent textbook, says that "the force of the stroke is strong or light according to the situation of the organ or lesion percussed, whether deep or superficial." Most of the books and monographs on physical diagnosis and on tuberculosis, that have appeared in recent years in Europe, insist that only light percussion is to be practised if we are to obtain reliable results. Krönig,<sup>2</sup> Turban,<sup>3</sup> Goldscheider,<sup>4</sup> Lees,<sup>5</sup> and many others advise very light percussion for the detection of early lesions in the apices, and Sahli repeats the maxim that only very light percussion, properly performed, can give the best results.<sup>6</sup> Bonney,<sup>7</sup> Brown,<sup>8</sup> Alfred Meyer,<sup>9</sup> and others in this country, are also in favor of light percussion, and C. L. Minor, in one of the best chapters on the diagnosis of tuberculosis published in this country, says that "too much stress cannot be laid on the importance of light percussion in a large proportion of cases and localities, the occasions when heavy percussion is needed being increasingly rare with increasing skill of percussion."<sup>10</sup>

Taking another important point of technic,—that of the application of the pleximeter finger to the chest wall—we find again many divergent opinions. Flint, Da Costa, and most of the older writers maintained that in order to obtain good results the finger must be pressed firmly against the chest wall; Bonney says that if due attention is not paid to this important feature the resonance will be appreciably diminished in intensity and, in many cases, will par-

take of "cracked pot" resonance. Cabot also argues that the pleximeter finger must be pressed as firmly as possible upon the surface of the chest; while John C. Da Costa advises that "the more forcible the percussion stroke, the firmer should be the pressure of the pleximeter finger, and *vice versa*." On the other hand Sahli warns strongly against such pressure and emphasizes that "the pleximeter or finger of the left hand serving this purpose should be brought into very light contact with the surface of the body. The mere weight of the finger is sufficient."

Many other differences of opinion could be quoted from recent works showing the utter lack of unanimity in such an apparently simple matter as the technic of percussion. To illustrate—there are two pictures in Cabot's *Treatise on Physical Diagnosis* showing the proper and the wrong position of the patient during percussion of the back (pp. 124-125) emphasizing



FIG. 1.—Plesch's method of percussion on the hooked finger.

the importance of having the patient bend forward with each arm crossed to the opposite shoulder. In H. Barth's *Sémiologie de l'appareil respiratoire*, there are also two pictures, showing that when the patient crosses the arms and bends forward the position is defective for percussion of the back, while the position which Cabot shows as wrong, is considered as "*la bonne posture du sujet pour la percussion*," by this French author.<sup>11</sup> The confusion and bewilderment of the average student when he attempts to study up this point can well be imagined.

The results of these differences in the technic of percussion are in evidence in any hospital, clinic, or physician's office. Percussion is either perfunctorily performed, as an aim in itself, to impress the patient, or is altogether omitted. Many physicians, even such as devote all or most of their practice to pulmonary diseases, rely solely on auscultation for the diagnosis of tuberculosis. There is no doubt in my mind that this is one of the reasons why incipient cases are so rarely recognized.

During recent years several clinicians have attempted to bring about some order in the literature of percussion. A number of excellent investigations of the problems, methods, and technic of the percussion of the heart and lungs have been published in Germany and France, but judging from recent textbooks and monographs on physical diagnosis and on tuberculosis, the results attained by these investigations have not been given the attention they deserve in this country. This is especially to be deplored when the percussion of the apices is considered. It is a well established fact that tuberculosis begins as an infiltration, and can in most cases be recognized clinically in its earliest stages by the detection of dull areas over the pulmonary apices. The reason why so few make use of this method of examination is that many have not yet forgotten the old methods and technic of percussion, which were rather coarse;

<sup>1</sup>G. Mannheim: *Exploration of the Chest*, etc., New York Medical Journal, May, 1906.

<sup>2</sup>Krönig: *Die Frühdiagnose der Lungentuberkulose*, Deutsche Archiv, XI, pp. 584-611.

<sup>3</sup>K. Turban: *The Diagnosis of Tuberculosis of the Lung*, London, 1906.

<sup>4</sup>Goldscheider: *Ueber die physikalische Frühdiagnose der Lungenschwindsucht*, Zeitschrift für Klinische Medizin, LXXX, 1910, 205.

<sup>5</sup>D. B. Lees: *The Diagnosis and Treatment of Incipient Pulmonary Tuberculosis*, *British Medical Journal*, November 9, 1912.

<sup>6</sup>Sahli: *Diagnostic Methods*, second American edition.

<sup>7</sup>S. G. Bonney: *Pulmonary Tuberculosis*, p. 238.

<sup>8</sup>L. Brown, in *Oster's Modern Medicine*, III, p. 287.

<sup>9</sup>Alfred Meyer: *Medical Record*, LXVIII, 1905, p. 51.

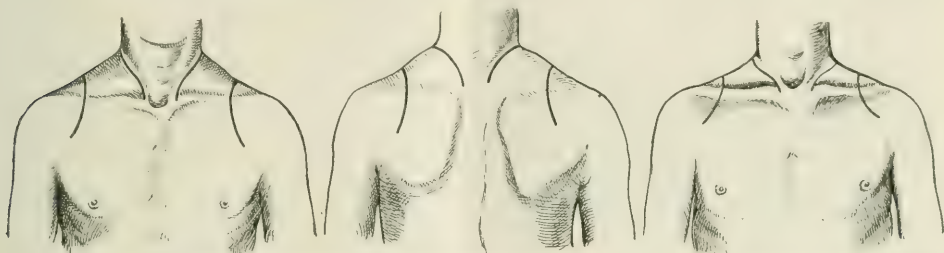
<sup>10</sup>C. L. Minor, in *Klein's Treatise on Tuberculosis*, p. 310.

<sup>11</sup>H. Barth: *Sémiologie de l'appareil respiratoire*, Paris, 1908, p. 105.

small areas of airless lung tissue can only be detected by gentle percussion.

It must be stated at the outset that while discussing apical percussion in this paper at some length, no details will be given about the qualities of the percussion sound or resonance. Pitch, duration, and intensity of the sounds will not be considered; nor will special changes in the quality of the sound be elicited—such as amphoric or metallic resonance, the bell sound, cracked pot resonance, etc., as well as the modifications of the sounds obtained by opening or closing the mouth, or by posture, etc.,—be discussed. In this paper we are concerned with percussion in cases of incipient tuberculosis. When any of these modifications of the percussion sounds appear, we are not dealing with an incipient case, and we can easily make a diagnosis from the history, symptomatology, and course of the disease. In small infiltrations of the apex, the vibrations set up by percussion produce simple tones, easily recognized by any one who looks carefully and attentively for them. The differ-

anatomy of the early lesions of pulmonary tuberculosis shows that the first focus is usually located in the peribronchial tissues and the adjacent alveoli, and is usually accompanied by enlargement of the regional lymphatics. All, or some, of these tissues may be involved in the infiltration, producing slaty induration and wasting of the pulmonary parenchyma which is replaced by dark fibrous tissue. Caseous pneumonia, filling the alveoli with a cheesy exudate, may be the initial lesion. As long as the infiltration remains beneath the mucous membrane of the bronchi, the entrance of air into the affected areas may not be interfered with very much, while in the rest of the lung it is circulating freely. But interference with the free circulation of air within a limited area cannot be readily ascertained by auscultation, because the surrounding lung vesicles act in a compensatory manner and suck in more air. Only when the initial lesion is extensive may we find weak vesicular, or at most bronchovesicular breathing in a circumscribed spot. Indeed, I have quite often ob-



FIGS. 2 and 3.—Kronig's resonant areas of the apex, anterior and posterior.

FIG. 4.—Narrowing of the apical resonant area on the left side.

ences between the resonance in the normal lung and the lack of resonance, or the dullness at the spot where the infiltration can be appreciated by anybody, even one who has no musical ear. If we bear this in mind we have overcome nine tenths of the real and alleged difficulties of the art.

The object of percussing the thorax is to ascertain any pathological changes in its viscera. In percussing the apices, where nearly all the initial lesions of pulmonary tuberculosis in adults are localized, we aim at detecting small foci of infiltration; large airless areas can be ascertained by other methods. Bearing in mind that tuberculosis does not begin as a catarrh of the small bronchi, as some believe, but as an infiltration, it is evident that auscultation cannot give any definite clues as to the pathological condition of the apical parenchyma in the early stages of tuberculosis. The initial infiltration can be detected by percussion not as a definite anatomical change, but merely as a substitution of solid, nonresonating material for the normal, porous, aircontaining and resonant lung tissue; the alveoli are filled with exudate, or the interstitial tissues contract and compress the alveoli, finally obliterating them altogether. Inasmuch as altered breath sounds and râles can only be found in the pulmonary apices when lesions or secretions interfere with the current of air entering or leaving the air vesicles, it is evident that the first signs of tuberculosis in the apices are not sought by the aid of auscultation. Moreover, the pathological

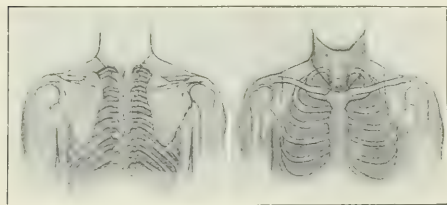
served this to be a fact in incipient cases, and have learned to look upon weak or absent breathing localized at an apex as an important sign of incipient phthisis.

Only when the caseous material of the infiltrate softens and breaks through the wall of a bronchus, thus permitting the entrance of air into the disease focus proper, can râles be heard on auscultation; it is also at that time that tubercle bacilli make their appearance in the sputum. When this is the case we can easily make a diagnosis by auscultation, as well as with the microscope, but not before. It is evident that waiting for auscultatory signs to verify a diagnosis of incipient tuberculosis is just as grave an error, as waiting for bacilli to make their appearance in the sputum. When we have râles on auscultation we may be sure that we are dealing with a more or less advanced stage of the disease—caseation and softening of the infiltrated area has already taken place. When the disease process is not located originally in the bronchi, but more in the peribronchial tissues, it is again evident that the air circulating in the bronchial tree cannot reach the focus at all, and the auscultatory findings will necessarily be negative.

Because of faulty technic in percussing the chest, which is quite common, many wait for auscultatory signs in tuberculosis suspects. Very few have learned the elementary lesson that strong percussion over the region of the apex is useless in incipient



cases. Even in other regions of the chest, including the back, light percussion gives better results than the heavy blows which we often see inflicted upon the pleximeter or finger, as well as on the patient. Oestreich and de la Camp, basing their assertions on experiments and autopsies, have shown that only infiltrations located superficially can be demonstrated by percussion; in deep lesions even heavy percussion is of no avail. The percussion stroke, according to these authors, penetrates only to a depth of six centimetres, and from this is to be deducted some two or three centimetres constituting the parietes, so that the percussion blow reaches only three to four centimetres deep into the visceral organs.<sup>12</sup> It is for this reason that we cannot percuss the heart from behind, and it is impossible to locate a lesion situated posteriorly while percussing anteriorly; even at the apex, which is not bulky, we may find dullness posteriorly or anteriorly, while on the opposite side the resonance may be normal or even above normal, no matter how strong we percuss. It is also for this reason that we must percuss over all sides of the chest, and even then



FIGS. 2 and 6.—Showing that Kronig's resonant areas are not outlines of the apical margins, but are merely a projection of the same lung tissue in various directions. In the supraspinous fosse there is no lung tissue at all. (After Goldscheider.)

we do not penetrate to centrally located lesions or enlarged bronchial glands.

On the other hand Goldscheider<sup>13</sup> thinks that the percussion blow does penetrate deeper than indicated by Oestreich and de la Camp. His experiments lead him to believe that the lightest percussion stroke penetrates deeply into the lung tissue and produces acoustic phenomena which are audible to the ear. With very light percussion (*schwellenwert Perkussion*) on the apex of a lung removed from a cadaver he could hear the resonance distinctly at the base of that lung—a distance of sixteen to twenty-one centimetres according to the degree of inflation. In the lung of a horse he could even perceive light percussion resonance at a distance of thirty-five centimetres between the points of percussion and auscultation. Moritz and Röhl<sup>14</sup> arrived at similar conclusions through ingenious experiments.

These experiments on the lung removed from the body do not prove, however, that similar conditions obtain in the lung of the living man. Because of the elasticity of the thorax a great part of the percussion stroke is dissipated along the muscular and bony parietes, while in the lung alone the

percussion wave penetrates sagittally in the direction of the stroke; the medium through which the wave passes is more uniform in consistency when passing through lung tissue alone, than when passing through skin, subcutaneous tissue, muscles, and bones before reaching the lung. Practical experience confirms that the percussion blow, as practised on patients, does not reach deeper into the lung than is claimed by Oestreich and de la Camp—three to four centimetres of the visceral organs. The stronger the blow, the more of the force is conducted laterally by the ribs and the intercostal muscles which are set into strong vibration, and the resonance elicited gives no clue as to any consolidations of lung tissue that may be deeply located. This is especially true of deep infiltrations surrounded by normal lung tissue. It is consequently a vain effort to attempt to reach a deep lesion in the thorax by vigorous percussion. We know from experience that in very obese or edematous persons it is quite difficult, often impossible, to define the boundary between the lung and the liver. To be sure, strong percussion may give a clear note of pulmonary resonance, but the line thus marked out is usually indefinite, and with very few exceptions, unreliable. Indeed, radiography and autopsies have shown that those who attempt to achieve such results very often err.

In percussion theoretical considerations should be subordinated to bedside experience. If experiments give results differing from those obtained by experience in our daily practice we must conclude that either the experiments are faulty, or their interpretation is erroneous. Experience teaches that deep seated consolidations cannot be definitely determined by percussion, not only because the stroke does not penetrate beyond a certain depth, but for the reason that the vibrations set up in the surrounding aircontaining tissue predominate and lead to confusion.

Once we are clear that only superficial dullness can be reliably determined by this method of investigation we will use only light or gentle percussion, especially when examining the pulmonary apex. This is particularly essential when we attempt to determine the boundaries of the apices, which is most useful in attempts at detecting early lesions of phthisis. "To appreciate superficial boundaries," says Sahli, "it is a good general rule that we should percuss as lightly as possible, and a good criterion of the desired strength is to evoke practically no note over the dulled areas." In most cases I have found it advisable that the movement of the percussing finger should be almost entirely from the metacarpophalangeal joint. The percussion note elicited is a faint sound which can only be appreciated while listening attentively. Of course perfect silence must be maintained in the room. While by this method the resonance can not be demonstrated by bystanders, yet the physician who practises it, is often able to detect areas of dullness which cannot be found by any other means. When reaching an airless area the contrast between the resonance evoked in the air containing area, and the deadness met with at the dull spot is striking. As Goldscheider well says, it is easier to appreciate a difference between something and nothing, than between one

<sup>12</sup>Oestreich and de la Camp, *Anatomie und physikalische Untersuchungen am Menschen*, 1902, and 1911, Berlin, 1905.

<sup>13</sup>Goldscheider: Untersuchungen über Perkussion, *Deutsches Archiv für Klinische Medizin*, 1901, 200.

<sup>14</sup>Moritz and Röhl: *Archiv für Klinische Medizin*, 1901, 200.

thing and another which differs but slightly from it. Over resonant areas we evoke a note, while over dulled areas, no note is brought out at all.

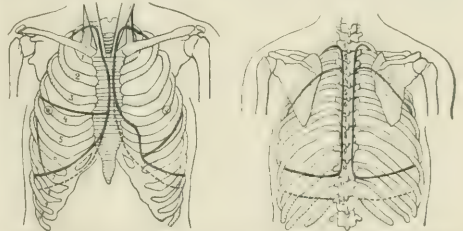
It must be borne in mind that while solid, airless lung tissue will usually give a short or dull note on percussion, there are many exceptions. Oestreich points out that in many apical lesions there is a proliferation of tissue, so that the volume of the apex is increased, making the air containing lung tissue around the focus less expansive than normal. As a result we may get in this class of cases a tympanitic note. Another source of error is vicarious emphysema of a part of the apex which may appear near a shrunken area and thus mask the dullness of the airless part. But this is extremely rare in incipient phthisis, which is always accompanied by shrinkage of the apical parenchyma, as will be shown later on. Small areas can only be detected by very light percussion, so light that the sound becomes altogether inaudible when we reach areas of defective resonance, or flatness. In many cases of incipient phthisis we find at the apex small areas of dullness elicited by light percussion, but when the stroke is somewhat heavier the dullness disappears and resonance, or even tympany, is elicited. This is usually the case with small, disseminated infiltrations scattered through the apex. This fact can be utilized for the determination of the extent of the lesion. Bearing in mind that the lightest stroke penetrates quite deeply enough for our purposes, that a stronger blow does not reach deeper into the pulmonary tissue, but sets up stronger vibrations, especially in a lateral direction, we may conclude that the absorption of the sound by the airless areas of the lung is, for this reason, less perfect with strong than with light percussion. The more consolidated the parts are, the less muffled will the sound appear in spite of the increase in the force of the percussion blow. It is for this reason that small areas of dullness can only be detected by light percussion, and they disappear when the blow is increased. If on increasing the force of the blow the dullness remains, we may be sure that we are dealing with extensive areas of airless tissue.

It is remarkable that, unconsciously, clinicians have always followed these principles in their efforts to use the proper force while percussing. Instinctively we percuss three or four times over the same spot. If these strokes are carefully observed it will be noted that not all are of the same force. They make a crescendo or decrescendo—unconsciously an attempt is made to find the proper force for the given spot. Experienced men find it quickly; the master may find it with the first stroke, but even he is compelled to percuss several times when he wants to delineate dullness in abnormal areas.

When the quantity of air in the lung is diminished we may also obtain tympany, due to a relaxation of the pulmonary tissue; but when the tension is increased the tympanitic note disappears. Many small disseminated solid nodes of airless tissue within a normal lung apex are capable of producing a dull tympanitic or "boxy" note on percussion. At times tympany is the first sign to suggest such a lesion in incipient apical involvement. The note elicited is somewhat clearer, of a tympanitic character amidst

normal resonance, while dullness is not yet evident. The latter is predominant when contraction of the apex exerts a perceptible influence.

Next to light percussion, it is important to bear in mind that firm application of the pleximeter finger is apt to give misleading results. It seems to me that light percussion is not gaining in vogue, considering the rarity with which we see it practised, because those who have given it a trial have retained the old traditional method of pressing the pleximeter finger with great force to the surface of the chest. "The whole secret in percussing superficial boundaries," says Sahli, "depends on two principles—light percussion and light contact." Strong pressure of the pleximeter finger dissipates all the advantages of light percussion, as can be readily ascertained by first applying the finger lightly and percussing gently till a dull area is encountered; now the pleximeter finger is pressed firmly to the chest wall and again a light stroke given—a resonant note is usually the result. The reason is that the pressure of the pleximeter finger brings the intercostal muscles into strong tension, making



FIGS. 7 and 8.—Margins of the lung according to Goldscheider, anterior and posterior.

of them a large pleximeter which brings out the resonance of the neighboring air containing lung. The dullness obtained under such conditions can not be delineated.

Another old, but very bad method of percussion is to apply three or four fingers of the left hand to the surface of the chest and to percuss each one successively, "a change from dullness to resonance is often thus brought out with unusual clearness," says the author of a very popular textbook on diagnosis. Any one who thus attempts to localize a lesion in the lung will be sadly disappointed, unless the consolidation is very extensive; a few taps with the fingers directly on the chest, without the aid of a pleximeter or finger, will give much better and reliable information.

Bearing in mind that, as a rule, tuberculous lesions spread from above downward and that the line between healthy and infiltrated pulmonary tissue usually runs horizontally, we percuss from above downward, or the reverse in horizontal zones. The pleximeter finger must be placed parallel with the ribs and not perpendicular to them as is often practised. It is obvious that when the pleximeter finger is placed vertically on the chest we obtain mixed resonance because the stroke brings into vibration both, healthy and diseased lung tissue. It is also important that only intercostal spaces should be percussed because percussion of the ribs which in themselves can be considered long pleximeters,

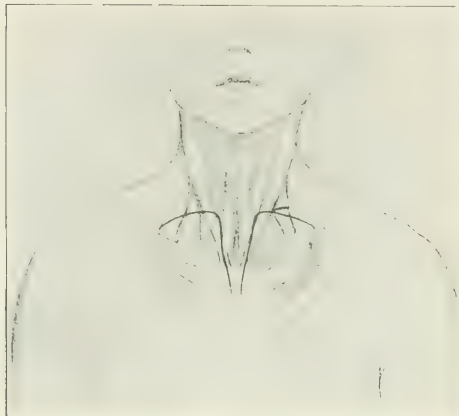


FIG. 9.—Topography of the apex according to Goldscheider. Upper and mesial borders of the lung, borders of the right rib and clavicle. On the left side of the clavicular head of the sternoclavicular joint has been removed so that the scapular angle is visible. The upper border of the lung is somewhat higher than the first rib.

brings out a resonance due to vibrations of large areas of lung tissue lying laterally and not only under the spot which we intend to strike at the given moment.

In the diagnosis of apical lesions, when we try to find small areas of airless tissue, it is often difficult to localize dullness when the entire pleximeter finger is applied to the chest wall. Plesch, in Germany, and Mannheim, in this country, have suggested that the pleximeter finger be flexed at the second phalanx to a right angle, the pulp only is then applied to the chest and the distal end of the first phalanx is percussed.<sup>15</sup> (Fig. 1.) This maneuver often enables us to delimit the boundaries of the apex with greater exactness than the usual application of the finger to the chest wall, and in mapping out Krönig's resonant field, it is often invaluable.

The diversity of opinion as to the position of the patient while the chest is being percussed has already been mentioned. Auenbrugger, the inventor of percussion, insisted that the thoracic muscles must be tensely contracted, because he used no pleximeter, and with relaxed muscles clear resonance cannot be brought out. This can be easily verified by percussing one's own pectoralis major muscle—only when the muscle is rigidly contracted can a clear resonant note be elicited. As we percuss at present with a finger or pleximeter, Auenbrugger's methods is in most cases not the best, especially when light percussion is practised; the tense muscle is a great hindrance to exact localization of any dullness that may be found. Indeed, great efforts are being made at present to have as small a pleximeter as possible with a view of having the stroke penetrate more in the direction in which it is sent, and to avoid lateral conduction, while a large muscle serving as a pleximeter will do the exact opposite.

Relaxation of the patient's muscles is best at-

tained by sitting him on a revolving stool with his head in the middle line so that both sides of the chest are symmetrical. Asymmetry quite often leads to erroneous findings. When percussing the apex we must, however, often deviate from this rule, for reasons to be detailed later on when describing its anatomy.

The percussion of the apices for the diagnosis of pulmonary tuberculosis is of value, because infiltration of that region involves shrinkage of the parenchyma of the lung. This shrinkage, when once occurring, depends as to its intensity on many factors, among which are the degree of retraction and, especially, the location of the diseased focus. When the lesion is centrally located, shrinkage of the apex is greater than when it is located in the periphery or under the pleura, as has been shown by Oestreich, obviously because, in the former case, traction is exerted on all sides. Pathological investigations at autopsies have shown that retraction appears quite early, much earlier than is generally appreciated. It is just for this reason that percussion is of service in showing the size of the apex, as well in demonstrating any alteration in the resonance of that region much before auscultatory phenomena make their appearance.

Many earlier clinicians have attempted to utilize this shrinkage of the apex for the purpose of making an early diagnosis in tuberculosis. In spite of its great bearings, a survey of the literature of percussion shows that there is no unanimity as to the best methods of ascertaining shrinkage, and the interpretation of the findings. There are extremely different views expressed as to the form, location, and outlines of the upper margins of the lungs. Considering that the height of the apices in normal individuals is the same on both sides, asymmetry anteriorly or posteriorly can be taken as a true sign of shrinkage. When attempts were made to percuss the outlines of the apices, with the aim of showing lateral contraction, the outlines drawn on the skin were divergent. Weil found the line on the back of the neck runs a concave curve to the seventh cervical spine; von Ziemssen described a convex line, etc. These divergent results had their origin in the different technics of percussion used

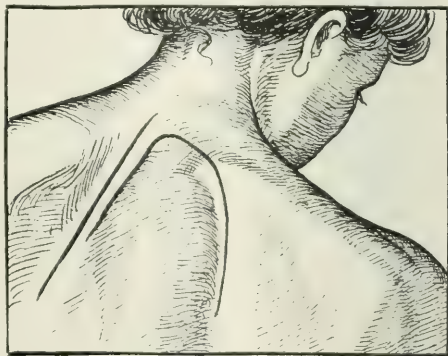


FIG. 10.—Position of the patient while percussing the apex posteriorly. The arm is folded to the opposite shoulder, thus moving the scapula outward and exposing the apex.

<sup>15</sup> Plesch: Ueber ein verbessertes Verfahren der Perkussion. *Münchener medizinische Wochenschrift*, 1902, No. 15.



by the various authors, and they served the purpose of discrediting apical percussion in early tuberculosis until within recent years, when Krönig and Goldscheider reinvestigated the problem. We now know the importance of a careful and methodical percussion of the apices as a great aid in the diagnosis of incipient tuberculous lesions. That the teachings of these two clinicians have not been given due credit in this country is evident, from the fact that of all the text books on diagnosis I have at hand, only two mention Krönig's method, and those only cursorily; Mannheimer alone describes it in detail in an excellent paper on the Exploration of the Chest; L. C. Minor gives details about apical percussion according to Krönig and Goldscheider in Klebs' *Treatise on Tuberculosis*.

The most important lesson taught by these two clinicians is that percussion in general, and of the apices in particular, must be done very lightly—the stroke given over the pleximeter or finger must be gentle and soft, hardly audible at any distance. The aim of percussion is the detection of areas in which the normal content of air is diminished or absent. In case the apex is extensively infiltrated with tuberculosis or other lesions, it will contain less air than normally, and the resonance elicited by percussion will be defective when compared with the normal side. Any percussion, immediate or mediate, light or strong, will do in cases with extensive lesions. But these cases can be readily diagnosed by the symptomatology alone. On the other hand, in case the air content of the apex is only slightly diminished, as is seen in incipient phthisis, strong percussion sets into vibration a larger area of lung tissue, including adjacent healthy parts of the apex, and the resonance does not differ from that found in the opposite healthy apex. Indeed, it is well known that comparative percussion of the apices is only of use when the focus is located superficially, or subpleurally; when the lesion is centrally located, neither strong nor light percussion may give any satisfactory information because the superficial, healthy lung tissue acts as a resonator, and for other reasons already mentioned.

The fact that in the vast majority of cases of tuberculosis shrinkage occurs quite early is of great assistance in diagnosis. Topographical percussion, according to Krönig's method gives an outline of the apical resonant areas which, with certain reservations, is pathognomonic of incipient phthisis. It projects anteriorly and posteriorly a picture of the height and width of the resonant areas in these regions. If the resonant area on one side is smaller, shorter, or narrower, we may safely conclude that the apex is shrunken.

A study of the resonant areas in the supraclavicular and supraspinous fossæ in the normal individual has shown Krönig that they project as cones anteriorly and posteriorly, and that these two cones are united on the top of the shoulders by a narrow strip of resonance—the isthmus (Figs. 2 and 3). With careful and very light percussion we can easily map out the mesial line which runs in front, beginning at the sternoclavicular articulation, upward and outward forming a concavity inward; while posteriorly the line forms a convexity and ends at

the level of the lower border of the second thoracic spinous process. The external line separating the resonant apex from the dull shoulder and neck runs from the middle of the anterior border of the trapezius, curving downward and reaching the clavicle at the junction of the middle and outer third, and continues obliquely toward the axilla; proceeding upward it forms a convexity toward the neck, crossing the shoulder, on the top of which it is separated from the mesial line by a resonant space of about two to three centimetres forming the isthmus, and proceeding downward with its concavity outward, terminating a couple of centimetres outside of the middle line of the scapula. Normally the height of the apex is anteriorly about three to four centimetres above the clavicle, and posteriorly, on a level with the first thoracic spine, about two centimetres outside the middle line of the body.

When the resonant areas of the apices are mapped out on the chest it is expected that both sides should be of nearly the same height and width. In cases of phthisis it will be found at an early stage that the affected apex is narrower and shorter than the other, due to shrinkage which appears quite early, as has already been indicated (Fig. 4). When nothing else connected with the clinical history of the case could verify the diagnosis, I have often been able to acquire a strong suspicion, or make a positive diagnosis by the aid of Krönig's method before auscultatory signs have given any indication of an apical lesion.

The technic of the percussion of Krönig's resonant areas is very simple and can be easily acquired by any one who takes pains in careful practice. Indeed, it is much easier to learn than comparative percussion, and requires no musical ear. Of course a light and soft percussion stroke is imperative, and a strong or even medium blow will be of no use in many cases. The patient should sit on a round high stool, with his arms hanging down at his sides in a relaxed condition, or resting on his knees. I have often found it better to have the patient lying on an upholstered couch, or an examining table—the resonance is then brought out to a better advantage. Placing the patient with his back near a door or wall, or, as Lawrason Brown has suggested, standing the patient in the angle between two walls, may be of immense service in bringing out points which may otherwise escape attention. Krönig states that it is easier to map out boundary lines by percussing from the dull area toward the resonant. Most authors agree with him. I have, however, found the reverse to be of greater service. It is important to remember that the pleximeter finger must be applied parallel with the line we expect to delineate—in this case at right angles with the clavicle.

Krönig's method of percussion is of excellent service in a large proportion of cases of incipient phthisis. But we often meet with patients in whom, after careful and time consuming work, the result attained is unsatisfactory. I have seen cases in which no dislocation of any of the lines of demarcation of the apical resonant areas could be determined, but other symptoms and signs of tuberculosis were found and were confirmed by the subsequent course of the disease. Nor can I entirely agree with

Krönig, when he says that in phthisis the motion of the base is invariably affected at an early stage, while in nontuberculous apical lesions the expansion of the lower margins of the lungs remain normal. Admitting the fact that adhesions of the pleura are found at the base, due to former attacks of pleurisy—and this may be found occasionally with collapse induration of the right apex—there are many incipient and moderately advanced cases of tuberculosis, in which the base retains its normal mobility during expiration and inspiration.

The reason for the occasional failure of this method of percussion is to be sought for in the fact that Krönig's resonant areas are not an outline of the true anatomical apex, but merely a projection of the same lung tissue in various directions (Figs. 5 and 6). The fact is that it is impossible to project the top of the lung on the surface of the body, considering its peculiar anatomical position and form. Krönig's isthmus, for instance, does not exist at all, and we must remember that only the mesial border corresponds to the anatomical margin of the lung anteriorly and posteriorly. The lateral border cannot be determined with exactness because the percussion waves strike the spot tangentially. Several attempts have been made to invent a method of percussion, which would show the resonant areas of the true pulmonary apices. The best of these methods is that of Goldscheider<sup>16</sup>, though it is to be deplored that so few practitioners in this country have adopted it.

Goldscheider's method of percussion can be intelligently applied only when the normal topography of the apices is borne in mind. Physical exploration and fluoroscopic investigations have shown that in healthy persons the height of the two apices is the same on both sides, and that asymmetry in this respect spells disease of the lung or pleura. Anteriorly, the apices are located in the supraclavicular fossæ, between the heads of the sternocleidomastoid muscle, where they are not covered with thick muscles, thus allowing excellent opportunities for percussion. It must be emphasized here that percussion outside of the external border of that muscle gives lung resonance only tangentially, not directly. The highest point of the apex is on a level with the lower end of the thyroid, about three to four centimetres above the clavicle. Behind, the apex lies close to the spinal column, reaching above the level of the spinous process of the vertebra prominens, about two to three finger breadths from the median line of the body. At the second thoracic spine the two apices converge, running along the spinal column, as can be seen from the diagram. (Figs. 7 and 8.)

The supraclavicular fossa cannot be percussed as a unit. Taking its anatomical peculiarities into consideration, Goldscheider divides this region into three divisions, each of which has a different significance from the standpoint of percussion. Through this fossa passes the first rib, which together with the sternum and the first cervical vertebra forms the aperture of the thorax through which the real apex of the lung passes. There is

also to be found in this region a part of the first intercostal space. The first rib surrounds the apex of the lung, indenting it with a furrow. The first pair of ribs form an incline, sloping downward anteriorly with an abruptness varying in different individuals, the highest point being on a level with the two upper thoracic vertebrae, so that anteriorly the apices project 1.5 centimetres above the first rib, while behind the latter is higher than the apex by one to two centimetres. Bearing all this in mind we must, while percussing the supraclavicular fossa, distinguish three parts: The apical part—the part of the lung passing out of the aperture of the first rib; the first rib with the part of the lung which it covers; and, finally, the narrow strip which is part of the first intercostal space. (Fig. 9.) It is because of the peculiar anatomy of this supraclavicular space, that the apex cannot be percussed as a unit—vibrations are produced not only in the apical pulmonary tissue, but also in the sub-apical region, the first rib being short but very wide, when struck with a percussion blow, it emits its own sound and sets into vibration other parts of the lung, and the resonance thus elicited is a mixed and rather confusing one. Moreover, the area between the trapezius and the sternocleidomastoid, over which most physicians are apt to percuss, does not contain the pulmonary apex at all, as is clearly shown by the accompanying illustrations. (Figs. 5 and 8.)

The height of the apex anteriorly, as well as its mesial border, is best delimited by percussing between the heads of the sternocleidomastoid downward to the clavicle and beneath it, while the patient's head is turned to the opposite side without bringing the muscles into great tension. Under normal conditions the resonance elicited is equal on the two sides, or nearly so, and for practical purposes the slight difference between the resonance of the right and left sides may be disregarded. On the other hand, differences in the height of the apices, or in the outlines of their mesial borders when the two sides are compared, are of profound significance in showing pathological changes in that part of the lung. The external border of the apex is not looked for at all for the anatomical reasons stated above.

Goldscheider has also shown that it is a vain effort to percuss the supraspinous fossæ, and practical experience has shown that he is right. With the scapulae in their normal position we find that the greater part of each supraspinous fossa is beyond the bony thorax, and the apex of the lung is only partly covered by the scapula. (See Fig. 8.) To hammer away in the supraspinous fossa, as we see often done, is a waste of time and energy. Percussion of the scapular region strikes bone and thick muscles and hardly, if at all, does it penetrate to the lung. But with folded arms over the opposite shoulders, or the patient embracing the back of a chair, he moves the scapulae outward as far as possible, thus exposing the lung, covered by comparatively thin parietes. (Fig. 10.) Bearing in mind the topographical anatomy of the posterior aspect of the apex, we attempt to determine the upper limit of the lung and the course of its mesial

<sup>16</sup>Goldscheider: Perkussion der Lungenapizes. *Berliner klinische Wochenschrift*, xlv, 1907, pp. 1267, 1309.

border, which is even easier to outline than anteriorly. The external margin is difficult to make out clearly, and is of little importance in diagnosis.

With very light percussion we sometimes find small areas of dullness in these regions which could not be found otherwise. It is best to use, especially anteriorly the hooked finger as a pleximeter. By asking the patient to lift his arms over his head we can percuss high up in the axillary region where we may detect any dullness in the first intercostal space. Cases are not at all rare in which this is the first place in which dullness reveals an infiltration of the apex which could not be found anywhere else. Special attention is to be given to the upper and middle parts of the interscapular spaces, where enlargements of the bronchial glands may be determined by finding dullness.

We percuss the apex both unilaterally and bilaterally. Unilaterally we determine the height of the apex and its mesial border, and bilaterally we study the comparative resonance. The pleximeter finger must be applied lightly, using the same pressure on the chest wall each time we apply it; each stroke must be applied with the same force, in the same direction, and during the same period of respiration. It is best to begin with the lightest percussion, preferably anteriorly in the third intercostal space, posteriorly opposite the spinous process of the fourth or fifth dorsal vertebra and proceed upward. If defective resonance is discovered, the force of the stroke should be diminished to a minimum, and when the area of dullness is delimited the force of the stroke is increased guardedly, always having in mind the thickness of the integuments, with a view of ascertaining the degree of the dullness, as well as any shrinkage that may have taken place. Small areas of infiltration can only be detected by very light percussion; so light, that the defective resonance disappears with the slightest increase in the force of the stroke. If on increasing the percussion force the dullness remains, we may be sure that we are dealing with extensive areas of airless lung tissue.

Bearing in mind that the apices have physiologically a weaker resonance, we percuss gently while proceeding from the above mentioned areas upward with a view of ascertaining the upper limits of the apex. In incipient phthisis we may find that one of the apices is lower than the other, and also that the note elicited is shorter, or muffled, while its mesial border is moved outward.

A study of the changes in the percussion note during extreme and held inspiration and expiration is of great assistance in doubtful cases. J. M. Da Costa, about forty years ago, was the first to draw attention to this mode of percussion, and while in Europe most of those engaged in the study of the physical signs of tuberculosis have emphasized the importance of "respiratory percussion," as Da Costa called it, it has almost been forgotten in this country. Da Costa showed that "at the apices, and especially in the infraclavicular region, in the supraspinous fossæ, and on a line toward the spine, a full held inspiration increases the resonance, makes the sound fuller, and raises the pitch; and where, as is so common, the left side has normally a higher pitch, this disparity is preserved." A held and

complete expiration will greatly lessen the resonance and lower the pitch at the apices. "In the held inspiration we obtain a greater mass of tone; in held expiration, the reverse." This change of resonance was found by Da Costa to remain unaffected in bronchitis, but in phthisis, even in its earliest stages, the affected area shows the reverse—a long, held inspiration gives a duller note than that observed on the healthy side.<sup>17</sup> Da Costa, apparently, did not practise light percussion as is in vogue at present. It is, however, a fact that this change in the note, observed during long held inspiration and expiration, is brought out more strikingly and clearly by light percussion than with strokes of moderate force, and this method is of immense value in many cases which are not otherwise clear. When the infiltration increases in extent, involving the larger part of the apical parenchyma, the dullness on percussion is no longer modified by the forced and held inspiration and expiration. Hence we have in this method a very good test as to the extent of involvement by the tuberculous process.

There remains yet to be discussed the clinical significance of small circumscribed areas of dullness in the apices. Are we justified in considering every case showing a contraction of Krönig's resonant field on one side, having one apex shorter than the other, thus indicating retraction of the pulmonary tissue, or showing a dislocation of the mesial border of an apex, etc., as a case of active phthisis? This is by no means the case. In this respect, percussion is just as liable to lead to erroneous conclusions as is radiography, or even post mortem examination of the lung and pleura. The radiographer is not justified in asserting, without qualification, that he deals with an undoubted case of tuberculosis because he finds a shadow or mottling on the plate at one or both apices or roots of the lungs. H. Sewall and S. B. Childs, after a careful radiographical study of the chest, conclude, that while extreme pathological changes in the lung and glands may be recognized with great facility, alterations of a moderate grade need careful judgment in their interpretation; and that, in the x ray negative of the normal chest, the opaque arborizations of the "bronchial tree" are almost wholly composed of shadows cast by blood vessels,<sup>18</sup> which may and may not be caused by tuberculous infiltration. It is noteworthy that even the pathologist, making an autopsy, is not justified in diagnosing tuberculosis because he finds some induration of the regional lymph glands at the hilus, diffuse calcification, or scar formation in any part of the lung or pleura. Formerly pathologists did make unqualified diagnoses upon finding small scars or calcified areas in the glands or lungs, but recent investigations have shown that this is liable to be erroneous. According to Goerdeler, who recently published a thorough study of the pathological anatomy of tuberculosis, only infiltrations of the lungs or of bronchial gland tissue showing tuber-

<sup>17</sup>J. M. Da Costa: Respiratory Percussion, *American Journal of the Medical Sciences*, lxx, 1875, p. 17.

<sup>18</sup>Henry Sewall and S. B. Childs: A Comparison of Physical Signs and X Ray Pictures of the Chest in Early Stages of Tuberculosis, *Archives of Internal Medicine*, x, pp. 45-67.



culous tissue proliferation, or tuberculous cheesy material, can be considered as positively of tuberculous origin, while all other findings may be due to causes other than acid fast bacilli.<sup>19</sup> Just as the radiographer and the pathologist must be careful in their interpretation of the findings in such cases, especially in changes of moderate degree, so must the clinician be careful in his interpretation of small areas of dullness elicited at the apices of the lungs.

Practical experience teaches that in the normal man, the resonance elicited by percussion is practically the same on both sides of the chest from the top of the apex to the base; that there are no shadows or mottling to be seen on the fluoroscopic screen or on the radiographical plate, in any part of a chest containing normal lungs; and that there are no scars, indurations, or calcifications in the normal lung and pleura. But there are many exceptions. Scoliosis, even of a slight degree, influences the percussion resonance, and also the x ray picture. In fact, in the major forms of spinal curvature percussion is of little value, as is radiography, for the purpose of discovering small circumscribed lesions of the lungs. The musculature of the right side of the chest is more strongly developed than that of the left, especially in hard working people, and this has an important influence on the percussion resonance. The same is true of asymmetry of the upper aperture of the thorax, which is quite common. There are persons in whom the resonance on both sides is duller than normal, without any excessive adiposity or strongly developed muscles to account for this defective resonance. It must also be borne in mind, while percussing the chest, that the air content of the lung is less in childhood than in later life, and that it decreases during old age, often without showing any anatomical changes in the lung tissue on the autopsy table.

These and many other factors which have an influence on the percussion resonance are to be taken into consideration before drawing conclusions as to the presence or absence of an active tuberculous lesion from percussion findings. Moreover, physical diagnosis in general, and percussion in particular, does not reveal diseases, but only anatomical changes. Dullness in an apex shows that in that region there is an area of lung tissue which is devoid of air; the physician must determine the cause of this airless area by a careful and painstaking analysis of the auscultatory signs if there are any, and especially from the history, symptomatology, and course of the case. If in addition to the circumscribed dullness, or contraction of Krönig's resonant area, or shortening of the apex on one side, etc., we have a history of exposure to tuberculosis, a cough for a period of several weeks, a loss of weight, and last, but not least, tachycardia and an elevation of temperature every afternoon or evening, we may safely conclude that we are dealing with a case of incipient tuberculosis, even if auscultation gives no definite signs. On the other hand, dullness of an apex, even of an extreme degree, without any of the general symptoms just mentioned, may be due to many

causes other than tuberculosis. A common cause of retraction of the right apex is nasal obstruction, effective in producing collapse induration which is often mistaken for tuberculosis and treated as such.<sup>20</sup> This may be, as a rule, easily excluded if the history and course of the trouble is carefully considered. Healed tuberculous lesions of the apices are another source of error when we rely solely on percussion, just as in radiography. I have also observed and described<sup>20</sup> some cases of heart lesion, especially mitral stenosis, in which dullness was to be found at one apex, mostly the right, while the other side may be overresonant, or even tympanitic. Inasmuch as cough, hemoptysis, dyspnea, loss of weight, debility, etc., are not uncommon in these cases, they are often diagnosed as tuberculosis. It is a curious fact that many who rely more on auscultation than on percussion, in the diagnosis of early tuberculosis, fall into errors of this kind, and give as the reason for their mistakes, the percussion findings, forgetting that in many cases of heart disease impairment of resonance is found at one or both apices.

With the judicious reservation of the conditions just mentioned, percussion is of greater value in the diagnosis of incipient tuberculosis than is auscultation.

#### RECAPITULATION AND CONCLUSIONS.

Pulmonary tuberculosis begins as an infiltration and not as a catarrh. It can therefore be recognized in its early stages by the detection of small airless areas of lung tissue at the apices. When auscultatory signs make their appearance, it is an indication that the infiltrate has softened, and broken through a bronchus, and the case can no more be considered incipient.

The percussion stroke penetrates only about six centimetres into the chest, and a light stroke is sufficient to bring out superficial dullness. Centrally located airless areas, such as bronchial glands, etc., surrounded by normal lung tissue, can not be demonstrated even by very strong percussion. The stronger the blow, the more its force is dissipated along the elastic ribs and intercostal spaces which vibrate strongly, and give no clue as to the condition of the spot lying vertically beneath the stroke.

Light percussion is sufficient in most cases, especially at the apices. The contrast between the resonance of the air containing tissue and the deadness of the airless spot is striking when light percussion is practised. The sound becomes entirely inaudible when areas of defective resonance are reached.

Small disseminated foci of airless tissue can only be found with light percussion; an increase in the force of the stroke in such cases may evoke a normal, or overresonant note. If on increasing the force of the stroke the dullness remains, we may safely conclude that we deal with an extensive area of airless tissue.

The contact of the pleximeter finger with the chest wall must not be too firm, thus avoiding tension of the intercostal muscles and their conversion into large pleximeters. Care must also be taken to percuss only intercostal spaces, because

<sup>19</sup>G. Goerdeler: Die Kriterien der abgelaufenen Tuberkulose der Lungen und ihrer regionale Lymphdrüsen, *Zeitschrift für klinische Medizin*, lxxvi, 1912, pp. 278-373.

<sup>20</sup>See M. Fishberg: Nontuberculous Apical Lesions, *NEW YORK MEDICAL JOURNAL*, xcvi, 1913, pp. 14-20.

placing the pleximeter finger over a rib prevents localization.

In most cases of tuberculosis shrinkage of the apex occurs quite early, and the determination of a narrowing of the resonant area in the supraclavicular and supraspinous fossæ on one side is of immense value in the diagnosis of early tuberculosis. By mapping out the resonant areas on both sides anteriorly and posteriorly, any disparity appears quite vividly at a glance when the two sides are compared.

For practical purposes it is sufficient to percuss the apex in its true anatomical position, which is anteriorly between the heads of the sternocleidomastoid, reaching about three or four centimetres above the clavicle; and posteriorly, close to the spinal column to the height of the vertebra prominens. A shorter apex on one side is of immense significance. The resonance also must be of about the same intensity on both sides; the outline of the mesial borders of the apices can be easily ascertained by careful percussion, and it is expected that both sides should have the same course.

Percussion of the supraspinous fossæ proper, over the scapulae, and anteriorly between the trapezius and the sternocleidomastoid is a vain effort—no pulmonary tissue is located there.

During extreme and held inspiration, in the normal lung, the resonance is increased, while during forced expiration the resonance is duller. In infiltrated apices a long and held inspiration gives a duller note on percussion than is found over the opposite, healthy side, and this is often of great value in doubtful cases.

In the interpretation of percussion findings in the apices, the sources of error are of about the same character as those met with in radiography. The fact that physical diagnosis only shows anatomical changes, but does not identify diseases, must always be borne in mind. Small areas of dullness over an apex indicate airless areas of lung tissue at the spots where they are found. Whether these airless lesions were caused by a tuberculous infiltration, and whether the tuberculous process is active at the time of the examination, can only be determined by a careful and painstaking study of the history, symptomatology, and course of the disease. If the latter point to a tuberculous infection, we may safely make a diagnosis of tuberculosis without any definite auscultatory signs.

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## ORAL SEPSIS AND ITS POSSIBLE DANGERS.\*

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The mere presence of various types of bacteria in the mouth does not mean oral sepsis; nor does the presence of a few pathogenic streptococci, pneumococci, or even diphtheria bacilli mean that a dis-

ease exists. It is well known that certain individuals harbor virulent forms of organisms and yet do not suffer from infection in any form at all. When this person comes in contact with another, less susceptible, the latter contracts disease in some form or other.

This is a problem that has existed for years, and it is only by assuming that the carrier possesses greater resistance than the other person that we can presumably explain the phenomenon. In the mouth of every individual, no matter how careful he may be in personal hygiene, there exists many forms of bacterial life. Most of these forms are nondisease producing and hence are made up mostly of saprophytic bacteria. These forms live on the desquamated epithelia, upon food particles, and where decay exists flourish in cavities, no matter how small or insignificant the cavity may be. Where the enamel has been destroyed or removed, where erosions of the teeth exist, here bacteria start to make inroads upon the dentine, and in a short time the dentinal tubules are infected, the infection spreading very rapidly, the organisms being made up for the most part of the types normally existing in the mouth.

Where stumps of broken or decayed teeth are present the infection is, it seems, possibly worse, on account of the proximity of the gums and infection of these parts is nothing uncommon. The presence of stumps of teeth which appear to be just on a line with the gums is too often observed to need any added description, but the reddened, swollen, puffy gums are parts which should also be protected and treated. There is no doubt in my mind that the condition of the gums is secondary to that of the necrosed teeth and that if removal of the stumps or careful cleansing of the teeth and mouth had been practised, no such condition would have resulted. Erosions, long continued ulcers, and small abscesses form where such areas exist. Where a stump or a broken tooth exists, where decay has once begun in that tooth the process is absolutely and progressively constant until the whole tooth is destroyed. Now, if such a decayed tooth or stump is improperly capped with the ready made crowns the bacterial invasion does not cease, the products of decay are formed, and in this chamber (it might be called), under partial anaerobiosis, decay is progressive. How often do we see the black, or yellow discoloration of teeth above the cap? How often do these caps become loose and allow the accumulated products of putrefaction and decomposition to be squeezed out by manipulation of this cap? The cheap, advertising dentists who fill a person's mouth with these appliances are doing incalculable harm, for he does not care about the condition of the teeth for capping; all he cares for is his fee, which he most always gets. If the cap or crown is carefully and properly adjusted, surrounding the tooth at the proper level, and fitting the gum properly, very little if any trouble should arise. No cap should be applied until all decay has been removed and the tooth properly filled.

An infection which is now receiving more attention than formerly is Vincent's angina. This process is due to the symbiotic organisms, the spirillum

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and the fusiform bacillus of Vincent. It is characterized by ulcerative, membranous, or ulceromembranous process, and where extensive may be mistaken for diphtheria. It may be located upon the margin of the gums, upon the cheeks, lips, tonsils, or larynx; and may be very benign or may be a fatal form of infection. In several cases marked edema of the throat and larynx have occurred and death supervened, but in the majority of cases it lasts only a few days.

Either organism—the spirillum or the bacillus of Vincent—may be found in the secretions of the normal mouth, yet when both occur it constitutes Vincent's angina and an ulcer or membranous condition is usually found in the locations mentioned.

One of the most troublesome, long standing, and resistant infections of the mouth is pyorrhea alveolaris. The bacteria found in this infection are principally those of suppuration, but it must not be lost sight of that some systemic disease or diathesis is probably at fault. A process which has as its ultimate effect the loosening of the teeth with loss of these structures seems to have some other cause than a purely microbic one. The disease if limited to the upper or gingival third of the tooth, especially of a single root tooth, is said to be curable, but if it is found that the middle or apical third of the tooth is diseased the prognosis is very unfavorable.

The hemorrhages and the other symptoms referable to the local condition indicate that the gums are extensively infected, but it must not be lost sight of that tartar will predispose to pus formation, and all cases where this condition is present should not be termed pyorrhea alveolaris. A person's mouth that is not cleansed or brushed regularly; one where the teeth are closely applied, where deformities of the teeth are present or overlapping in some instances, all of these conditions make it possible for the accumulation of bacterial life, food particles, tartar and desquamated cells, all form a nidus or even a pabulum for the multiplication of the flora of the mouth. Granting that the flora is mostly of the nonpathogenic type of bacteria or microorganisms, it is the number of bacteria and not their types that bring about a condition of sepsis.

Just exactly as the accumulation of bacteria in meats or food products tends to produce poisonous end products, though not all disease producing in themselves, the absorption of these substances gives us the symptoms of meat poisoning.

So it is in an unclean mouth: The bacterial flora in a clean mouth is comparatively slight, while in a mouth which is very rarely or occasionally cleansed by mouth wash or brush, or both, is simply swarming with bacterial life. The bacteria found in the mouth without decayed teeth is not nearly so numerous as where this condition exists in addition.

Various forms of cocci, bacilli, spirilla, and leptothrices make up the usual content, but in others, pneumococci, streptococci, and diphtheroid organisms are found in addition to the above.

Spirilla of various types are present where decay is found, but in the dentinal tubules the long threads of the leptothrices and sometimes streptothrices are found.

Personally, I believe that the ingress of bacteria into the blood stream does not very often occur from decayed teeth or diseased gums. What does occur far more frequently is absorption of the products of the bacteria, either the nonpathogenic or pathogenic forms. In other words it is to the toxicogenic bacteria that most symptoms are due, or autointoxication.

Systemic phenomena which are absolutely toxic in nature can, I believe, be often traced to a septic condition of the mouth.

The headaches, the flushes of heat, pain referable to the eyeballs, sometimes slight or pronounced fever, malaise and other vague symptoms, chills or pronounced rigors can very easily be traced in some cases to the condition of the teeth and mouth. The gastric disturbances, the intestinal disorders, with apparently no cause from errors in diet, can be due to the continual swallowing of products of putrefaction and decomposition going on in the mouth as a result of accumulated bacteria and their products.

Apart from the symptoms referable to the stomach and intestines, it seems reasonable to suppose that other viscera may suffer from the intoxication. It is well known that Hunter, our English colleague, believes that Bright's disease, mucous colitis, and even sclerosis of the spinal cord and joint affections may occur from oral sepsis as well as many instances of general malnutrition.

In some cases of profound anemia, resembling in its blood picture pernicious anemia, symptoms referable to the stomach and intestines are very common.

It is possible that the condition of the mouth with its products of decomposition play a part in the alteration of digestive ferments, and thus bring about improperly prepared and improperly masticated food for gastric digestion.

Another point in oral sepsis is abscess formation. I do not refer alone to the abscess a dentist finds at the root of a tooth, almost miliary so to speak, but a lesion occurring which sometimes attains the size of a pigeon's egg or larger upon the jaw.

It should be a matter of routine to the physician or surgeon, that where an abscess occurs in this region an examination of the teeth should be made in each case, to exclude, if possible, decayed teeth.

The first point regarding prophylaxis in my mind is a proper cleansing and brushing of the teeth to rid the mouth of particles of food and accumulated deposits of desquamated cells with entangled bacteria.

I believe that proper brushing of the teeth with some scientific tooth powder, then rinsing the mouth with some alkaline wash as the liquor antisepticus of the *United States Pharmacopæia*, diluted about three or four times with water, is extremely efficient in keeping the oral cavity clean. Hydrogen dioxide is also extremely useful, but should not be used too generally where cavities exist.

If this brushing and rinsing are indulged in twice or thrice daily, the mouth, if the teeth are intact, should be perfectly clean.

The benefit that is derived from cleansing the mouth can in some instances be very quickly no-



ticed, and by a bacteriological examination the flora is a much different one as well as a lighter one.

If, however, there is the first sign of decay or soreness of the gums, the advice of the dentist should be sought, and treatment at once instituted to save as much as possible, for no one knows how valuable the teeth are until he loses them. Sometimes ulcerations upon the lips or gums are cured by many of the simplest home remedies, yet in other cases prolonged ulcerations will only respond to the most strenuous treatments.

Where decay is noticed to run an especially rapid course, no capping nor even filling should be resorted to, but immediate extraction urged. Where in the judgment of the dentist capping has been resorted to, it does not seem unreasonable to suggest a rigid examination of these appliances or even removal of them at stated intervals, if they seem to have been improperly applied.

Vaccine treatment—mostly autogenous vaccines—has been used with great success by a number of men in the treatment of pyorrhea alveolaris. Whether this is a permanent cure or not remains to be seen, but where gouty and rheumatic diatheses are the undermining causes it does not seem that we have yet found the remedy for this affection.

My personal views upon this affection are that the constant formation of pus and discharge which is for the most part swallowed by patients is deleterious to health. The disease or condition is a progressive one and usually results in loosening and loss of the teeth, so why not advise extraction and substitute false teeth? The looseness of the teeth lessens the proper mastication of food and this in itself is sufficient for gastric or intestinal indigestion or both. As the organisms most commonly present in the discharge are pyogenic ones, it seems reasonable to suppose that even stock vaccines may exert some beneficial results, but it appears that the ordinary bacterial flora which are not easily cultivable increases in this disease so that the pyogenic cocci vaccine does not seem in itself to overcome the process.

If a vaccine were made from *all* the bacteria that are found in this process without trying to isolate the predominant ones, this mixed vaccine might alleviate or even cure the condition. Where in other pyogenic processes there is mixed infection, cures, or improvement occurs where mixed vaccines are used, and not where the most common organisms alone are used for this purpose.

Regarding the reaction of the secretion of the mouth irrespective of oral sepsis (using litmus paper as the test medium), the greater number give an acid while others give an alkaline and some a neutral reaction.

Where decayed stumps are present, these should be removed, and where decay is evident in teeth this process should be attended to at once and inspected at stated intervals.

Whenever soreness of the gums is present following injury, as from toothpicks or pins, immediate attention should be given, as a protracted infection may be brought about.

## A CLINICAL REPORT ON THE VALUE OF TURTLE TUBERCULIN IN THE TREATMENT OF TUBERCULOSIS.\*

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We wish to emphasize the fact that sanitation, hygiene, cleanliness, individual drinking cups, segregation, disinfectants, sanatoria, country residence, outdoor dormitories and all other means and modern appliances thus far devised for ameliorating the condition of the tuberculous patient have failed to arrest the onward march of the terrible pale destroyer—the great white plague. It would seem that, while all the scientific means enumerated above are good and commendable, there are yet conditions lacking to insure the desired and much longed for results. It therefore behooves the profession to seriously inquire why the progress of the great white plague has not been arrested. This may be readily explained by the fact that the profession until Robert Koch's discovery of the tubercle bacilli were seeing as it were "through a glass darkly." Since then much progress has been made, as was outlined in our contribution published in the NEW YORK MEDICAL JOURNAL, September 13, entitled, Relative Value of Turtle Tuberculin in the Treatment of Tuberculosis. At last science, thanks to the researches of Piorkowski, has given us a specific curative and immunizing agent in turtle tuberculin, and from the combined collective experience of Professor Piorkowski, Doctor Beattie, and Doctor Myers we believe that we are now entering upon a new era in the specific treatment of tuberculosis, and that Piorkowski's turtle tuberculin will prove the foe to tuberculosis that Jenner's vaccine is to smallpox, and also that the time is not far distant when turtle tuberculin will be used to immunize children against tuberculosis as Behring's diphtheria antitoxine is now used to immunize children against diphtheria.

Piorkowski believes that in turtle tuberculin, a remedy is provided which, when injected, intravenously, combines with the receptors, as explained by Ehrlich's side chain theory, and forms an antitoxine that acts very much like Jenner's vaccine, and is especially adapted as a protective inoculation. He also avers that all endeavors of therapeutics in tuberculosis based on Koch's teachings, which consist of injections of living human tubercle bacilli, attain a certain result, but, if accurately judged, while possessing some virtue, fail to exert the curative properties wished for.

Happiness and physical prosperity depend largely upon the health of the people, and without health our nation is wrecked. No thoughtful citizen can contemplate the inroads of disease without a shudder, and more especially if we carefully study the mortality of tuberculosis, one is almost overwhelmed at the thought of its ravages. Accord-

ing to the United States census report, it is a reasonable calculation that 200,000 people die annually in the United States of this Great White Plague, which is now a *preventable and curable* disease. It is conservatively estimated that 1,250,000 people die annually from this disease throughout the civilized world, which on analysis shows that 3,425 die each day, or two and one half every minute, day and night. It is further conservatively estimated that 600,000 school children in the United States, alone, have traces of tuberculosis.

Since the appearance of our article in the *NEW YORK MEDICAL JOURNAL* for September 13, 1913, there have been so many requests from the profession for further information on this subject with clinical reports and results of cases treated, and being physically unable to personally reply to this volume of correspondence, we have decided to offer through the medical press a few clinical reports as a reply to this correspondence, and have gone over our case records and selected four clinical reports, each illustrating a type of tuberculosis, viz.: Case XV, pulmonary tuberculosis; Case XXI, tuberculosis of the knee joint; Case XXVII, tuberculous adenitis; Case XLIV, laryngeal tuberculosis.

**CASE XV.** May 13, 1913. A. S., inspector in the custom house service of the United States government. Aged thirty-two years. No tuberculosis in the family. As a child had smallpox—otherwise negative.

**Present Illness:** About September, 1909, suffered from indigestion, and consulted several physicians who diagnosed his illness as cancer of the stomach. At that time he weighed 175 pounds. For three years he remained in a weakened, extremely nervous condition. Weight greatly decreased until he reached 125 pounds. In August, 1912, his weight had further decreased to 110 pounds. He complained of loss of appetite, restlessness, and insomnia. He had had a severe, dry, hacking cough, and later expectorated a large amount of thick, yellow sputum. At that time he consulted Dr. A. R., of this city, who suspected tuberculosis and had his sputum examined by the New York Board of Health, tubercle bacilli in the sputum being reported. He was advised to enter a sanatorium at Saranac Lake, which he did. The diagnosis was confirmed by several physicians at the sanatorium, where he remained for three months, at which time he was advised to return to the city for an operation upon his nose and throat, which consisted of removing the tonsils and a submucous operation. He was shortly afterward operated upon for appendicitis. After the operation his weight fell off to 105 pounds, his cough and expectoration increased, and was followed by severe pains in the chest with hemorrhages. He became so weak that he was unable to hold his knife and fork in his hand. In January, 1912, he went to the sanatorium in the Adirondacks and remained there until April, 1913, when he returned to New York city. He then consulted the medical director of a New York tuberculosis hospital who found he had the physical signs of tuberculosis in both apices.

**Examination:** On May 27, 1913, patient was examined by Doctor Beattie and a few days later by Doctor Hyams and Doctor Myers. Inspection showed a man five feet, ten inches tall, sallow complexion, drawn and anxious appearance of the face. The ribs, scapulae, and clavicles stood out prominently. The spaces above and below the clavicles and between the ribs were greatly increased in depth. Expansion over both apices deficient, especially over the left one. Examination showed dullness over both apices, coarse crackling râles, increased voice and whisper, increased tactile fremitus, prolonged and harsh expiration. Weight 125 pounds, pulse 108 standing, fair tension and volume, respirations 24, temperature 100° F.

**Diagnosis:** Pulmonary tuberculosis, secondary stage.

**Treatment:** He received his first injections on May 26, 1913, and in the first week in June and at various intervals thereafter until about the middle of July, when he

went to the White Mountains where he was treated by Doctor Beattie. All told, he received eight injections. September 1st he returned to New York city. Examination by Doctor Beattie, Doctor Hyams, the medical director of a tuberculosis hospital, and Doctor Myers, showed that all his physical signs and subjective symptoms had disappeared. Examination of the sputum was negative. His weight was 159½ pounds, pulse 72, temperature 98.2° F., no cough, no expectoration, no pains in the chest. He felt strong, and his appetite was good.<sup>1</sup>

**Summary:** Here was a case which had been diagnosed by several competent, well known physicians who presumably are well acquainted with the technic of making a diagnosis of tuberculosis, some of whom are specialists in physical diagnosis. All evidences of tuberculosis of the lungs were present, both physical signs and symptoms. In less than four months after having received Piorkowski's turtle tuberculin treatment, we presented a patient who was undoubtedly a pronounced cure. In that short space of time more had been accomplished for him by this treatment than all other known methods for the treatment of tuberculosis extending over a period of three years, as was evidenced by the disappearance of all symptoms and physical signs. It is a noticeable fact that this patient had increased remarkably in weight, without any special efforts to accomplish this result.

**CASE XXI.** May 24, 1913. M. M., a white girl, aged seven years, born in the United States, resides in New York city.

**Family History:** Father, two sisters, and one brother died of tuberculosis of the lungs. Mother, one sister, and a brother alive and well. Otherwise negative.

**Previous History:** Whooping cough at the age of five years.

**Present Illness:** Patient was brought to our office by her mother on May 24, 1913, with the following history: Two years previous the child's mother had noticed a swelling of the right knee joint. A few weeks later the mother noticed that the child limped and complained of some pain in the joint, and after a few months motion of the joint was considerably restricted. No treatment was instituted for some time, the mother caring for the child herself with massage, ointments, and other home remedies, then she took the child to a hospital for diseases and deformities of the joints. The physicians there diagnosed the condition as tuberculosis of the right knee joint. Plaster casts were applied, followed by a steel brace which she was still wearing when brought to us. The child never had cough, hemorrhage, or night sweats.

**Examination:** Examination by Doctor Beattie, Doctor Hyams, and Doctor Myers showed on inspection a fairly well nourished child, good color, head, neck, and chest negative. Right knee joint showed a fusiform swelling with limited motion. Flexion not possible beyond ten degrees, with slight muscular spasm. The patella was adherent, and quadriceps extensor muscle was atrophied. Measurement of the right knee with a steel tape over the centre of the patella was 9½ inches; of left knee, 8¾ inches. No heat or redness about the joint. Kidneys and abdomen negative. Temperature 98.4° F., respirations 18, pulse 84, good tension and volume. Weight forty-two pounds. Von Pirquet test positive.

**Diagnosis:** Tuberculosis of the right knee joint.

**Treatment:** On May 26, 1913, at 10:45 a. m., one minim of Piorkowski's turtle tuberculin was injected into the buttock. The patient was seen about six hours later, and it was observed that the temperature had risen to 99.6° F., and her pulse to 96. The following day, examination of the site of injection showed a slight infiltration with a minute reddish papule at the point of injection. Patient felt a slight languor and loss of appetite, otherwise negative. She received seven injections all told. At first every seven

<sup>1</sup>Report from the Department of Health of the City of New York on September 28, and again on October 1, 1913, showed complete absence of tubercle bacilli.

days, but interrupted in July and August twice on account of short vacations of ten days each. Examination on September 10, 1913. Her weight was forty-eight pounds, three ounces. Leg could be flexed on the thigh to right angle. Measurement over centre of the right patella was nine inches, over the left 8½ inches. Her color was good; appetite good; slept well, felt stronger, bright, and cheerful and felt better in every way.

**Summary:** In a brief period of less than four months motion of the affected joint was increased fifty per cent more than was accomplished in the previous eighteen months in the hospital for joint diseases. The swelling of the knee joint had been reduced one half inch; the patient had gained six pounds, three ounces. She had good color and good appetite, slept well, and general improvement in every way was noticeable.

**CASE XXVII.** Miss G. S.; white girl; aged nineteen years; born in United States; residence, New York city; occupation, stenographer.

**Family History:** Father died of sunstroke at the age of thirty-six years, and mother died at the age of thirty-three years of typhoid fever. One sister was living in good health; one sister had died of measles and one brother had died of diphtheria, both in infancy. No history of consumption in the family.

**Present History:** Present illness dated back to 1909, at which time she observed a small, hard lump at about the level of the lower border of the left ear. She did not complain of any pain. About a month after noticing this enlargement, she went to a hospital and was advised to have it removed, which was done, the wound remaining open for about six weeks. Two years later she noticed another swelling just beneath the first one and on advice of her physician it was treated by electricity from March, 1911, to July, 1911, but without satisfactory results. She was then advised to return to the hospital again and underwent a second operation. The wound remained open until September, 1911, during which time she was annoyed by a constant discharge pouring from a sinus. In March, 1913, these glands had progressively enlarged and began to suppurate again discharging a thin yellowish, watery fluid. A microscopical examination of this fluid was negative. For the past three years, the patient had had a hectic flush in the afternoon. She never had night sweats, hemorrhages, coughs, nor expectoration. Examination of the sputum was negative.

**Examination:** Inspection showed a well nourished girl, good color with a large, irregular swelling of the cervical glands of the left side of the neck, together with nodular swellings in the supraclavicular fossae, and extending behind to the supraspinous fossae. On palpation several hard, irregular glandular nodules were found along the side of the neck in the area mentioned above, ranging in size from a five cent piece to that of a silver dollar. Some of these glands were isolated and freely movable, with depressions between them, others were adherent to the skin. About an inch below the ear, one of these glands had softened, broken down, and left a sinus about the size of a goose quill, from which there poured an ichorous discharge. Lungs, heart, and abdomen negative. Temperature at 6 p. m., 99.2° F.; pulse, 84; regular, good tension and volume; respirations, 18. Weight 104 pounds.

**Diagnosis:** Tuberculous adenitis, involving the glands of the left side of the neck.

**Treatment:** On May 26th, she received an injection of two minims of turtle tuberculin in sixteen minims of normal saline solution. The following day, May 27th, she did not feel any ill effects from the injection, except a slight languor. The pulse rose about six hours afterward to 96, temperature 99.8° F. An examination at the point of injection the following day showed only a slight reddish papule with a minimum amount of infiltration. The patient received injections of two minims of turtle tuberculin every seven days for about three weeks, at the end of which time the discharge stopped, the sinus closed, and she had increased in weight (on June 10th) from 104 pounds to 111½ pounds. After that date she received about four injections with occasional interruptions on account of her going on short vacations. On September

19th, her weight was 117½ pounds; pulse, 80, standing; temperature, 99.3° F. Examination shows a well, small glands, where formerly had been a large irregular mass of glands with a discharging sinus. At that time there was no discharge nor sinus, and on inspection the neck, to all outward appearances, was practically normal.

**Summary:** This case illustrated the fact that in a brief period of less than four months, more improvement had been effected from the administration of Piorkowski's turtle tuberculin, than in more than three and a half years of treatment by surgical intervention and other methods of treatment. During this period there was a gain of eight pounds, with an increase of appetite, and the patient felt strong and well.

**CASE XLIV.** July 23, 1913. M. M., aged forty-four years; lived in Brooklyn, N. Y.; born in Ireland; occupation, bartender.

**Family History:** Father died at age of seventy years of heart disease, mother at age of sixty-five years, cause unknown, one brother at age of twenty-four years from pneumonia; three sisters were living in good health, one sister had died at age of thirty years, cause unknown.

**Previous History:** Had had influenza twenty years ago.

**Present illness:** For past five years he drank from ten to fifteen drinks of whiskey daily. He had never used tobacco nor drugs of any kind. About eight months ago, he had a cough followed by pains in the chest. Noticed that his appetite was failing. His weight at the time of the first examination was 167 pounds, while his normal weight had been 180 pounds. Seven months ago he began to have night sweats which continued up to the present time. About five months ago he began to expectorate a thick yellowish sputum which later became mucopurulent and was particularly profuse at night; a few hemorrhages. He did not complain of dyspnea, had slight pain on swallowing and complained of considerable hoarseness. We first saw the patient in the hospital on July 16, 1913, where he was sent to us by the medical department for a throat examination.

**Examination:** Examination of the larynx by Dr. E. W. Kobler and Doctor Myers revealed pallor of the epiglottis and infiltration of the left arytenoid: The vocal cords were slightly congested and covered with a sticky, profuse mucus. The chest showed an area of consolidation over the left apex and supraspinous fossa and in front extending down to the sixth rib, and toward the left as far as the midaxillary line. There was increased tactile fremitus over left apex and supraspinous fossa. Increased voice and whisper were heard over the consolidated area and numerous moist râles at the left apex and beneath the clavicles as far down as the second rib. No cavities. Abdomen negative. The urine contained four per cent. of sugar.

**Diagnosis:** Tuberculosis of the larynx, tuberculosis of the left upper lobe, secondary stage, complicated with diabetes.

**Treatment:** On July 17, 1913, microscopical examination of the sputum made by the New York Board of Health showed tubercle bacilli. On July 23d, one minim of turtle tuberculin in sixteen minims of salt solution was injected. August 1st, one minim of turtle tuberculin was injected. Temperature, 100.2° F.; pulse, 96; respirations, 24. About twelve hours after receiving the injection he felt slight languor, with loss of appetite. His temperature rose to 100.6° F.; pulse was 108. At point of injection a minute red papule was noticed. A decrease of expectoration was noticed and patient felt better and stronger, hoarseness less, distressed feeling of larynx much diminished; weight 169½ pounds. On the following dates, August 15th and 22d, September 2d, 10th, and 15th, one minim of turtle tuberculin was injected. At the last date the physical signs of the chest showed improvement, especially as far as râles were concerned. The cough was scarcely noticeable during the day; hemorrhages no longer present; no pains in throat or chest; color of the sputum whitish. At the last injection, the temperature was 99.2° F.; pulse, 108; respirations, 104; weight, 166½ pounds. An examination of the larynx showed slight pallor of the epiglottis, infiltration of the affected arytenoid practically gone. Con-



gestion of the cords scarcely noticeable, and a very slight amount of mucus on the cords; patient felt stronger; much more comfortable especially as to cough, expectoration, and hoarseness.

Summary: I cite this case more particularly to bring out the laryngeal tuberculosis than the condition of the lungs. Here is a patient who had been hoarse for some months, and in the brief period of a little over a month the hoarseness had gradually disappeared. The signs were practically absent in the larynx, and there was improvement in so far as cough, expectoration, and color of sputum were concerned. The patient had practically retained his weight, although the tuberculous condition was complicated with a severe form of diabetes. Under turtle tuberculin treatment in this short time he had improved more than the previous eight months under other forms of treatment.

418 CENTRAL PARK WEST.

## TESTING URINE FOR INDICAN.

By JACOB ROSENBLUM, M. D., PH. D.,  
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(From the Biochemical Laboratory, of the Western Pennsylvania Hospital.)

After considerable experience in testing urine for indican the writer has noted some points which he thinks might prove of value to other workers. The procedures for the detection of indican in urine are based on the liberation of the acid from its base, on the oxidation of the indoxyl sulphonic acid or urinary indican into a colored product, and the solution of this substance in a suitable solvent.

It is to be remembered that if an excess of the oxidizing agent is added that the color will be destroyed and also that the tube in which the reaction is carried out must not be vigorously shaken, otherwise the chloroform becomes emulsified with the urine, from which it will separate with great difficulty, if at all.

After trying all of the various tests that have been used for the detection of indican, I have arrived at the conclusion that Jaffe's<sup>1</sup> test as modified by Obermayer<sup>2</sup> with certain improvements described in this paper gives the best results.<sup>3</sup>

This test is best carried out as follows:<sup>4</sup> To nearly one half test tube full of urine add an equal bulk of concentrated hydrochloric acid containing four grammes of ferric chloride to the litre. Mix by pouring from one test tube to another, not by shaking the tube, as this is apt to emulsify the urine with

the chloroform. Allow to stand ten minutes and then add from three to five c. c. of chloroform. Mix again by pouring from one test tube to another and allow to stand for fifteen to thirty minutes. The supernatant fluid above the chloroform extract is now poured off and the test tube is filled with water. The marked change in the character of the chloroform extract on the addition of the water is very striking. One often finds that the chloroform extract has a dirty grayish green color, but on decanting the supernatant fluid and adding water the chloroform extract becomes a pure blue.

I have also found that in urines that have been preserved with thymol the chloroform extract obtained in this test has a violet color, thereby interfering with the reaction.<sup>5</sup> An apparent increase in the excretion of indican was observed by Bohland<sup>6</sup> when large doses of thymol were given, but as thymol appears in the urine as thymol sulphonic, thymol glycuronic, and thymol hydroquinone sulphonic acids and as a chromogen of a green pigment, Blum<sup>7</sup> was able to show that the color obtained by Bohland was not indican, but a derivation of thymol. The interfering action of thymol must be borne in mind especially as it is a common procedure to use this substance as a preservative for urine. The color due to thymol resembles the violet color obtained in the chloroform extract when potassium iodide is present in the urine. The violet color due to thymol as well as the violet color due to iodide disappears on the addition of sodium hydroxide or of sodium thiosulphate.

It is also to be remembered that if any protein is present in the urine, it must be removed by boiling and precipitating the protein by means of dilute acetic acid and then using the filtrate for the indican test, as protein yields a blue color with concentrated hydrochloric acid.

5659 BEACON STREET.

## INTRAVENOUS INJECTIONS OF THEOBROMINE SODIUM SALICYLATE.

Preliminary Communication.

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Theobromine sodium salicylate, a purin derivative, is an amorphous, hygroscopic, white, odorless powder, salty and slightly alkaline to the taste. Its chemical formula is:  $C_7H_7NaO_4C_6H_4O_2COONa$ . Though its mode of action is still in dispute, there is abundant, clinical, and experimental evidence of its diuretic effect. When given experimentally, intravenously, or intramuscularly in lethal doses, the animals die with symptoms of central paralysis and in a condition of muscular spasm. It is official in the German pharmacopoeia as theobrominum natrio-salicylicum.

<sup>1</sup>The only book on clinical diagnosis mentioning this fact is Emerson (third edition, p. 153), who states, however, that the urine is bluish green, but this may apply only to the thymol excreted as a conjugated substance and not to thymol existing free in the urine.

<sup>2</sup>*Deutsche medizinische Wochenschrift*, 1892, No. 16, p. 1040.  
<sup>3</sup>*Deutsche Wochenschrift*, 1891, No. 17, p. 186; *Zeitschrift für Physiologische Chemie*, 1892, No. 16, p. 514.

<sup>1</sup>*Prüfer's Archiv*, iii, p. 448, 1870.

<sup>2</sup>*Deutsche Wochenschrift*, iii, p. 171, 1880.  
It is interesting to note that the name "indican" was first used by Schunck (*Memoranda of the Manchester Literary and Philosophical Society*, xiv, p. 288, 1837(?)), to define a substance he discovered in *Indigo tinctoria*, which he showed was the indigo producing body of that plant. He afterward found in normal human urine indigo yielding substances, which he thought were identical with indican. This view was incorrect, however, as the two substances do not have the same chemical constitution, as indican is a glucoside, the urinary indican is not. Prout (*On Stomach and Renal Diseases*, third edition, p. 96), however, was the first to describe the occurrence of indigo in urine. Heller (*Heller's Archiv*, 1845) extracted this substance from urine and called it "uroxanthine." Virchow (*Virchow's Archiv*, etc., vi, p. 259) confirmed the observations of Heller and showed it to be present in all concentrated urine.

<sup>3</sup>This test as above described also differs from the original Obermayer test by not using basic lead acetate to precipitate the urochrome and other substances which promote emulsification. If the test is carried out as I have directed there is no danger of emulsification and the use of the lead acetate is then unnecessary.

Theobromine sodium salicylate was first introduced by von Schroeder,<sup>1,2</sup> by whom its effect upon the kidneys was ascribed to irritation of the renal epithelium. As the result of more recent experiments, Loewi<sup>3</sup> maintained that its primary effect was vasodilatation and increased renal circulation, and the secondary effect increased diuresis. The clinical fact that theobromine sodium salicylate may sometimes be given continuously for weeks and months with benefit seems to support the view that at any rate it does not always produce renal irritation. Besides its diuretic effect, a number of observers have shown clinically and experimentally that theobromine sodium salicylate also increases the proportional output of nitrogen, of sodium chloride, and some of the other solid ingredients of the urine.

The recent careful study of the kidneys by means of functional tests<sup>4</sup> and blood pressure observations, the experimental production of different types of nephritis and the as yet only partly successful attempt to correlate the foregoing data with clinical findings show that the whole subject is at present unsettled. The undoubted value of theobromine sodium salicylate in edemas accompanying cardiovascular renal disease and in some types of primary kidney lesions has induced me to attempt its intravenous administration. This method seems of importance because the drug is particularly indicated in uremic conditions with vomiting, delirium, and disturbances of the sensorium in which it cannot be given by mouth, or if so given, the amount absorbed is very slight or nil.

In 1912 I gave theobromine sodium salicylate intravenously to four patients; three were cases of cardiovascular renal disease, the fourth was one of probable tubular nephritis. One of these patients who had had extreme general anasarca for several weeks prior to the injection was temporarily improved. The method then pursued was to inject ten grains dissolved in 200 c. c. of water once or twice a day. This method was discarded because it was too cumbersome and did not admit of sufficiently frequent administration. At present five per cent. solutions are employed, the percentage ordinarily used in animal experimentation. In two cases reported by Ardély<sup>5</sup> this percentage was also used. Pharmacological examinations<sup>6</sup> show that the specific gravity of a five per cent. solution at 20° C. is 1.0228 and its alkalinity is equivalent to that of a 2.4 per cent. solution of sodium bicarbonate. Sodium bicarbonate of this concentration or even stronger is sometimes given intravenously in diabetic coma. A five per cent. theobromine sodium salicylate solution heated in a closed vessel at 96° C. for one hour, again for one hour, and then for one half an hour shows slight yellowish discoloration and a very slight loss of alkalinity, but remains perfectly clear. Thus sterilization does not alter the

solution. The usual dose employed was one gramme, i. e., twenty c. c. of the five per cent. solution. In one instance two grammes (forty c. c. of the solution) were given at one time. The solution was sterilized by boiling immediately preceding injections. If the entire solution entered the vein, there was absolutely no local reaction. If a few drops found their way into the subcutaneous tissue, some induration, ecchymosis, or slight pain lasting a few days sometimes followed. In one instance, through error, the solution was injected subdermally; a local skin slough and ulcer resulted. The injections were never followed by systemic reactions.

Thus far the five per cent. theobromine sodium salicylate solution was given intravenously in the following three cases:

CASE I. Female, aged fifty-nine years. Diagnosis, nephritis, myocarditis, uremia, hemiplegia. The patient was stuporous at times. Two injections were given, one intravenously without any local reaction; the other was injected subdermally and was followed by an ulcer as already mentioned.

CASE II. Female, aged twenty-two years. Diagnosis, acute (tubular?) nephritis of unknown etiology. She had edema of the legs, the urine contained albumin and casts the heart was apparently normal, the systolic blood pressure, taken daily, averaged 135 mm. Hg. The phenolsulphophthalein tests, repeated several times, showed an average output of twenty-five per cent. at the end of two hours. The normal is about sixty per cent. She was given Karelly diet (1000 c. c. of milk daily) for two weeks. For several days four grammes of salt were added to her diet in order to study the salt elimination. Twenty c. c. of a five per cent. solution were injected intravenously in each arm every third day; this procedure was repeated four times; no effect upon phenolsulphophthalein or salt excretion was noted. There was no clinical improvement.

CASE III. Female, aged forty-five years. Diagnosis, cardiovascular renal disease. Her illness began eight months ago. Her complaints were palpitation, precordial angina, and severe headache. She had pretibial edema. The specific gravity of the urine was 1.010 and contained a few hyaline and granular casts. The average systolic blood pressure was 210 mm. Hg. Several phenolsulphophthalein tests showed an average excretion of twenty per cent. in two hours. On three occasions every third day the drug was injected intravenously. The injections had a marked diuretic effect, there was no effect upon blood pressure or phenolsulphophthalein excretion. The patient improved, but it is difficult to state how much rest and diet contributed to the improvement.

The object of this communication is to show the practicability of intravenous theobromine sodium salicylate injections. The solution is readily prepared and sterilized, and when properly given produces no reaction. While twenty c. c. of a five per cent. solution have been found a convenient standard, it may be modified to suit individual requirements. It seems particularly indicated in uremia, in the anuria of cardiovascular renal diseases, and in some types of primary renal disease when internal administration is impracticable or impossible and quick diuretic action is necessary. It is further suggested that these injections may be of benefit in some types of uremia accompanying eclampsia; in conjunction with other forms of treatment, it may help in starting diuresis.

My thanks are due to Doctor R. Stein and Doctor A. Mayer, attending physicians, who have placed their patients at my disposal, and to the house staff for its active cooperation and assistance.

<sup>1</sup>Von Schroeder: *Therapeutische Monatshefte*, 1890, p. 374.  
<sup>2</sup>Von Schroeder: *Archiv für experimentelle Pathologie und Pharmakologie*, xxv, p. 85.

<sup>3</sup>Loewi: *Indium*, 1909, p. 253.

<sup>4</sup>Loewi: *Wiener klinische Wochenschrift*.

<sup>5</sup>Schäfer: *Verhandlungen des xlviii Kongresses für innere Medizin*, 1910, p. 714.

<sup>6</sup>Rowntree, Fritz, and Geraghty: *Archiv for Internal Medicine*, 1912, p. 281.

<sup>7</sup>Ardély: *Deutsches Archiv für klinische Medizin*, cix, p. 216.

<sup>8</sup>I am indebted to Dr. Kurt P. Wimmer, assistant professor of pharmacology, Columbia University, for careful studies of the theobromine sodium salicylate solutions.

## SKIN DISEASES IN SCHOOL CHILDREN.\*

By EDWARD PISKO, M.D.,  
New York.

Not having read the transactions of the three previous congresses, I do not know whether the subject I am about to submit has been called to your attention heretofore; but whether it has or not, the subject is of sufficient importance to be urged repeatedly, with the hope that it may result in action.

Great progress has been made in school hygiene by improved school buildings. Millions upon millions are being spent to make the buildings look inspiring. The public has at last realized the importance of developing the child physically, and most schools have been fitted with gymnasiums. But the most important of all, the danger from diseases of the skin in children, and from the speed with which they are transmitted to others, has been overlooked. A great many mothers are as ignorant to-day of the great dangers underlying and resulting from skin eruptions and diseases as they were a century ago. But we cannot blame the mothers when some of the city authorities, men of education and high standing, display no greater knowledge.

How many realize the great injury to the physical well-being of the child in the common contagious diseases known as scabies, pediculosis, ringworm, etc.? Do they know that in the absence of proper and scientific treatment the parasites multiply by the millions and that they are transmitted to other children with greater speed than many diseases for which there exists public horror, let alone the loss of school time on the child and the consequent increase of school work forced on it upon its return, in most cases beyond the child's capacity?

And yet, excepting the institution at Randall's Island, with which I am connected, where 1,700 children with skin diseases are treated and cared for by competent physicians and nurses while they attend special classes, the nearest approach toward minimizing the danger to our children at school from contagious diseases of the skin is the superficial examination of the children by some incompetent and inexperienced physician who gets a salary equal to about one half that of a brick-layer.

It is mostly only in advanced stages that the various skin diseases are discovered by these young physicians, and the children are then sent to public skin clinics, where not enough time can be given to the treatment in the hour or two that the skin clinics are open, and where, because of the commonness of the diseases, they are treated with no special care by the physician or his assistants in charge.

I do not say this in condemnation of the physicians in charge of the clinics, but I am speaking of actual existing facts based upon my experience of over twenty-five years in the public skin clinics of New York. Undoubtedly another cause for

the lack of care in the clinics is the fact that the physicians receive no compensation or return of any kind.

It is not enough for the child to receive a hasty examination in the clinic and then be sent home with a prescription and in that way merely transfer the infection from the school to the home and the neighbors' children. There should be specially trained nurses in charge of districts, who should visit the households, study the family conditions, execute and administer the treatment prescribed, and supervise the sanitary conditions of the home. Only in that way will the spreading and infection be reduced to a minimum.

There are mothers' clubs, women's protective leagues, social committees, and all sorts of women's societies; but here is a large field which for real public good all of the other societies together pale into insignificance.

A very common appearance in the clinics is the "sore arm" resulting from bad vaccination. I only mention this casually to indicate the chaotic conditions existing. A young physician gets an order to vaccinate fifty or sixty children. The report must be returned within the given time of a few hours. What happens? The physician administers the vaccine and hands in the report. His interest is not in the children but the report. No care was taken in the preparation of the children for the vaccination; and injections were made as though the children were to develop into horses rather than our future citizens. The infectious arm keeps the child out of school from three to five weeks, during which time it runs around in the streets, associates with all kinds of degenerates, and has its morals and habits corrupted.

As an illustration, some four years ago a boy of twelve was sent to my clinic at the Harlem Hospital with a ringworm of the scalp. Being barred from school for months, he joined the army of our famous younger and older corner loafers. Sometime thereafter he returned complaining that he was hardly able to walk. On examination, the anal region was found studded with large, moist papules, an eruption covering the whole trunk and the initial lesion of syphilis about two inches within the rectum. The boy confessed that a gang in the neighborhood abused him and a number of other boys in the same way. I succeeded in getting hold of another similar case of a boy of twelve, who was home from school on account of scarlet fever in his family, and presented both cases before the Manhattan Dermatological Society at the March, 1900, meeting.

I do not criticise the board of health. I condemn those who will cut the budgets for schools and hospitals in favor of civic centres. We are not prepared for a civic centre until we show civic pride in the development of our future citizens.

The physicians in the police and fire departments are paid well and forbidden to engage in private practice; why not the same in the board of health? Make their number of physicians adequate. Let their salaries be commensurate with their ability. Let efficiency be the standard. To permit a young and inexperienced physician to do school work, by spending a few hours at school, in blissful ignor-

\*Read at the Fourth International Congress on School Hygiene, held at Buffalo, N. Y., August 25-30, 1913.



ance, is not only a farce but an unpardonable crime toward our future generation.

It is a well known fact that outside of infantile eczema, especially intertrigo in the folds of the neck, the anal and the genitocrural region, almost two thirds of the skin diseases, including the acute infectious diseases, the eruptive fevers such as chickenpox, measles, and scarlet fever, are seen in school children; naturally so, because of their contagiousness and the facilities for spreading.

The three greatest enemies of school children are pediculosis, scabies, trichophytosis—all three highly contagious and rapidly spreading at the house and in the school. It is not within the scope of this paper to give the clinical picture and pathology of these diseases; but I want to outline a very practicable and inexpensive treatment and an effective cure. While it is almost immaterial which of the antiparasitic remedies are used, it is essential *how* they are used, and I have therefore advocated the institution of district nurses. It is not enough to smear the sulphur ointment in a case of scabies; no such patient will be cured, and the whole family will get it. The preparatory bath in a tub of hot water and the use of a scrubbing brush with a lot of soap must cleanse the body first, all underwear and bed linen must be washed and boiled. In pediculosis the best and safest remedy is the old standby, kerosene. It kills the lice and nits, but it must be done correctly. In spite of the offensive odor, the head must be washed with it repeatedly and kept covered, no sores will occur, and within a week or so the children will be able to go to school again. In ringworm, x ray is the ideal treatment, but if not available the scalp must be shaved every week and a strong antiparasitic paste, preferably an ointment of the red oxide of mercury, should be applied. But above all a competent nurse is most essential.

I am using the plainest of English so as to be understood by everybody, as I consider it of vital importance for the future generation. Every taxpayer should be advised of the conditions and dangers, and he should protest against the cutting of the budget in the direction outlined. In this way the standard of school hygiene will be raised.

I hope that this paper is brought to the attention of the proper authorities, and if it only awakens some interest its mission will be fulfilled.

Here is a large field not only for the fathers of school children, but also for those who are members of this congress and have the interest of real school hygiene at heart.

Let us not forget for one moment that the future citizens are formed in our public schools and that it is not enough to teach them hygiene as a subject, but as a real, practical hygiene, in order to enable them to take care of themselves, and thus become strong and healthy men and women. Prevent the school from being the breeding ground of disease. No expense in this direction should be spared. Any innovation, if good and practicable, should be applied and installed at once.

Sanitary perfection is the only safeguard against all communicable diseases and epidemics. "*Mens sana in corpore sano.*"

## THE DIFFERENTIAL DIAGNOSIS OF SOME ORDINARY EYE DISEASES.\*

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for Children, etc.

One of the difficult problems facing the general practitioner is the recognition of ocular diseases. It is not the good fortune of everyone to be compelled to study diseases of the eye. Therefore to many it is a *terra incognita* which is naturally considered abstruse and uninteresting.

In a short paper I can open the door but slightly, but if this little aperture will help the vision and understanding of some one in the audience, I will feel that my labor has not been wasted.

I will arrange this discussion in two sections: First, eye diseases showing external symptoms, and second, those showing disturbed sight with no external lesions.

Conjunctivitis or pink eye as it is familiarly termed assumes many types due to the virulence of the organism and the susceptibility of the patient. In general it can be recognized by the fact that there is a discharge of secretion which may be pus, mucopus, or mucus from the eye, causing the lids to adhere after a period of closure, as for instance after sleep. When the secretion is small in amount, and mucoid in character, it is a simple catarrh. When quite free and heavier in type, accumulating in the inner corners of the eye in yellowish or yellowish green masses, it is the familiar contagious mucopurulent conjunctivitis or the real pink eye. When the lids are very edematous with copious discharge of pus, it is gonorrheal in type and probably due to the Neisser organism. Conjunctivitis in a newborn baby appearing before the third day is practically certain to be specific, and is rapid in its progress if the patient is susceptible. We find cases, however, showing simply a protracted mild catarrh, in which the Neisser organism is predominant in the discharge. In some forms of catarrh there is an additional redness of the margin of the lids. It is in this form that the zinc salts are particularly efficacious.

Trachoma, sometimes called granulated eyelids, is distinguished by evertting the upper lid, when the lid is found to be covered with many elevations, frequently resembling a granulating ulcer in appearance and color, at other times being quite pale. The particular point to remember is that the disease is a catarrh very chronic in type, and should be looked for in every case presenting a history of chronic catarrh. Mild cases show the granules in the fornix only. In later cases much scar tissue is seen when the lid is everted. When the laity speaks of granulated eyelids, they usually mean some form of blepharitis, and not trachoma.

Tuberculous conjunctivitis and keratitis are very common in childhood, and include a large portion of the cases formerly termed scrofulous conjunctivitis or phlyctenular disease of the eye. These patients react strongly to the von Pirquet test, the

\*Read at a meeting of the Episcopal Hospital Clinical Society, September 15, 1913.

ocular condition also being increased primarily by tuberculin injections. They are chronic in character with acute exacerbations, relapses being quite common. They respond to tuberculin and general tonic treatment with careful diet, bathing, and fresh air. The seashore has not proved beneficial in a great number of these cases. In the phlyctenular types there are roundish red areas on the conjunctiva, especially near to the cornea. They are sometimes accompanied by much photophobia, especially if the cornea is invaded. It is diagnostic of phlyctenular keratitis in children that the patient hides its face in its mother's dress refusing to lift it even for an instant. In this case forcible separation of the eyelid is necessary. Great care must be exercised, however, as the cornea may be ulcerated to the penetrating point. A slight pressure on the eyeball may cause prolapse of the iris. It is not necessary to place any pressure on the eyeball in separating the lid if care is taken to lift back the lids with the thumb and forefinger of the hand nearest to the eye to be examined, pressing the retracted lid upon the bony wall of the orbital edge. The child must be held on the lap of an assistant in such a way, that the feet and hands can readily be held firmly while the head rests between the knees of the surgeon, who has protected himself with a towel, especially if he wishes to flush the eye.

Corneal disease is easily recognized by the loss of transparency in some of its extent. In ulcers the areas of opacity are usually discreet. When the entire cornea is more or less involved with a more or less uniform opacity with areas of intense vascular congestion, it is more likely to be interstitial keratitis suggesting hereditary syphilis. When the eyeball is intensely red, having at times a purplish zone about the cornea, with slight or no secretion, you must dismiss conjunctivitis from your mind. The deeper structures are affected. The iris if compared with its fellow is seen to be different in texture and color, the pupil contracted, and the eyeball is very painful to the touch. The patient tells you he awakens in the morning with intense pain which is relieved by hot water applications. Iritis differs from glaucoma in that glaucoma presents a steamy cornea with dilated pupil and with the eyeball *very hard* rather than *very tender*. The tension can readily be ascertained when compared with the normal eye of a bystander. The iris is not discolored, but appears to be pushed forward, showing a shallow anterior chamber. The intense ciliary congestion is absent.

When in the course of a child's illness, a squint develops, it may be due to a large degree of latent hypermetropia becoming manifest, but is more likely to be due to palsy. For some reason when a single nerve is attacked, the sixth nerve is probably the one to be most likely affected in toxic neuritis, causing internal squint. The third nerve when affected, causes loss of accommodation, therefore an inability to read.

In the second section of my subject we reach the eye disease showing disturbed sight with no external lesion. For a proper diagnosis we are dependent in these cases on the ophthalmoscope. When the exterior of the eye is apparently normal, except that the pupil is occupied by a greyish re-

flex, cataract is of course suspected. A dilatation with cocaine or one drop of homatropine solution will show this clearly. When the lenticular opacity is uniform throughout in an aged person, the cataract is ripe or ready for extraction. It is called ripe because it assumes that the cataractous lens will completely separate from its envelop or capsule, allowing immediate vision after operation. When a lens is operated before this stage the remaining parts will tenaciously adhere to the capsule, becoming opaque, but will gradually be absorbed, giving good vision. The risk of iritis and other inflammations is much greater and the necessity of a needling operation is more frequent to secure good vision.

Sudden loss of sight may be due, among other things, to hemorrhages into the vitreous from the chorioid, especially in adolescence, and rupture or embolism of a retinal or chorioidal disease, especially attacking the macula in the way of hemorrhage or exudate. Partial or complete blindness may be due to optic nerve disease, as for instance in neuritis due to alcohol, tobacco, and drugs, and especially wood alcohol, which is largely used in the trades, and sometimes used as an adulterating substitute for grain alcohol. The blindness caused by methyl alcohol is very serious and frequently permanent. Great reduction of vision or monocular blindness is frequently caused by disease in the nasal sinuses, which should always be considered in cases of failure of vision. Complete temporary loss of sight is sometimes indicative of severe autointoxication, uremic poisoning, internal hemorrhages, etc. The changes in the eye ground in the nerve disease may be so transient as to be unrecognizable in the early stages of the disease in these cases. Retinitis with hemorrhages is most common in interstitial nephritis, but may occur in any form of acute or chronic kidney or vascular disease. When it occurs in a patient having a small granular kidney, it is an omen of evil portent, as these patients almost invariably die from some cause within two years.

When associated with diabetes, it is not so serious, as we have patients who though they suffered from diabetic retinitis ten years ago are now apparently cured of their eye trouble with the disappearance of glycosuria. The gross changes in the eye ground in all forms of retinitis consists of more or less edema of the retina and optic nerves and hemorrhages into the retina with more or less numerous whitish spots of exudate. In Bright's disease, the hemorrhages and exudates are frequently arranged about the macula like the spokes of a wheel. Sometimes albuminuric retinitis resembles the choked disc of brain tumor in the intensity of the nerve and retinal swelling and hemorrhages.

In all cases, the use of the ophthalmoscope is indicated, and should be tried by every physician. It is quite easy to use after a little practice.

In a short paper such as this, I can only touch the high points and barely scratch the surface of this interesting subject, and much could be added to make it complete but I have endeavored to bring forward a few points of practical value, which I hope may refresh your memories and help you in the diagnosis of the ordinary disease of the eye. My statements to be brief, must necessarily be didactic, and

conform to a general rule. But in eye diseases, as in other branches of medicine there are many exceptions to all rules, the thorough knowledge of which makes the specialist.

1701 CHESTNUT STREET.

## A PLEA FOR MORE INTENSIVE MERCURIAL MEDICATION IN SYPHILIS.

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Before the introduction of salvarsan in our therapeutic armamentarium against syphilis, the results obtained by the use of mercury and the iodides were considered marvelous by our professional confrères, but since that date our colleagues have, it seems, suddenly forgotten the efficacy of one of the most potent drugs in our pharmacopeia. This is due to our exaggerated enthusiasm for the new arsenical preparation salvarsan. It has been ever thus, when some new preparation attracts our attention we are apt in our enthusiasm to temporarily discard older therapeutic measures, until a more thorough and searching trial relegates the new treatment to a subordinate position. There is absolutely no doubt that at the present time we are over-enthusiastic regarding salvarsan, not that I would dare gainsay that the results in some cases are truly marvelous, but not more so than with mercury, in proper dose and by proper methods of administration. We were led on to this extreme by Dr. Paul Ehrlich, who stated that the drug was a powerful spirilloicide in animals and would probably prove to be the same for *Spirocheta pallida* in the human. In fact he considered it to be allpowerful against this spirillum, so much so that one large dose could kill all the spirilla, in other words, a "magna therapia sterilisans." This false sense of security resulted in many patients receiving, and doctors administering, one dose of salvarsan, and then sending their patients on their way rejoicing, with the assurance that they were cured. In fact, very soon patients, who had been reported as cured, appeared at the various clinics with relapses of all of their symptoms. These patients were promptly placed upon large doses of salicylate of mercury, given hypodermically; whereupon the symptoms melted away most rapidly and, what is more important, patients remained symptom free for the entire course of treatment, with few exceptions, and these alcoholics, etc.

A little later it was conceded even by the Germans that several injections were necessary for a cure. What is the opinion to-day? Most authorities are agreed that a number of injections of salvarsan are necessary, but that mercury must be given in conjunction with the same. However, the point I wish to emphasize is the tendency of most men to place too much reliance on salvarsan, and too little on mercury. The latter, a drug which in the presalvarsan days was considered most efficacious, in fact was usually called one of the *specifics*

in our materia medica, is now suddenly cast aside, as not even worthy of our notice, for a preparation which is still more or less in the experimental state. Allow me to quote an example of this; a patient contracted an initial lesion eight months ago. Six weeks after the onset he received the first salvarsan injection, and subsequently in a period of eight months received seven additional injections of salvarsan, and a very few injections of mercury. Wassermann tests made every month after the initial salvarsan treatment were negative. This patient who was discharged as cured by a well known genitourinary surgeon, came East for an opinion. His Wassermann reaction proved to be negative, but from what we know of the course of syphilis, and of the tendency of salvarsan to cause negative Wassermann reactions, which some time later become positive, it certainly is doing a gross injustice to tell the patient that he is absolutely cured. How can we suddenly change our old opinion, that it takes several years at best to cure syphilis, to an opinion like this, whereby the patient is told he is cured after a few injections of a new drug, which most authorities say simply causes a more rapid disappearance of symptoms, but whether it really is a better curative agent than the older drug, it is impossible at present to say. This patient should receive mercurial treatment for an additional year regardless of the absence of clinical signs and symptoms and a negative Wassermann reaction.

If our genitourinary authorities are so enthusiastic, how much more so are our general practitioners, who are influenced by the surgeon's opinion.

After reading the reports of most syphilographers who have given salvarsan a trial, in a large number of cases, what are their final conclusions? Dr. W. A. Pusey at the American Medical Association annual meeting in 1912 said: "Salvarsan was introduced as a remedy to destroy the infection of syphilis, by one massive injection. What has been its history in the two years since then? First it was given as one large dose of a neutral emulsion; then came the injection of the alkaline solution in the muscle; then the injection into the vein. Now we have salvarsan plus our old reliance mercury. Taking the drug itself, first we had salvarsan, then salvarsan hyperideal, and although one might have thought a drug called hyperideal had reached the acme of its purpose, now we have neosalvarsan, and we have been forced by the sad accumulation of facts away from the claim that salvarsan cures syphilis, except to avoid argument in early favorable cases. The present situation is a far cry from the original idea of a 'therapia sterilisans magna' and, yet, the lurking notion of salvarsan as a cure for syphilis is still responsible for a large part of its use. We may say positively, and finally, that salvarsan does not cure more cases of syphilis than mercury does, on the basis of either the physiological or chemical test. I am not prepared to believe from my own experience that, except in unusual cases, the symptomatic effects of salvarsan are more pronounced than those of mercury and iodides in combination. The real problem in syphilis is parasyphilis. Arsenic itself has a special affinity for nervous tissue and produces degenerative processes in nerves, and no man can say now, whether these massive doses of arsenic



given as salvarsan are going to diminish or increase them."

Dr. Howard Fox in an article in the *Journal of the American Medical Association* of this year, entitled *The Relative Value of Mercury and Salvarsan from a Serological Point of View*, comes to the following conclusions: "In the primary stage of syphilis, especially before Wassermann reaction becomes positive, salvarsan is a most valuable remedy, from both a serological and clinical standpoint. In regard to salvarsan being a most valuable remedy we can say the same for mercury. I have seen a Wassermann reaction become negative, and the initial lesion disappear after two intensive doses of salicylate of mercury, by hypodermatic injection, especially if, in addition, calomel dusting powder is applied to the lesion. This is by no means an infrequent occurrence. A serological comparison of mercury and salvarsan in the later stages of syphilis fails to show any decided advantage in favor of either remedy."

In consideration of this remark it is one of the greatest mistakes for us to discard mercury or even to give it second place. My plea is for the reinstatement of mercury to its original place, in our fight against the *Spirocheta pallida*, and that it should be given in intensive doses by the hypodermatic method. Then, and then only, will good results be obtained in the treatment of syphilis. Salvarsan should be given due trial in every case in conjunction with our chief reliance, mercury. It is much better, as a routine, to give mercury, but if any special indication arises use salvarsan.

Dr. Abner Post, of Washington, concludes in the *Journal of the American Medical Association* of this year: "We must retain mercury because its usefulness is not diminished in the least, because it can be used when the use of salvarsan is difficult and when it is contraindicated."

Now I shall take the liberty of quoting from the records of several private and dispensary cases, showing the truly marvelous but by no means unusual effects of mercury in intensive doses:

CASE. Miss F. H., aged eighteen years; American. Referred to the office by Dr. E. M. Juster, on June 22, 1912, gave a history of having had a hard, painless sore on her upper lip for a number of weeks, also hard glands under the jaw. Admitted having been kissed rather promiscuously. For the past six or eight weeks complained of painful sores on the genitals (so called piles), sore throat, also complained of being tired every afternoon and evening.

Physical examination disclosed the remains of an initial lesion of the upper lip, a typical angina with sharp red margins, mucous patches of both tonsils, enlarged, hard postcervical and submaxillary glands. The vulva, perineum, and rectum showed a total of about a dozen large, moist condylomata, varying in size from that of a ten cent to a twenty-five cent silver coin. On June 22, 1912, the day of her first visit, she received a deep hypodermatic injection of salicylate of mercury, one grain, also a calomel dusting powder to the moist lesions, and a mouthwash of hydrogen dioxide. June 27, 1912, five days after first treatment, she returned to the office. Felt much better generally, no longer feverish, condylomata about one half the original size and perfectly dry. Throat improved. Received injection of salicylate of mercury ( $\frac{1}{2}$  grains), was told to continue the use of the dusting powder and mouthwash. July 2, 1912, condylomata almost gone; mucous patches of throat almost better. Received one and three quarters grains of salicylate of mercury. July 7, 1912, condylomata disappeared; mucous patches of throat gone; patient felt fine. This patient received, in about sixteen days, but four and one quarter grains of salicylate

of mercury which dose caused the total disappearance of all her active symptoms. She has been under observation and treatment with salicylate of mercury for the past year, during which time there was a gain in weight of about fifteen pounds so that at the present writing she weighs more than at any period of her life. Not only this, but she has had absolutely no symptoms since that time. Of course, mouth treatment, in small or even large doses, could never have caused such a rapid disappearance of symptoms. Mercury in intensive doses, by the hypodermatic method, is by all means as safe and efficacious as arsenic in any form. The difference between the oral and the hypodermatic administration of mercury, as far as therapeutic efficacy is concerned is truly marvelous. Mercury can often be given by the mouth to the point of toleration, nay even salivation, and yet there be no remission in symptoms, however, upon its hypodermatic administration a prompt improvement takes place.

The following is a history of a clinic case:

CASE. Mrs. C. M. came to the clinic complaining of considerable difficulty in swallowing, so much so that she could hardly swallow liquids. The throat was sore. Her speech, with a distinct nasal voice, was difficult. On examination of the throat, an enormous tumefaction of the soft palate was visible, most marked at the base of the uvula. A small pinpoint perforation was found in the centre of the mass. The nares were deeply ulcerated. She had already received treatment by mouth for one week, with no improvement of symptoms. On March 4, 1911, she received salicylate of mercury, one grain, by deep hypodermatic injection, also a mercurial mouthwash and gargle. Three days later she returned to the clinic smiling and said that within thirty-six hours after the injection she could swallow solid food. March 7, 1911, on examination the perforation was found to be somewhat larger but the mass considerably smaller and less infiltrated. She received this day one and a half grains of salicylate of mercury. March 11, 1911, she returned, and the following note was made: Ulceration of throat markedly improved, slough disappearing; marked improvement of the nasal ulceration. The patient very comfortable as far as the throat was concerned but complained considerably of pain at the site of injection. March 11, 1911, she received two grains of salicylate of mercury by injection.

Up to this date, but not inclusive, the patient had received two and one half grains of salicylate of mercury (that is in a period of eight days), with a remarkable subsidence of symptoms. Cases responding in this manner to hypodermatic medication but not to oral administration are not at all unusual, in fact, they are the rule and not the exception. This patient is a very ignorant woman, markedly alcoholic, and returned but once more to the clinic. That was on March 14, 1911, which was eleven days after we first started hypodermatic treatment; at this time she was entirely well (symptomatically) with the exception of a small perforation of the soft palate. She objected strenuously to the hypodermies and disappeared from observation.

The following is the report of a case which came to the Post Graduate clinic during March, 1911:

CASE. Mr. C. R., aged thirty-nine years, driver.

Marital history: Married fourteen years ago. The first-born showed an eruption involving the buttocks and genitals, also sore eyes and throat. Child was still alive and apparently well. The second conception terminated in an abortion at the third month. The third child was born with a general eruption, sores around the buttocks, etc., and died at the fifth month. The fourth and fifth pregnancies terminated by spontaneous abortions. The sixth and seventh also born with sores and patches. The seventh survived, and to this day has some affection of the eyes and poor hearing, also suffers with ulcers of the legs. The first wife died during a succeeding pregnancy supposedly from some heart affection. Patient remarried one year ago. The second wife gave birth to an apparently healthy baby.

Past history: Five months after first marriage, i. e., fourteen years ago began, to complain of headaches and pains in the back (more severe at night). This syndrome continued for about six years, then disappeared spontaneously with no return until fourteen months ago.

Present history: Fourteen months ago he noticed a small abrasion on the under surface of the penis. The wound was treated by a druggist for about six weeks, but spread very rapidly so that at the end of this period an ulceration (probably a gumma) about one inch long, one half inch wide and one inch deep was present. At about this time, patient noticed that during urination the stream of urine instead of appearing at the meatus, was discharged through an opening in the ulcerated area. At the same time ulcerations developed in the throat and the patient became suddenly deaf. He was admitted to a hospital where he received deep intramuscular injections every other day. He received a total of twenty-six injections; also potassium iodide internally. He left the hospital apparently cured and remained without symptoms for eight weeks. Then marked ulcerations developed on the head of the penis. He returned to the hospital and again received injections. This time he received one injection a week, for about seven weeks. The lesion healed. January 1, 1911, his throat became so sore that one week after the onset he was unable to swallow solid food because of the severe pain. Each time an attempt was made to swallow, the food regurgitated through the nose. So that from January 1, 1911, until the present date, March 16, 1911, the patient has been taking fluids only. During this period patient has been coughing and expectorating every few minutes, and has slept poorly. At times during the night he feels as if he were suffocating. At each inspiration he uses his accessory respiratory muscles. January 1, 1911, weight was 181 pounds. March 16, 1911, weight was 159 pounds.

Physical examination. (On March 16, 1911.) Throat: The entire soft palate is red, infiltrated, and edematous; the uvula is swollen to about five times its normal thickness, and about twice its normal length; both tonsils covered with a greenish black slough. Scars of former ulcerations present on the skin of the left side of the nose. On the posterior surface of the right forearm in the upper third there is a squamous lesion about the size of a silver quarter of a dollar, reddish pink in color, circular in outline with a circumference made up of hard infiltrated papules. On the plantar surface of the second toe of the right foot there is a similar lesion. A large circular infiltration is present on the under surface of the penis, about one half inch from the meatus. In the centre of this there is a fistulous tract leading into the urethra. It is through this artificial urethra that he urinates. No urine appears at the meatus during the act of micturition.

Treatment: The patient received on March 16, 1911, one and three quarter grains of salicylate of mercury by deep hypodermic injection; also a mouthwash (hydrogen dioxide). March 21, 1911, he reported that three days after the injection was able to eat solid food, although he had been unable to do so for a period of two and one half months. He had stopped coughing, gagging, and expectorating. He slept well and felt better in every way. He received one and four fifths grains of salicylate of mercury by deep hypodermic injection. Throat examination showed that the ulcerations of the tonsils had considerably improved. The infiltration of throat had diminished. The uvula was about one half the size it was five days ago. The patient was a careless individual (alcoholic), and did not return for treatment until two weeks later, on April 5, 1911. Examination on this day showed the throat to be almost normal, except some scars present on the tonsils. The lesions on the arm and leg were almost healed. He was feeling well in every way, and had gained both in strength and weight. He received one and three quarter grains of salicylate of mercury. April 14, 1911, improvement has continued so that he breathes, talks, and swallows normally. The squamous lesions are gone. He weighed 167 pounds, a gain of eight pounds in one month. Conclusions. This patient gave a history of being very careless and negligent in regard to treatment. A large percentage of alcoholic dispensary patients, continue treatment only as long as symptoms are present. As soon as the active manifestations disappear, they discontinue medication. However, in spite of his alcoholic tendencies, he responded rapidly to the intensive treatment. His most marked improvement took place after the first and second injections, so that during a period of five days he received a little over three and one half grains of salicylate of mercury; this dose continued to cause improvement in his symptoms for

a period of two weeks following the injection so that on April 5, 1911, when patient returned, all the throat lesions were gone, and the skin lesions almost so.

In summing up we might say that in the period between March 16, 1911, and April 5, 1911, all symptoms disappeared on a dose of three and one half grains of salicylate of mercury. This is certainly a marvelous result. Of course a patient of this kind who ceases treatment at such a time will sooner or later suffer a relapse. Our object is not alone to obtain a symptomatic improvement or a symptomatic cure, but also a serological one where possible.

The following is the report of a private case referred by Dr. Cyril Barnert:

CASE. Mr. F. H., aged thirty-nine years; single, salesman.

Past history: Patient had had several attacks of gonorrhea and one attack of chancroids.

Present history: December 19, 1912. This dates back about four weeks, at which time he noticed a hard, painless, nonspreading sore on the penis. The incubation was not exactly known (between thirteen and twenty-one days, most likely the former).

Physical examination (December 19, 1912) showed a hard, cartilaginous, painless lesion on the frenum about one quarter inch in diameter. The lesion had not been cauterized. Small hard glands were present in the right inguinal region. No enlargement of the epitrochlear or cervical glands. A slight macular eruption was present on the chest. The throat was somewhat congested, but not characteristically so. He was advised to allow scrapings to be taken for spirochete and Wassermann tests. The patient refused. Said he would rather await developments. Received a hydrogen dioxide wash for sore. He returned the following week, December 26, 1912. The chancre and right inguinal glands are harder and larger. There is a typical secondary maculopapular eruption on the chest and abdomen. He has a marked angina, limited characteristically at the upper junction of the pillars of the fauces to the soft palate. Enlarged epitrochlear glands present. The patient has complained of occipital and frontal headaches for the past few days. He received sixth tenths grain of salicylate of mercury by deep injection. January 2, 1913. The eruption is still present, but the headache is better. Salicylate of mercury one and one half grains by deep injection. January 9, 1913, there is a marked disappearance of the eruption; only three papules present on the chest. Not a vestige of the macular eruption remains. Chancre one third its original size; the throat is normal. He has had slight headaches during the week. The inguinal glands are smaller and softer. He received one and four fifths grains of salicylate of mercury. He complained considerably of pain in the right buttock and thigh, as a result of the previous injection. January 16, 1913, the papular eruption has gone. Slight remains of the initial lesion still present. He received two and two thirds grains salicylate of mercury. January 25, 1913, the initial lesion is almost gone. The right epitrochlear glands are smaller. The left are gone. The inguinal glands are smaller. He feels better generally, but is very melancholy. Says he has lost weight since the onset. He received one and four fifths grains of salicylate of mercury by deep injection. February 1, 1913, the initial lesion is gone. He feels well, but had considerable general reaction after the last injection. One and four fifths grains of salicylate of mercury. February 13, 1913, he took twelve days' vacation, stopping at a country home. During this period he took plenty of outdoor exercise, sleigh rides, etc., and plenty of nourishment in the form of fresh eggs and milk. He feels considerably better. He is no longer melancholy. He received one and four fifths grains of salicylate of mercury. March 4, 1913, the patient, who is rather alcoholic, commenced to drink heavily, and has failed to appear for treatment. He returned with a relapse of symptoms. During the past few days ulceration has reappeared at the site of his initial lesion, associated with a balanitis. Voice sounds hoarse. The patient received one and one half grains of salicylate of mercury by deep injection, a hydrogen dioxide wash

for throat, and a calomel dusting powder for the ulcer on the penis. The following week the lesion had gone and the patient was again under control. He has remained symptom free to date but still receiving injections weekly. He has gained in weight and strength.

This case also shows how rapidly secondary symptoms disappear under vigorous mercurial treatment. On February 1, 1913, one month after patient's initial injection, the disease was under control, he having received during that period eight and one half grains of salicylate of mercury. After the second injection the maculæ were almost gone; only a few papules remained. The total amount of the first and second injections was but two and one tenth grains of salicylate of mercury.

The reason why so many luetic patients do not improve under mercurials, is because of too small doses, improper methods, or a combination of both. This paper is a plea for the more thorough use of intensive doses of mercury by the hypodermatic method.

1007 FOREST AVENUE.

#### A NOTE ON THE TREATMENT OF FRACTURES NEAR THE WRIST JOINT WITH ESPECIAL REFERENCE TO COLLES'S FRACTURE.

By A. O. WILENSKY, M. D.,  
New York.

Attending Surgeon, Mt. Sinai Hospital Dispensary; Assistant Attending Surgeon, Bronx Hospital and Dispensary.

The literature covering the treatment of fractures at the lower end of the forearm, in close proximity to the wrist joint, and especially, that relating to Colles's fracture, has become so voluminous, that it would seem almost impossible to add anything new. Yet the occurrence, and that very recently, at our dispensary, of several unfortunate results, due to faulty treatment, received at other institutions, seems to indicate that the old fashioned notions of immobilization, have not been entirely eradicated, and gives another opportunity for the insistence of early discardance of all splinting apparatus.

I quote the two following cases, numbers 1047 and 1116, series of 1913. Two female patients sustained injuries to their wrists, and the x ray demonstrated the lesions of Colles's fractures. They came to the clinic, with the history, that their forearms had been immobilized, in the one case for seven, and in the other for eight weeks, and when we first saw these patients, their wrist joints were practically ankylosed. Though they were treated for a long time in our mechanotherapeutic department, a very, very indifferent result was obtained. It seems almost impossible, that at this stage of our knowledge, joints would be immobilized for so long a time.

In the treatment of these injuries, we have evolved the following routine. Unless there is marked deformity, we never break up any immoction that is present. Most of our cases of Colles's fracture are the mechanical results of a violent jarring of the bone. In a few cases there is practically no

deformity, in a large number there is very little deformity. In these cases, the fall on the outstretched hand results in the solution of continuity of the bone within its periosteal sheath. We never break up these fractures, for the reason, that whenever we do, we tear the periosteum at the line of fracture, and rip it away from either fragment; and though the immediate result gives us a perfect contour, the final result is disappointing, inasmuch as a fairly large mass of callus always forms, which exaggerates the primary deformity. In a minority of the cases, deformity is very marked, and it is in these cases only, that we attempt its correction. It goes without saying, that here the fracturing force was in excess, and had already torn the periosteum. We immobilize with a plaster of Paris bandage, preferring it for the reasons that it can be very accurately applied; that it takes advantage of all the natural eminences and depressions; and by cutting it through at the sides, it can be converted into a splint that fits the part, and which can be quickly taken off and reapplied.

The important part of the treatment commences now. The cast is converted into a removable splint on the day after it is applied, and every day thereafter, the wrist joint is carefully moved, the muscles of the forearm are methodically massaged, and the motions of the fingers are gone through. In the intervals the splint is worn. On the fifth day, the cast is discarded, and a simple starch bandage is substituted for two days more, after which time all splinting apparatus is discarded. At the end of ten days, power in the muscles of the fractured arm is almost as strong as in the sound limb. At the end of two weeks, these patients are generally back at their work.

Under this line of treatment, these patients never have any resultant stiffness; I have never had a case of muscular or ischemic contracture as an unfortunate result. These patients have a minimum of deformity, and perfect function always results.

These conclusions are based upon a study of cases under my care at the Mount Sinai Hospital dispensary.

1200 MADISON AVENUE.

#### Abstracts and Reviews.

##### SEVERE ANEMIA IN GASTROINTESTINAL DISEASES.\*

By PROFESSOR ADOLPH SCHMIDT,  
University of Halle, Germany.

The first views regarding pernicious anemia limited the use of this term to those severe anemias which ran a progressively fatal course, and for which no etiological factor, or factors, could be found. This was, perhaps, a sufficient description in the days before the recent development of pathology, but at present it is obviously wholly inadequate. The first steps in advance were made when it was shown that certain cases, clinically in-

\*Summary of a lecture delivered before the Harvey Society, at the Academy of Medicine, October 18, 1913.



distinguishable from the idiopathic pernicious anemia, were associated etiologically with syphilis, pregnancy, septic infections, etc.

With the advance of pathological knowledge there arose two conceptions of the causation of pernicious anemia. The first was that of Ehrlich, who put forward the hypothesis that the condition was primarily a disease of the bone marrow. He called attention to the presence of myelocytes and myeloblasts, along with nucleated red blood cells, and suggested that the underlying cause was a myeloblastic degeneration of the bone marrow. This view was accepted at first, but it was soon found to be quite insufficient, for while many cases did show the presence of myelocytes and myeloblasts in the peripheral circulation, there were many others in which these cells were not to be found, although the clinical picture and course of the disease were in no way different from that encountered in the cases with these abnormal cells.

The discovery and repeated confirmation of the fact that the bothriocephalus was capable of causing a true pernicious anemia, having all of the characteristic signs and symptoms of the idiopathic form and not distinguishable from it in any way, gave a new impetus to the search for the causative factors of the disease. It was soon found that the degenerating portions of the bothriocephalus worm liberated a hemolytic agent in the intestine, which, when absorbed into the blood slowly and continuously, lead to a destruction of the red cells, which in turn was followed by a hyperplasia of the bone marrow, with the throwing off of nucleated red cells, myelocytes, and myeloblasts. Other observers then reported cases of pernicious anemia resulting from other intestinal parasites, including the common *Tania saginata* and the ankylostoma, but from neither of these was it possible to isolate a toxine similar to the hemolysin found in the bothriocephalus.

The finding of the bothriocephalus hemolytic toxine indirectly lead Hunter to the formulation of the second theory of causation of pernicious anemia—the hemolytic theory. He was unable to isolate any hemolysin, or even to prove the existence of such a body in the average nonparasitic case of pernicious anemia, but he brought forward a number of facts which seemed to lend support to his view. Among these may be mentioned the characteristic pigmentations of the tissues; the relation between gastric lesions and pernicious anemia—small gastric cancer and achylia gastrica being frequent antecedents of the anemia; and the great accumulation of free iron in the liver, due to the deposition of the iron freed by the hemolysis of the red cells.

Probably Hunter's most valuable contribution was the discovery of the very frequent history in anemic patients of a previous more or less prolonged dyspepsia. Acting upon the suggestions made by Hunter, my assistants and I have been studying the relations between gastrointestinal disorders and pernicious anemia. I have found, excluding those cases which are due to one of the previously mentioned causes, such as parasites, syphilis, sepsis, etc., that pernicious anemia is most frequently encountered in persons who give a

definite history of antecedent gastrointestinal dyspepsia.

In my experience the commonest pathological conditions in the gastrointestinal tract, which bear a definite relation to pernicious anemia, are very small gastric cancers, cicatricial tuberculous stenosis (partial) of the small intestine, and the occurrence of achylia gastrica.

It is known that a hemolytic substance can be isolated from the cancerous deposit in the cases of the first group, and it is possible that the absorption of this substance may be the causative factor in the severe anemia encountered in these cases.

In the other two groups—partial cicatricial stenosis, and achylia gastrica—no hemolytic agent has been found heretofore. Hunter suggested that in the latter group there was an alteration in the bacterial flora of the intestine and that some of these bacteria produced a hemolytic substance. Hunter's suggestion breaks down on close examination for: (a). The normal food of man yields an abundance of oleic acid in the intestine which, in turn, yields hemolytic substances through combination with cholesterin and allied materials, these hemolytic substances being found in abundance in normal stools. From this it is almost certain that such hemolytic substances as are liberated in the intestine are not absorbed through the mucosa, hence their presence is of no importance. (b). No constant type of intestinal flora is found in cases of achylia gastrica, and the organisms present do not produce hemolytic bodies. In addition, the liberation of hemolytic toxins from the albuminates in achylia gastrica owing to their incomplete decomposition, does not account for the production of anemia because these substances are not necessarily absorbed.

Nevertheless, in my series of cases of severe and pernicious anemias I have found the previous existence of gastrointestinal dyspepsia to be a very constant feature. Most of these patients give a history of recurrent attacks of slight diarrhea, or of diarrhea alternating with constipation. Their feces are found to be either fairly strongly alkaline or decidedly acid on my test diet. The normal reaction is neutral. An excess of connective tissue fibres and isolated muscle fibres are also present. We have often found, in addition, many degenerated intestinal epithelial cells, or their nuclei. The intestinal mucosa presents areas of atrophy in the stomach similar to those described by Hunter. Around these there is usually an area of slight chronic inflammation. These facts can not be overlooked, and their importance will be obvious later.

We have sought hemolysins in the blood of these cases of pernicious anemia, but without success until it was shown that in cases in which the blood taken from the peripheral veins contained no hemolysins, blood taken from the portal veins did contain noticeable amounts of these bodies. Their presence in the portal venous system, the hemolyzed appearance of the portal blood in these cases, and the excess of free iron in the liver all seemed to confirm the hemolytic view of the origin of the anemia in this group of patients. The question next to be answered was: Where were these hemolysins produced? They were not found in the feces. But they were present in the portal blood.

In a few cases we have been able to answer this question. My assistants have been able to isolate hemolytic substances directly from the intestinal mucosa in several cases in which this tissue presented the characteristic atrophic changes previously mentioned. This suggests that the degenerative processes going on in the intestinal and gastric mucosa of these cases liberate the hemolytic substances which are then constantly entering the circulation in small amounts, and which give rise to the anemia. But these intestinal lesions are not specific, appearing rather as the result of a chronic irritation. This irritation seems due, in turn, to the absence of the normal digestive secretions.

These discoveries would seem to place gastrointestinal dyspepsia in the position of a link between achylia gastrica and pernicious anemia. Even if this is subsequently confirmed we still have a considerable number of cases of pernicious anemia for which we cannot find any etiological factor. I would also call attention to the fact that not only are not all cases of anemia presenting dyspeptic symptoms to be explained thus, but also that many cases fail to show any intestinal lesions such as described, and there is not always a parallelism between the anemia present and the gastrointestinal dyspepsia. The discovery merely adds one more group of causes to those already recognized.

Even after the correction of the dyspepsia the anemia, in many cases, continues to progress. This needs explanation, if the theory is to hold. An explanation is suggested in the discovery that splenectomy has apparently cured some very intractable cases of pernicious anemia. This has given rise to the view that the spleen is capable of storing up a considerable quantity of hemolysins, which continue to act after the cure of the intestinal dyspepsia.

The problem is obviously far from being solved, but we hope that we have added one more cause to those already known.

Certainly our findings lead to several points of value in the treatment of the disease. Inasmuch as gastrointestinal dyspepsia plays a very important part in the etiology of pernicious anemia, this should be treated as early and thoroughly as possible. Proper regulation of the diet is the all important means at our command, and I would offer the following suggestions for the management of these cases:

1. Avoid all irritating substances, such as condiments, wines, etc.
2. The food must be minutely divided, for the stomach cannot break it up in the absence of hydrochloric acid.
3. No raw dishes should be allowed.
4. The diet should be adapted to the individual.
- a. If the feces show signs of fermentation, gas, free starch grains, and are acid in reaction carbohydrates should be reduced or withdrawn entirely.
- b. If they are alkaline, show signs of putrefaction, and contain many free muscle and connective tissue cells proteins, and especially meat should be withheld or reduced.
5. Hydrochloric acid should be used with meals, for by diminishing the gastrointestinal disorder it diminishes the anemia.
6. Lavage of the stomach with physiological salt

solution, or with dilute solutions of salicylic acid is very beneficial in reducing putrefactive processes.

7. Lavage of the duodenum is even more beneficial.

8. Intraduodenal insufflation of oxygen has been of considerable value.

While all of these measures have been found beneficial in the treatment of pernicious anemia after it has developed, our recent observations lead to the more valuable applications of these measures to the prophylaxis of the condition through the early rectification of gastrointestinal dyspepsias.

## Therapeutic Notes.

**Treatment of Fever in Tuberculosis.**—Thompson Frazer, in the *Therapeutic Gazette* for June, 1913, states that in the presence of a temperature exceeding 101° F., the patient must be put to bed and spared all bodily and mental exertions. With a temperature between 100° and 100.5° F., a compromise may be instituted by allowing the patient to recline on a cot outdoors, while with a fever not over 99.5° F., a comfortable reclining or steamer chair may be used. With the reduction of fever and a persistently normal temperature for several days a moderate amount of exercise is allowed, usually in the form of walking in five or ten minute periods once or twice daily, gradually increased. Sometimes, despite strictly enforced rest in bed, the fever continues, and abates when the patient is allowed somewhat greater freedom, e. g., if the bed is exchanged for the reclining chair, and sitting up and moving about a little are permitted.

In severe cases, with a fever of 103° F. or over, sponge baths often make the patient more comfortable, though the effect on the fever is but temporary. Antipyretic drugs should be used only in cases in which the high fever has seriously impaired the appetite; their continued use is dangerous.

At times, fever may be due to some complication such as a cold, pleurisy, or an ischio-rectal abscess, each demanding suitable treatment. Again, it may occur because of gastric or intestinal disorder, in which case calomel and salts will often promptly reduce a sudden, spirited rise that may at first have excited apprehension. A more gradual rise suggests progress of the lung lesion and calls for prompt, absolute rest. Irregular rises due to mental activity or emotional excitement are repeatedly met with; all exciting books and games must be prohibited.

**Treatment of Ozena.**—Sune y Medan, in *Archives internationales de laryngologie, d'otologie et de rhinologie* for March and April, 1913, is credited with the statement that since paraffin injections offer some difficulty in the matter of technique, one should not hesitate to employ other means when the occasion presents. The author himself, after freeing the nasal cavities of crusts, resorts at once to copious insufflations of powdered lactic bacilli. The patient is required to make such insufflations twice daily, having previously irrigated

the fossæ with boiled saline solution or with a solution made by dissolving into one litre (quart) of boiled water one of the following powders:

R Sodii chloridi, .....	3ii (60 grammes);
Sodii bicarbonatis, .....	3xxii (85 grammes);
Sodii boratis, .....	3xiii (50 grammes);
Thymolis, .....	gr. xv (1 gramme)

Misce et pone in chartulas No. xvi.

Where the crusts are dry and strongly adherent, the author recommends the use of an ointment containing chloride and bicarbonate of sodium, or one of menthol and resorcinol. The patient returning every week or two, or even oftener, an application of a fluid preparation of lactic bacilli, or an insufflation of a powder, is made.

With this treatment fetor disappears in a few days or, at most, in a week or two; crust formation then diminishes, headache is relieved, the irrigations become unnecessary, and there persists only a slight odorless secretion. Among twenty patients recently treated there have been six cures and fourteen instances of marked improvement.

**Treatment of Erysipelas.**—A. Binet, in *Journal de médecine de Paris* for April 19, 1913, is credited with the following combination, to be applied to the involved area in erysipelas:

R Tincturae iodi, .....	1
Alcoholis, .....	5x (40 grammes);
Guaiaicolis, .....	gr. xlv (3 grammes).

Misce.

An application should be made at the earliest possible moment, and should extend beyond the erysipelatous area, onto the surrounding skin, in order to prevent further spread of the inflammation. Afterward an occlusive dressing should be applied. The iodine mixture should be used once each day, and if a hard layer forms over the epidermis, a little glycerin should be employed as a detergent. The effect of the iodine is to rapidly remove the edematous, shining appearance of the involved skin and cause it to shrink and sometimes to become finely fissured. After the fifth or sixth application desquamation takes place, and it is then time to discontinue the iodine applications. Generally at this period the patient's temperature falls and the general condition shows improvement.

**Treatment of Mushroom Poisoning.**—A. Pic and J. F. Martin, in *Lyon médical* for June 15, 1913, report a case of severe poisoning by *Amanita phalloides* in which the production of a fixation abscess appeared responsible for the patient's recovery. The symptoms, as is usual in poisoning by this species of fungus, came on only a number of hours after its ingestion, and the mushrooms had therefore already passed from the stomach into the intestine, rendering emesis practically useless. For four days after the admission of the patient to a hospital, injections of 10 ounces (300 grammes) of normal saline solution were given twice daily to wash the blood. Sedative hot enemata were also given, and the patient bathed in water at body temperature for ten minutes three times daily. The heart action was stimulated with injections of camphorated oil. To the fixation abscess, however, more than to any other measure, seemed due a sudden improvement in the patient's condition, which

took place on the ninth day. This was the day on which fluctuation was first noted in the abscess. Diuresis set in, and the pain and all other symptoms were relieved, soon after to disappear entirely. The authors argue that, just as in infections the causative microorganisms, and in lead or mercurial poisoning the respective metals, are found in the pus of a fixation abscess, so in *Amanita phalloides* poisoning the phallin becomes fixed in the abscess. In previous experience with this method of treatment in a series of cases, the authors had observed that whereas, among thirty-eight previously reported cases of phallin poisoning the mortality had been 86.8 per cent., that among twenty-three patients suffering from the same variety of poisoning, and treated with fixation abscesses, the mortality had been only 39 per cent.

**Treatment of Cardiac Disturbances in Chronic Dyspepsia.**—R. Oppenheim, in *Progrès médical* for March 15, 1913, discussing the treatment of complaints such as palpitation, intermittences, tachycardia, bradycardia, pseudoanginal attacks, etc., advises, in the first place, strict dieting according to the form of digestive disturbance present, the reduction of starchy foods to a minimum, and the taking of a light evening meal. Constipation must be prevented. If necessary, a teaspoonful of the following preparation may be taken in a little water at bedtime:

R Fluidextracti frangulae, ...	
Fluidextracti rhamni	} .aa 3vii (25 grammes);
purshianae, .....	
Glycerini, .....	3x (40 grammes).

Misce.

A cool moist compress, covered with some impervious material, may be left upon the epigastric and precordial regions overnight; or, a compress moistened with alcohol may be applied morning and evening for half an hour. One of the following pills should be taken at night:

R Extracti hyoscyami, .....	
Fluidextracti valerianae, .....	} .aa gr. ¼ (0.05 gramme).
Zinci oxidi, .....	

Fiat pilula No. i.

When cardiac discomfort appears, the following ointment, recommended by Robin, should be lightly rubbed over the precordium:

R Veratrine, .....	gr. iiss (0.15 gramme);
Extracti opii, .....	gr. xii (0.75 gramme);
Olei terebinthinae rectificati, .....	3ss (2 grammes);
Olei menthae piperitæ, .....	gtt. xii;
Adipis lanae hydrosi, .....	3i (30 grammes).

Misce. Fiat unguentum.

The patient should then take every hour, until the attack ceases, a tablespoonful of a sedative preparation:

R Potassium bromide, .....	} of each 3iss (6 grammes);
Cherry-laurel water, .....	
Syrup of ether, .....	3i (30 grammes);
Valerian distillate, .....	3iiss (110 grammes).

Mix and make into a solution.

The syrup of ether contains two per cent. of ether and five per cent. of alcohol; the valerian distillate is made by macerating one part of valerian with eight parts of water for twelve hours, distilling, evaporating to four parts, and filtering.



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THE THYROID GLAND AND CHRONIC  
RHEUMATISM.

Considerable evidence has accumulated to the effect that at least a small proportion of cases of chronic rheumatism may be due to deficient functional activity of the thyroid. Among the facts which have pointed to such a connection may be mentioned the many cases in which thyroid gland has proved very beneficial and sometimes curative; the concomitance of myxedema and chronic rheumatism, thyroid treatment benefiting both conditions; the appearance of chronic rheumatism and myxedema as a result of x ray treatment applied to the neck for trichosis in such a way as accidentally to produce thyroid atrophy, both disorders being markedly benefited by the remedial use of thyroid gland; the concurrence of chronic rheumatism with fibrous degeneration of the thyroid; the disappearance of rheumatism due to hypothyroidia on the appearance in the same patient of Graves's disease, etc. While this class of evidence has been suggestive, it has always lacked the confirmation which the presence of histological lesions in the thyroid alone in a marked case of chronic rheumatism would furnish. Such a case has, however, been reported recently by Aubertin and Pascano (*Presse médicale*, September 27, 1913). The pa-

tient, a woman of forty-eight years, had suffered from chronic articular rheumatism since the age of twenty years to such a degree, and with periodical exacerbations so severe, that all the joints had become deformed, sufficiently so indeed to cause marked distortion of the limbs, the patient being unable to ambulate at all without crutches. Sudden death having been caused by an embolus, a careful examination of all the organs revealed pathological lesions, other than the resulting cardiac changes, in but one, the thyroid. These lesions were very intense and of long standing, recalling those of congenital myxedema, cicatricial fibrous tissue with choking of the vesicles and cysts predominating. The morbid changes in the heart were those commonly observed in chronic rheumatism as a sequel to that disease—a part in other words of the morbid process. In five other cases of chronic rheumatism, the authors also found, at autopsy, lesions of the thyroid in four instances, the only case in which the organic changes, sclerosis, etc., were not marked, having shown a relatively benign course and much less deformity. These, however, were not as clearly ascribable to the thyroid as in the case first described, the patients being aged or tuberculous, both of which conditions might have entailed the organic changes observed in the glands. The first case clearly indicated, however, that the thyroid gland must be considered as a factor in the pathogenesis of a certain proportion of cases of chronic rheumatism, particularly in those attended with deformity.

Irrespective of these severe cases, there is a form of rheumatism not infrequently met with which is distinctly due to hypothyroidia and associated with the characteristic symptoms of this condition; it consists of severe pain in the occipital region or between the shoulderblades, which rest in bed tends to aggravate rather than improve. Such cases never yield to the salicylates and other agents used commonly in the various forms of rheumatism; but the patients gradually recover under the persistent use of desiccated thyroid gland. Care must be taken, however, to avoid large doses. The so called "average dose" of the United States pharmacopeia is positively dangerous here; in no case should the initial dose of desiccated gland exceed one grain.

## ALCOHOL AS A THERAPEUTIC AGENT.

The exact pharmacological classification of alcohol, so long and so universally regarded as a typical stimulant, is no doubt at the present time considered by most to be a matter *sub judice*. It is a well known fact, however, that during the last few years there has been accumulating a mass of experimen-

tal testimony, from skilled investigators, which indicates that it is a narcotic, rather than a stimulant, and some extremists, holding that it is an anesthetic and depressing toxine, which in disease destroys the normal activities of the nerve cells and centres, would banish its use from medicine altogether. It is also a fact that in recent years its employment as a therapeutic agent has become very considerably restricted, as compared with former usage. But, on the other hand, it is unquestionably the case that among clinicians generally alcohol is still held in the highest esteem in certain conditions, in some of which no other agent appears to be equally efficient. Thus, at one of the recent meetings of the American Therapeutic Society, when Doctor Crothers read a paper in which he characterized the use of alcohol in medicine as a "delusion founded on misconception and false reasoning, with the accumulated prejudices of ages," Doctor Alexander Blackader, professor of therapeutics in McGill University, in discussing it, said he would like to place himself on record as "belonging to the old school who still think they see benefit not infrequently arising from the use of alcohol as a prompt, although fleeting, stimulant. In prolonged pyrexia it conserves nutrition and is utilized as a food. The time has not yet come when we can altogether dispense with alcohol in our pharmacopeias." Whatever the results of laboratory investigations may be, certainly the weight of clinical experience cannot be disregarded.

In *American Medicine*, for September, Doctor A. Jacobi states that no amount of whiskey will lead to intoxication when its effect is needed to combat sepsis, and that his cases of thorough sepsis relieved or cured by alcohol extend over more than half a century. Among these were cases of diphtheria with mixed infection, where his experience had shown that no such infection was amenable to the action of antitoxine. The late Austin Flint, than whom we have never had a physician of more extended clinical experience or keener observation, was throughout his long career a strong advocate of the judicious use of alcohol. He never advised it unless there were present what he believed to be distinct indications for its employment, but in cases where such were present he did not hesitate to prescribe it in enormous quantities. In his *Practice* he records instances in which desperate, and even apparently hopeless, cases were undoubtedly saved, like some of those cited by Doctor Jacobi, by this course.

There would seem to be little doubt, in the light of the later investigations, that alcohol may act as a narcotic; but the acceptance of this theory is by no means equivalent to condemning its therapeutic use for its effects on the brain. On the contrary,

Cushny maintains that this depressant action, far from being in conflict with its clinical employment, supplies a definite and logical explanation of the improvement noted in a large number of instances where the effect of alcohol in allaying the subjective symptoms, relieving the nervous strain, and promoting the rest and comfort of the patient is not surpassed by that of any other drug. Accordingly, he says, it would seem a question whether the results aimed at by the clinician when he prescribes alcohol have not been misnamed "stimulation" (the word being used in quite a different sense from that in which it is understood by the experimental observer), and are not in reality narcotic in their nature, and hence in entire agreement with the experimental results.

### THOROUGHNESS IN MOSQUITO EXTERMINATION.

Many a community has failed in its efforts for mosquito extermination and has given up in disgust; the reason for which has been almost invariably that somewhere, some breeding place, has been ignored as too trifling for consideration. A single negligent householder may nullify the zeal of a whole neighborhood. The only means whereby mosquitoes can be permanently vanquished is to destroy their breeding places, which may be anywhere that water can accumulate and stand quiescent for ten days or more. Breeding only occurs in stagnant water. It is excellent to drain marshes, pools, springs, ponds, fountains, wet places, lawns, and gardens, but extermination will not be thorough and effective unless one realizes that no body of water, not even a teaspoonful, can be too small for the breeding place of a mosquito, especially if grass and algae abound in and about it. Myriads may breed in a water puddle by the roadside; in water troughs infrequently used; in chicken pans; in poultry yards; in water cups standing on the frames of grindstones; in accumulations of water in garden furrows, or in fields; on moist, mossy, and especially clayey soils; on any tree, in crotch, hollow, or pocket; in footprints of animals in marshy lands or along the road; in irrigation ditches and excavations; in drains and gutters choked with grass or weeds; on defective roofs and in eave gutters; in old boats along the water fronts; in the hollows of rocks; in the beds of old canals; wherever there is green scum in the backwaters even of rapid streams; in pools by the side of open streams; in earthenware vessels; in water barrels and in tubs; in cesspools or disused wells; in beer or soda water bottles, broken or otherwise; in the water tank of an acetylene gas machine; on fragments of broken

glass put on the tops of walls to keep cats and small boys away from the premises; in the water pitchers of unused guest rooms; in vases in which the water has not been frequently changed; in discarded tin cans on the dumps or in back yards; in the old oaken bucket; in fire buckets; in refuse thrown on the dump heap; in water under old stones; in collections of moist, decayed leaves; in sewer catch basins; in mud pools of vacant lots; in shallow ponds with dirty edges. A large brood may be hatched in a puddle that may evaporate within a fortnight. Eggs or wrigglers may lie dormant in moist earth, to develop into mosquito-hood when a shower renews the water—this fact may in a measure account for the sudden appearance of swarms of mosquitoes after a heavy and prolonged rainfall. Depressions that hold water temporarily may go unnoticed in the surrounding high grass. A single female anopheline—the malaria transmitting mosquito—may during a single night deposit several hundred eggs, massed, and floating raftlike, in a tiny puddle. The little rainwater pools on the rocks by the seashore must not be forgotten.

Drinking places for chickens should be emptied daily, old unused wells should be filled in; cesspools should be dosed at least weekly with coal oil. The water of fountains should be frequently renewed. It would be well to introduce gold fish, minnows, sticklebacks, sunfish, "millions," or other fish which find wrigglers delicious tidbits. Water barrels and roof tanks must be screened. There are metal, knapsacklike sprinklers from which coal oil can be projected many yards; these are carried on the back. An ordinary garden sprinkling pot may be used.

Since mosquitoes breed only in standing and quiescent water, to eliminate them we must find, drain, and spray with coal oil all the possible mosquito haunts. The best kind of oil is crude petroleum or the common fuel oil. One ounce of kerosene (coal oil) will cover fifteen square feet of water surface, and will remain effective for ten days. The wind may blow this oil aside, but it will generally return when the wind changes, and though eggs may have been deposited in the meantime, the return of the oil will kill the new larvæ. In thoroughness lies the whole secret of mosquito elimination and malaria prevention.

#### EXAMINATION OF FEEBLEMINDED IMMIGRANTS.

The examination of feeble-minded immigrants is a question of vital interest to the medical officers at our ports of entry. Many systems have been developed to carry out these investigations, and naturally

the physicians in charge have considered this matter very carefully. The JOURNAL has published several original articles dealing with this subject. In one of these the point was well brought out that the Binet-Simon test, for example, is well adapted for certain localities in France, say Paris, while it would be wrong to adapt it to a certain locality in Italy, say one of the poorer districts of Sicily. Along these lines, a similar test has been exploited for American school children. But to adopt this or similar tests for the immigrant would be unfair. Let us take for example an illiterate Polish farm hand, forty years of age, who never served in the army, who never left his village, but through industry, his knowledge as a farm hand, and by stinting himself of everything that was not absolutely necessary to life, was able to save enough money to emigrate to the land of hopes and have a small balance to start life over again. To ask such a man to repeat four, five, six, or seven digits is an absolutely unjust test, for never in his life had he had to do with numbers consisting of more than two or three figures, and still we are sure he would be a very desirable citizen. This man should be asked questions which deal with his daily life routine. questions which would be easy for him to answer would be difficult for his examiner, who, being city bred, would be unfamiliar with anything about farm life. We believe that the examination of mental ability should be adapted to the previous environments and trade of the adult immigrant, and not based upon theoretical pedagogic questions which could readily be answered by the average school boy, but seldom or not at all by a professor of Sanskrit.

#### REFLEX CONTRACTIONS OF THE LARGE INTESTINE AND REFLEXOTHERAPY.

H. Lebon and P. Aubourg, in the *Presse médicale* of August 23, 1913, stated that they had ascertained, upon administering castor oil, then a bismuth suspension, and finally examining the subject with the x rays, that electrical stimulation of the right pneumogastric nerve in the neck caused contractions of the ascending colon, sufficiently marked to be plainly visible on the screen at each excitation of the nerve. Similar stimulation of the crural or sciatic nerves produced little or no change in the colon. Upon applying one electrode to the right pneumogastric and introducing the other into the stomach as a sound, spasm of the ascending colon occurred. Vigorous percussion of the seventh cervical spinous process was found to cause the cecum to rise and the ascending colon to become broader; such effects were observed in all persons examined except one—a woman with marked enterospasm and constipation. Percussion of the dorsal spines had no effect on the colon until the lowest ones were reached; percussion of these, or of the lumbar spines, brought



about contractions of the colon in all its divisions. The authors believe that percussion of the lowest dorsal and lumbar spines, or vibratory massage of this region, may be of service in the treatment of constipation, whether due to muscular weakness, insufficiency of intestinal reflexes, inhibition of the bowel contractions, or enterospasm.

### SELF INFLICTED ERUPTIONS.

Harvey P. Towle, in an editorial in *The Journal of Cutaneous Diseases*, September, 1913, dwells upon the unsettled state of dermatological opinion in regard to the cause of ulcerative eruptions in hysteria. Etiologically the cases may be divided into two groups. In the first group may be placed those ulcerative lesions of hysteria, based on the proved fact of self infliction. The second group contains all other cases, but the etiological theories are so numerous and discordant and split this group into so many small divisions that its right to a separate classification is very doubtful. Clinically the cases of the first and second groups do not differ, but from an etiological viewpoint they differ. The cases of the first and second group both occur in hysteria. The author feels that when one regards hysteria more as a psychic disease than a physical ailment, that the causative factor of these hysterical ulcerative skin lesions will become more evident.

### News Items.

**Philadelphia County Medical Society.**—A special meeting of this society will be held in the College of Physicians building, on Wednesday evening, November 12th, to take action on the question of amending the charter of the society.

**Plague in Russia.**—According to press despatches plague has broken out in a suburb of Novo-Tcherkask, capital of the territory of the Don Cossacks. Eleven deaths have occurred, and the town is placed under military quarantine.

**Professor Shrader Finds Another Radium Spring.**—It is reported that Professor J. H. Shrader, of Williams College, who discovered a spring supposed to contain deposits of radium near Williamstown, Mass., has found another spring of the same kind. The practicability of driving shafts and mining the radium is under consideration.

**Medical Society of Hudson County, N. J.**—Dr. E. T. Steadman, of Hoboken, was elected president of this society, at its annual meeting held recently in Jersey City, to succeed Dr. Wallace B. Pyle, of Jersey City. Other officers elected were: Dr. Henry J. Bogardus, vice-president; Dr. Charles H. Finke, secretary; Dr. Henry H. Brinkerhoff, treasurer, and Dr. William Friele, reporter.

**Harvey Society Lectures.**—Dr. Charles V. Chapin, of the Health Department of Providence, R. I., will deliver the third lecture in the series on the evening of Saturday, November 1st, his subject being the Air as a Vehicle of Infection. The fourth lecture will be given on Saturday, November 20th, by Professor G. H. Parker, of Harvard University, on the Nervous System; Its Origin and Evolution.

**A Whooping Cough Camp.**—The trustees of St. John's Guild have decided to start a whooping cough camp on the floating hospital Helen C. Juilliard. It will be operated in cooperation with the Department of Health, and will be in charge of Dr. John L. Baker, who has established several dispensaries and camps for the treatment of this disease. The plan will not interfere with the summer work of the floating hospital, as the boat will be used as a whooping cough camp only in the winter season. A feature of the work will be the instruction of mothers in the care of their children at home.

**Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.**—Monday, October 27th, Section in General Medicine of the College of Physicians, and the North Branch of the Philadelphia County Medical Society. Tuesday, October 28th, Medical Legal Society and the West Philadelphia Medical Association; Thursday, October 30th, Germantown Branch of the Philadelphia County Medical Society.

**An Epidemic of Scarlet Fever in Maryland.**—It is reported that an epidemic of scarlet fever exists in Cecil County, Maryland. The disease is scattered over a large territory, and it is said that the situation is somewhat alarming. Dr. Fulton S. Cutting, president of the State Board of Health, has taken charge of the matter, and the most drastic measures will be adopted to stamp out the epidemic. All schools and churches in the affected districts have been closed, and the most rigid quarantine is being enforced.

**Medical Society of the County of Wyoming, N. Y.**—The following officers were elected at the annual meeting of this association, held in Warsaw on Tuesday afternoon, October 14th: President, Dr. W. J. French, of Pike; vice-president, Dr. W. R. Thompson, of Warsaw, reelected; secretary and treasurer, Dr. L. H. Humphrey, of Silver Springs. The next meeting of the society will be held in Castile in January. The principal features of the programme were papers by Dr. Roswell Park and Dr. De Witt Sherman, of Buffalo.

**Obstetrical and Gynecological Society of Washington, D. C.**—At the annual meeting of this society, held on Friday, October 10th, the following officers were elected: President, Dr. J. F. Moran; vice-presidents, Dr. G. Brown Miller and Dr. Prentiss Willson; secretary, Dr. Truman Abbe; treasurer, Dr. D. W. Prentiss; business committee, Dr. G. Tully Vaughan, Dr. A. R. Shands, and Dr. Truman Abbe; admissions committee, Dr. Thomas F. Lowe, Dr. H. W. Lawson, and Dr. Karl Corley; publication committee, Dr. Truman Abbe, Dr. D. W. Prentiss, and Dr. E. A. Balloch.

**Medical Society of the County of Madison, N. Y.**—This society met in annual session on Tuesday afternoon, October 14th, in Oneida, N. Y., and elected the following officers to serve for the ensuing year: President, Dr. William T. Tanner, of Oneida; vice-president, Dr. A. K. Thomas, of West Eaton; treasurer, Dr. C. H. Perry, of Oneida; secretary, Dr. George W. Miles, of Oneida; censors, Dr. William Taylor, of Canastota, and Dr. C. H. Perry, Dr. George W. Miles was chosen delegate to the annual meeting of the State society. The semiannual meeting of the association will be held in Canastota in May.

**Ether Day at the Massachusetts General Hospital.**—Dr. Milton J. Rosenau, professor of preventive medicine and hygiene at the Harvard Medical School, was the principal speaker at the Ether Day exercises at the Massachusetts General Hospital, Boston, on Thursday, October 16th, his subject being the prevention of disease. At the banquet which was held at the close of the exercises addresses were made by President Lowell, of Harvard University, Dr. Richard C. Cabot, Dr. F. A. Washburn, Jr., and Dr. John G. Blake. Dr. Abner Post was elected president of the alumni; Dr. F. B. Harrington, Dr. Francis S. Watson, and Dr. S. J. Mixer, were elected vice-presidents, and Dr. C. B. Hollings, secretary-treasurer.

**Personal.**—Dr. Carl Voegtlin, associate professor of pharmacology at Johns Hopkins University, has been appointed professor of pharmacology in the Hygienic Laboratory of the United States Public Health Service, Washington, D. C., to succeed Professor Reid Hunt, who recently resigned to become head of the department of pharmacology at Harvard University.

Dr. Christian R. Holmes has been elected dean of the medical college of the University of Cincinnati by a unanimous vote of the board of trustees of the institution. Doctor Holmes succeeds Dr. Paul G. Woolley, who resigned last spring.

Dr. Downey L. Harris has tendered his resignation as director of the St. Louis City Laboratory of Pathology and Bacteriology to accept the chair of hygiene and preventive medicine in the St. Louis University Medical School. His resignation becomes effective on November 1st.

Dr. Joseph Moore, of the Manhattan State Hospital, Ward's Island, has been appointed first assistant physician at the Matteawan State Hospital.

**The Thurber Medical Society.**—The sixtieth anniversary of the organization of this society was celebrated at the regular annual meeting held in Milford, Mass., on Thursday, October 9th. Dr. Charles H. Randall, of Woonsocket, R. I., delivered the annual oration, his subject being Yesterday, To-day, and To-morrow. Dr. William L. Johnson, of Uxbridge, acted as toastmaster at the banquet, and among those who responded to toasts were Dr. W. P. Bowers, of Clinton, Mass.; Dr. Homer Gage, of Worcester, Dr. Alfred Worcester, of Waltham, and Dr. John M. French, of Milford. At the business meeting which preceded the oration and the banquet the following officers were elected: Dr. John V. Gallagher, of Milford, president; Dr. George L. Wallace, of Wrentham, vice-president; Dr. A. J. Gallison, of Franklin, secretary; Dr. J. W. Ledbury, of Uxbridge, treasurer; Dr. John M. French, of Milford, librarian; Dr. J. M. Gallison, of Boston, orator for 1914; Dr. George L. Wallace, alternate.

**Woman Scientist to Engage in Research Work in Radioactivity at Yale University.**—Miss Ellen Gleditsch, for five years a collaborator and associate of Mme. Curie in Paris while Mme. Curie was investigating radioactivity, has come to this country for the purpose of conducting experiments in radioactivity at Yale University. Miss Gleditsch is a Norwegian investigator in physical chemistry and was designated by the Government Commission of Sweden as one of the six Fellows sent to this country for advanced research work in American universities under the auspices of the American-Scandinavian Foundation, which foundation consists of a self-perpetuating Board of Trustees, incorporated in 1911, to hold in trust an endowment of \$600,000 created by the late Niels Poulsen, of Brooklyn. Its purpose is to cultivate closer intellectual relations between the United States and the Scandinavian countries. It carries with it six fellowships, the holders of which are designated by Government Commissions in Norway and Sweden, and Miss Gleditsch is the first woman ever to receive an appointment to one of these fellowships.

**Vermont State Medical Society.**—The one hundredth annual meeting of this society, which was held in Burlington on Wednesday, Thursday, and Friday, October 8th, 9th, and 10th, was one of the most successful ever held by the organization. The registration was nearly double that of other years, and the programme more elaborate. The proceedings were brought to a close by a banquet, nearly one hundred guests being present. Dr. Walter L. Havens, of Chester, acted as toastmaster, and among those who responded to toasts were Dr. Alexander R. Craig, of Chicago; Dr. C. S. Caverly, of Rutland; Dr. W. Gilman Thompson, of New York; Doctor Marcy, of Montreal; Doctor Rochambeau, of Washington, D. C., and Dr. W. N. Bryant, of Ludlow. Officers for the ensuing year were elected as follows: President, Dr. A. L. Miner, of Bellows Falls; vice-president, Dr. Grace Sherwood, of St. Albans; secretary, Dr. J. M. Hamilton, of Rutland; treasurer, Dr. Charles F. Dalton, of Burlington; auditor, Dr. C. F. Ball, of Rutland, and anniversary chairman, Dr. C. A. Cramton, of St. Johnsbury. Dr. C. H. Beecher, who had been the secretary of the society for six years, declined to accept the office again, and was elected delegate to the annual meeting of the American Medical Association.

**Delaware State Medical Society.**—At the annual meeting of this association, held last week in Dover, the following officers were elected to serve for the ensuing year: President, Dr. William P. Orr, of Lewes; vice-presidents, Dr. T. P. Davis, of Newcastle, and Dr. William Marshall, of Milford; secretary, Dr. G. W. K. Forrest, of Wilmington; treasurer, Dr. S. C. Rumford, of Wilmington; councillor, Dr. J. H. Wilson, of Dover; delegate to the American Medical Association, Dr. H. W. Briggs, of Wilmington; trustee of the medical journal, Dr. George W. Marshall; names to be submitted to the governor as medical examiners, Dr. H. W. Briggs, Dr. John Ball, Dr. George W. Marshall, Dr. Rowland C. Paynter, Dr. Robert Ellegood, Dr. W. H. Kraemer, Dr. P. S. Downes, Dr. E. S. Dwight, Dr. James Beebe, and Dr. J. W. Bastian; committees, scientific work, Dr. A. Robin and Dr. G. I. McKelway; public policy and legislation, Dr. P. W. Tomlinson, Dr. G. W. Marshall, and Dr. J. H. Hammond; medical education, Dr. E. S. Dwight; necrology, Dr. J. P. Lofland, Dr. Walter Ellis, and Dr. W. T. Jones.

## Pith of Progressive Literature.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

September 1, 1913.

**Additional Contribution to the Question of Rickets; Phosphorous and Codliver Oil.**—Max Kassowitz states that the calcium balance experiments cannot clear up the processes taking place in the bony skeleton, since even in the healthy child the calcium varies greatly, due in all probability to changes in the intestinal tract. For therapeutic purposes in rickets phosphorus is the ideal remedy, and it is immaterial in what form it is administered. Codliver oil is, from a practical standpoint, beneficial.

**The Treatment of Cancer with Mesothorium and Its Combination with Other Methods of Treatment.**—A. Pinkuss says that the local action of the Röntgen rays, radium, or mesothorium upon cancer can destroy it to a certain depth, but one must guard against the idea that the sole treatment with the rays furnishes a sure method for the removal of cancer. The difficulty of making mesothorium and the expense of it when obtained prohibit its general use; the technic of its application is by no means fully developed and, furthermore, it is doubtful whether the mesothorium emanations can prevent the development of metastases even though the rays seem to have cured the original lesion. The combining of the emanations with the injection of thorium x and solutions of the same substance with the internal administration of pancreatin preparations, etc., can give positive cures. The old rule still holds good, however, namely, that every operable carcinoma whose risks of removal are not too great should be operated on because removal by operation at the present time is still the safest and surest way of exterminating malignant tumors.

**Metamorphoses of Primary Skin Efflorescences.**—K. Herxheimer noticed in a great number of cases how primary blebs and pustules in syphilis, Dühring's disease, herpes progenitalis, labialis, and perianalis, varicella, eczema, urticaria recidiva (strophulus infantum), and simple pyoderma underwent change into lichenoid papules; evidently an expression on the part of the organism to transmute an acute inflammation, which would not subside rapidly into a more chronic process.

**The Value of the Cyanide of Gold and Potassium in the Treatment of Lupus Vulgaris and Erythematodes.**—The results obtained from the use of the cyanide of gold and potassium combined with tuberculin in the treatment of lupus are not entirely satisfactory, but admit of improvement. On the other hand good scar tissue was obtained with gold, tuberculin, and pyrogallus.

**Increased Mortality of Infants in Spring.**—H. Liefmann observes that the increased mortality during the warm days of spring is not due so much to the spoiled milk as to the direct injury of the infants by the heat, boys being more susceptible to it than girls.

**Advantages of Pituglandol in Obstetrical Practice of the General Practitioner.**—H. Bosse recommends the injection of pituglandol (Roche),

one c. c. of the ten per cent. extract. It is an excellent oxytocic for the stage of expulsion. Its prophylactic injection is particularly to be recommended in all operative procedures terminating labor to prevent atony of the uterus.

**Noviform.**—O. Fresse finds that in rhinology and laryngology noviform in powder or on gauze is used with satisfaction for postoperative treatment or for inflammatory or ulcerative processes. Its action is antiseptic and astringent; its deodorizing property is not sufficiently strong to overcome the fetor in pronounced ozena.

**Embarin.**—M. Salomonski remarks that the rising popularity of which mercury is beginning to enjoy when its results are compared with those of salvarsan brings the other mercurial preparations into prominence again. Embarin is a mercurial preparation, soluble in water, and is injected daily for about twenty days. That the results are good are demonstrated by the fact that the Wassermann reaction becomes negative. Secondary action on the kidneys is not to be feared. Some patients react vigorously and with alarming symptoms after the injection, and since toleration is not produced its discontinuance in such cases is to be advised.

September 11, 1913.

**Abderhalden's Dialysis in Tuberculosis of the Lungs.**—A. E. Lampé found that the serum of those mildly tuberculous, and also of some patients who did not appear to be tuberculous clinically, reduced as a rule only the proteid of the tubercle bacilli; the serum of advanced tuberculous patients reduced only lung tissue both tuberculous and normal. These findings are explained by supposing that in the early stage of the disease the protecting ferments of the organism at first acted on the proteid of the tubercle bacilli in the blood.

**Nature of the Thymus Gland According to Experiments on the Possibility of Regeneration in Mammals.**—Francesco Fulci avers that while marked individual differences occur in the size of the thymus no influence seems to be exerted by sex or age, in animals under examination, namely, rabbits, dogs, cats, rats, chickens, etc. The thymus possesses a decided capability of regeneration after partial extirpation. The histology shows four stages, epithelial stage, stage of the "reversed thymus," lymphoid stage, and, lastly, the stage of the normally formed thymus. The stimulative effects produced by the extirpation of the sexual organs on the regeneration could not be proved. The thymus is an epithelial organ with a richly vascular connective tissue stroma.

**The Relation of Experimentally Produced Syphilis of Animals to Lues in Man.**—A. Busche reports that a man who had always enjoyed good health was accidentally pricked by a needle used on the testicle of a syphilitic rabbit and acquired pronounced syphilis. It is thus for the first time proved that syphilis of the rabbit is identical with syphilis in man. The virus does not become attenuated for man by repeated passage through animals. Therefore Metschnikoff's expectation of producing antiluetic vaccine for man by passage through animals is groundless.

**Internal Treatment of Basedow's Disease.**—W. H. Becker insists upon the necessity of the in-

ternist presenting the statistics of a large number of cases with Basedow's disease. His report of sixty-one cases treated internally since the year 1890 cannot be placed against the vast material gathered by the surgeons. Since there are certain objections to the operative treatment the author takes the standpoint of the golden mean.

**Experiments and Therapeutic Experiences with Diathermy.**—H. Dreesen asserts that comparative investigations with poultices, stangerothemy, thermophor, and diathermy have shown the superiority of the latter; only by its means is it possible in a short space of time to produce in the inner parts of the body a high grade of heat without effects upon the skin. The details of the technique must of course be well known. How far the therapeutic efficacy of diathermy will go it is for future detailed experiments to determine.

September 18, 1913.

**Pathogenesis and Therapy of Paroxysmal Tachycardia.**—R. Kaufmann and H. Popper describe a case which showed clinically attacks of paroxysmal tachycardia with changing arrhythmia and where the cardiophymograph revealed that the attacks commenced at Tawara's nodes and that the arrhythmia was condition by a change in the starting points of the heart's contractions and also by varying degrees of sinoauricular block. The attacks disappeared upon the administration of large doses of physostigmine combined with strophanthus. The heart's mechanism then changed to arrhythmia perpetua. The administration of atropine produced in time pulse which was regular and of normal frequency.

**Clinical and Experimental Investigations of Hypophysin.**—J. Senge finds that hypophysin is a good remedy for overcoming primary and secondary inertia and for controlling hemorrhage after birth. Induction of labor at term cannot be produced by hypophysin; nor is it possible to induce abortion by its aid.

September 25, 1913.

**The Present Status of Organic Transplantation.**—R. Stich says that to-day the homotransplantation of the larger organs by means of arterial suture is as impracticable as heterotransplantation. In his critical bird's eye view of this whole subject as at present successfully practised on animals, he of course refers to the work of Carrel and others. The kidneys, adrenals, thyroids, parathyroids, ovaries, spleen, heart, lungs, intestines, and other parts of the body come in for their share of discussion. Before success is possible the biological difference between the recipient and the donor will have to be reduced to zero. This to-day is impossible with animals of different species. Even in animals of the same species the results are in their infancy.

**Treatment of Acute Bronchitis, Bronchiolitis, and Bronchopneumonia in Infants and Young Children, Particularly with Hot Baths.**—Arneith reviews the subject of hydrotherapy in these conditions. For some time past he has placed these patients in hot baths. The water is raised to 41° C., the child being immersed every three hours up to five baths daily. The arrangements in the clinic for facilitating this work are of the simplest. When



the temperature of the child does not exceed 39° C. the bath is given for ten minutes, three times daily. The water is kept at an even temperature by the addition of more hot water. The rationale of this treatment consists in the fact that the peripheral bloodvessels are dilated by heat and this draws the internal heat of the body to the surface. The author found in many carefully taken records that the rectal temperature of 41° C. decreased a few degrees after the bath, the greatest fall occurring from one to one half hour after the bath. Therefore the theory of congestion of the internal organs by hot baths is not supported by these findings. The author is not prepared to state whether the hot bath exerts an inhibitory influence upon the central heat mechanism. Bronchitis and bronchopneumonia in infants and young children are especially benefited by the application of these hot baths. They are specific in these cases. They reduce the fever, stimulate expectoration, deepen the respirations, thus preventing atelectasis, have a sedative and soporific effect and directly stimulate the excretory glands of the skin. Since these hot baths have been in use uniform recovery has been the rule from these conditions. The course of the disease is also markedly shortened. Many charts in this article give the details of this treatment.

**New Addition from the Realm of the Diagnostic Examination of the Blood and Cerebrospinal Fluid in Diseases of the Central Nervous System.**—Victor Kafka recommends considering the whole blood picture in making diagnostic use of the blood and fluid reactions which yield characteristic findings. The presence of fibrinoglobulin, found by saturating the liquor by the addition of twenty-eight per cent. of ammonium sulphate, is of particular significance in many cases. Fibrinogen and fibrinoglobulin are only found in certain pathological conditions, while fibrin ferment was present in all cases examined.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

September 30, 1913.

**Experimental Hyperglycemia by Intravenous Injection of Sugar.**—S. J. Thannhauser and Helene Pfitzer found that in all patients the injection of grape sugar was borne without discomfort. Only in two was there a slight temperature elevation. Twenty grains of grape sugar were injected. One quarter of an hour after the injection, one grain of sugar was recovered from the urine. The excretion of sugar did not increase in proportion to the amount injected. By injecting 500 c. c. of seven per cent. grape sugar, the sugar content of the blood is normal after a quarter of an hour. In hepatic diseases the hyperglycemia continues for hours after the injection without any evidence of glycosuria. In chronic nephritis there is an acute rise, and a decrease within a quarter of an hour to only a slight glycosuria. In severe diabetes mellitus the entire injection of grape sugar is excreted. In light cases only moderate portions are excreted in the urine. In severe cases the sugar curve charted was not steep, but long and flat. In light cases it resembles the normal.

**Diastase Content of Feces.**—H. Rotky explains the technic of his experiments as follows: For estimating the diastase in feces by quantitative

comparisons, the author uses the Wohlgemuth method. Graduated quantities of the ferment solution are placed in reagent glasses, adding one per cent. of soluble starch solution, and kept at an even temperature for a definite time. After the digestion is complete the tubes are filled with water and one drop of  $\frac{1}{10}$  iodine solution is added.

From the appearance of a blue line, the presence of undigested starch is recognized. The amount of ferment in the tubes serves to gauge the diastatic strength. This method used for testing saliva and blood serum by Wohlgemuth is also used for feces. The author finds that in the feces the activity of diastase depends upon the concentration of salt. To ascertain the value of diastase in the feces, one should begin with dialyzed material. By using a suspension of powdered feces we find that the diastatic ferment in different diseases does not have a wide range. It will be necessary to express the results as above and below the normal value to be able to diagnosticate from these examinations.

**Tests on the Function of Ovarian Activity.**—R. Keller refers to experiments which prove that ovarian secretion exerted an inhibitory and partially promotive effect on the sympathetic and independent nerve fibres. This fact is supposed to explain their action on other organs. Generally, ovarian secretion has an inhibitory effect on the chromaffin system and an accelerating effect on the secretion of the adrenals, and thereby causes an increase in the sugar output. Contrariwise, a gland having a stimulating action on the chromaffin and the sympathetic would retard action of the adrenals. After castration the glycosuric action of the adrenal secretion was markedly increased. The absence of the generative gland has a stimulating effect on the general system. The frequent symptoms, as heightened blood pressure, heat flashes, dizziness, headache, etc., of the climacteric, taking place after ovarian activity has ceased, are explained by an increased function of the chromaffin system.

ZENTRALBLATT FÜR GYNÄKOLOGIE.

September, 1913.

**Primary Carcinoma of the Fallopian Tube.**—Fonyó calls attention to the fact that carcinoma of the tube is not as rare as is generally thought. He believes that, in many instances where the tube has been removed on account of inflammatory conditions, careful examination would show the presence of malignant changes. Several instances are mentioned in which carcinoma appeared in the operation wound some months later. The author reports two cases and then reviews in some detail the literature bearing upon the subject.

**Changes in the Ovary Due to Repeated Injections of Epinephrin.**—Varaldo states that numerous experiments have shown that there is a functional relationship between the ovaries and adrenals. That when the ovary is removed there is an increased activity of the adrenal with hypertrophy of that organ. Varaldo wished to find out whether ovarian changes could be induced by injecting epinephrin subcutaneously. For this purpose he experimented with rabbits and came to the following conclusions. That during pregnancy the re-

sistance of the rabbit against epinephrin poisoning was increased, but was diminished by castration. Examination of the ovaries showed a visible decrease in size following repeated injections of epinephrin. Prolonged epinephrin poisoning brought about degenerative changes in the ovary, as a result of which the specific glandular structures were replaced by an overgrowth of connective tissue.

**The Treatment of Puerperal Sepsis by Intravenous Injections of Distilled Water.**—Ilkewitsch first employed injections of 500 c. c. of a 0.01 per cent. silver nitrate solution in distilled water, according to the method advocated by Hume, and obtained very favorable results. Thinking that the nitrate of silver might have nothing to do with the treatment, he employed dilutions as high as one in 30,000, and found that identical results occurred. Since then he has employed the distilled water alone. After the injection of the distilled water, he finds that the blood may show any one of the following conditions: The number of red and white cells increases without any change in the hemoglobin. The number of white cells may increase with a decrease of red cells and hemoglobin, or there may be a decrease in all three factors. Clinically, Ilkewitsch finds that the patients in whom the red cells increase usually recover, while those in whom they decrease generally die. About an hour or an hour and a half after the injection has been given there occurs quite a marked chill, with a rise in temperature. By evening or the next morning the temperature will have fallen to the normal. With the fall in temperature, sweating usually begins. Sometimes there is no chill or fall in temperature. The author has used this method 206 times in the past eighteen months with favorable results.

**The Prevention of Puerperal Sepsis Due to Spontaneous Infection.**—As lactic acid occurs normally in the vaginal canal, Zweifel makes use of this substance as a cleansing material. By the use of a 0.05 per cent. solution of lactic acid and thoroughly cleansing the vagina for at least ten days, he finds that women with pathological vaginal secretions show no greater tendency to infection than those who are normal. It also seems that as a result of this treatment the pathological bacteria dwindle, while the bacteria normally present increase. In the course of three and a half years the morbidity in those with abnormal secretions diminished from 28.6 per cent. to 7.6 per cent.

#### LYON MÉDICAL.

September 14, 1913.

**Pseudoreduplication of the Second Heart Sound Simulating Mitral Reduplication.**—L. Gallavardin calls attention to the fact that the traction exerted by the heart on certain pleural or pleuro-pericardial adhesions, at each systole, may give rise to an adventitious sound, which, arising between the two normal heart sounds—generally closer to the second than the first—may simulate a reduplication of the second sound. This adventitious sound can be distinguished from a mitral reduplication in that its seat of maximal intensity is almost always in the region of the apex; that it is the first part of the double sound which appears to the auscultator as

the added portion, whereas in mitral reduplication it is the second; that the added sound is superficial and very distinct; that its timbre is almost always harsh, vibrating, and at times rasplike; that sometimes it is loud enough to be transmitted at a distance; that the time of the adventitious sound varies in its relation to the first and second sounds, and finally, that a cardiopulmonary murmur may be tacked on to it, either spontaneously or upon exerting pressure with the stethoscope.

#### PARIS MÉDICAL

September 20, 1913.

**Clinical Rhinometry.**—R. Moreaux describes a simplified procedure for ascertaining and recording accurately the permeability of the nasal passages, e. g., before and after cauterization of the turbinates in hypertrophic rhinitis, removal of nasal mucous polyps, adenoiditis, ozena treated with paraffin injections, etc. The apparatus used consists of a nickeled copper plate upon which have been engraved two sets of radiating and other sets of parallel lines, with the distances marked along the former at regular intervals. This mirror is first lightly rubbed with chamois skin, then placed horizontally under the patient's nostrils, with the point from which the lines radiate in the median line. The patient takes five ordinary full breaths, the moisture from the expired air condensing upon the plate in an area the size of which depends upon the freedom with which nasal respiration occurs, i. e., upon the permeability of the air passages. One minute after the patient's last expiration upon the plate the margins of the moist area are outlined with ink or chalk. The extent of the area is readily recorded by noting the figures on the radiating lines, or it can be reproduced on diagrammatic sheets printed for the purpose. Curves showing the changes in nasal permeability at different times can also be constructed.

#### PRESSE MÉDICALE.

September 2, 1913.

**Disorders of the Sympathetic System.**—Lai-guel-Lavastine terms "sympathoses" conditions characterized by groups of symptoms due to functional disturbances of the sympathetic. Sympathetic disorders, he points out, constitute a borderline subject which overlaps on the pathology of the splanchnic organs, neurology and psychiatry. He divides sympathoses into localized and diffuse, the former being either cervical or thoracoabdominal, while the latter are subdivided into the single (univocal) forms, affecting, e. g., the sensory, circulatory, involuntary motor, secretory or trophic functions, and the complex, consisting of a combination of one or more single disturbances. Among the complex sympathoses may be classified the solar neurasthenia described by Triantaphyllides, Grasset's vagosympathetic psychoneurosis or psychosplanchnic neuropathy, and the condition described by Galdi as celiac neurosis premonitory to general neurosis of the sympathetic.

September 24, 1913.

**Emetine in the Treatment of Hemoptysis.**—C. Flandin reports further experience in treating hemoptysis by injecting subcutaneously in the flank or thigh 0.04 gramme of emetine hydrochloride in one

cubic centimeter of sterile water. In about twenty cases in which this measure was used, hemoptysis was regularly arrested, even where copious hemorrhage had been taking place but a short time before. The injection causes temporary pain only in the most sensitive individuals, and its action is not accompanied by any unpleasant side effect. The manner in which the arrest of hemorrhage occurs is quite obscure. It is not due to a lowering of blood pressure, for the author's sphygmomanometric measurements showed the pressure to remain the same; nor could he detect any effect on the coagulability of the blood or the number of red cells, leucocytes, and platelets. Since in severe cases hemoptysis recurs some time after the injection of emetine, the author now repeats the drug twelve hours after the first injection, again the next day, and if necessary on the fourth and fifth days. In but a single case, one of rapidly progressing acute tuberculosis, was permanent arrest of hemoptysis not obtained with emetine.

#### BRITISH MEDICAL JOURNAL.

October 4, 1913.

**Report on Two Hundred Cases of Ringworm Treated with X Rays.**—F. Emrys-Jones considers this the best and much the quickest method of treating this disease, particularly when the disease is well established and extensive. He uses the single dose method; that is, but one exposure is given to any portion of the infected area unless, for some reason the first exposure has been incomplete. Nervousness and the patient's inability to keep still, lack of perfectly suitable tubes, and inexact centering of the tube in the holder are the commonest reasons for having to give a second dose. He has never had an x ray burn, although ninety-three of the cases were infected over the entire scalp. He uses a twelve inch coil equipped with a dipper brake and tachimeter for regulating the number of interruptions. An automatic cut-out switch is used in circuit with this, so that a definite number of interruptions can be given with no danger of accidentally giving an overdose. A Sabouraud pastille is used for the application.

**Nondiabetic Glycosuria.**—A. E. Garrod says that, as yet, there is no adequate definition of diabetes and that, therefore, no sharp line can be drawn between diabetic and nondiabetic glycosuria. He, therefore, adopts a classification based upon clinical data for his discussion. The first type of nondiabetic glycosuria is that prematurely termed renal glycosuria. In this there is an excretion of a small daily amount of glucose in the urine, but there is no hyperglycemia; in fact there may be a reduction in the sugar in the blood below the normal percentage. The most striking feature of this condition is the fact that the daily amount of sugar excreted in the urine is very constant and is not affected by an increased carbohydrate intake. The condition suggests the existence of an abnormal renal permeability to sugar, similar to the experimental phloroglucin glycosuria. A second class of nondiabetic glycosuric patients is found among the middle aged, who occasionally pass sugar in their urine. In such patients there is probably an actual reduction in the carbohydrate tolerance, but it is so

slight as to give rise to glycosuria only at those times when the patient has considerably overateen of starches. Such a condition is known to be compatible with many years of life. There are other cases, ones which are true temporary glycosurias, in which the sugar tolerance becomes normal between glycosuric phases. Those cases of temporary glycosuria which are met with in the course of infections such as pneumonia, scarlatina and secondary syphilis, and associated with phlegmonous conditions seem also to belong clinically to the group of nondiabetic glycosurias, though it may be that in such conditions there is some implication of the pancreas. If so, they are of the essential nature of true diabetes. Such is probably the case in mumps, the only infectious disease which is known to involve the pancreas. There seems to be excellent reason to regard the islands of Langerhans as probably the dominant, if not the only, controllers of carbohydrate metabolism. It can scarcely be doubted that the pancreas is subject to minor ailments as are the salivary glands. It is therefore not impossible that such minor lesions may often be the causative factors in the production of the temporary glycosurias. Hyperactivity of both the thyroid and pituitary glands, and possibly of the suprarenals, causes, at times, a nondiabetic glycosuria, due, probably, to a disturbance of the interrelation between these glands and the pancreas. Among other forms of nondiabetic glycosuria may be mentioned those from shock or excitement; disease of the brain; tuberculous meningitis; and many drugs and toxic substances. It is often almost impossible to distinguish between a truly nondiabetic glycosuria and a true diabetes, and a judicious restriction of the diet in any case can do no harm, while, on the other hand, a continued unrestrained diet in such mild states may possibly entail irreparable damage to the patient.

**The Heart as Affected by the Stomach.**—Walter Broadbent directs attention to the close relation which exists between these two organs, both anatomically and through mutual innervation through the vagus. Distension of the stomach by gas or other cause may start a vagus reflex, or the direct upward pressure of the stomach may irritate the heart and give rise to palpitation, extra systoles, or even to pseudoangina pectoris. It may also greatly aggravate an existing tendency to paroxysmal tachycardia, or may even precipitate an attack of true angina. In certain forms of valvular disease, especially when there is considerable dilatation of the right ventricle a rise in the height of the diaphragm due to the distention of the stomach with gas or food may cause serious embarrassment to the circulation. In all such cases attention should be directed to the stomach as well as to the heart, and in some the treatment of the digestive disorder is quite as important as that of the heart itself.

#### LANCET.

October 4, 1913.

**The Work of the Medical Profession in India.**—In this address John P. Hewett illustrates in a striking manner the enormous benefits to mankind that have resulted from animal experimentation.



In the first place the death rate from smallpox was more than three times as great thirty years ago, before the general vaccination of natives, as it is now. It would now be much less had not the English opponents of vaccination worked to make the people of India hostile to the practice which has brought them such great benefit. The results of the inoculation against plague with the prophylactic vaccine of Haffkine have been no less striking. In a single instance in a factory with a roll of between six and seven thousand, 5,036 of the hands were inoculated against plague. In this group there were only nine fatal cases, six of which occurred as the result of an attack within ten days of inoculation. Among the small number of uninoculated there were 118 deaths. The general use of antityphoid inoculation among the British troops has reduced the mortality from more than ten per mille to 0.17 per mille at the present. Animal experiments have yielded excellent results in the matter of reducing the dreadful mortality from the bites of venomous snakes, particularly in the case of the cobra and Russell's viper. The prompt administration of antivenoms will prevent the bites of these two snakes from being fatal. There are several other snakes the bite of which is deadly, and there is need for considerable study to provide the means of combating the effects of their bites. Perhaps nowhere has the prevalence of rabies been so great as in India. Here the recent establishment of a few Pasteur institutes has enormously reduced the mortality from this disease. Hewett remarks that "experience in India, as elsewhere, proves conclusively that operations on animals have afforded untold benefits to the human race. Performed with the utmost care by skilled surgeons, they are rendered almost painless through the use of anesthetics, and are followed by a drug softened death. As instances of cruelty to our dumb friends, how can they possibly be compared to the limitless sufferings imposed on beasts of burden and other animals on whose aid mankind depends in India and many foreign countries?"

**Hemiplegia Following Syphilis.**—Murdoch Mackinnon records four cases in which there developed more or less extensive plegic phenomena as the result of syphilitic lesions in the brain and surrounding membranes. In three of the cases the lesions developed within nine months after the primary infection, in the fourth the interval was about four years between infection and the first cerebral symptoms. The characteristic features of such early cerebral syphilitic phenomena are their great tendency to be multiple, a lesion in one area being followed by a lesion in an entirely different one. In one of the cases there was a hemiplegia on the right side, which cleared up under treatment, only to be followed subsequently by a similar hemiplegia on the left side. The second characteristic of these lesions is the readiness with which they yield to antisymphilitic treatment.

**Acute Epididymoorchitis Due to Bacillus Coli.**—W. P. Bonner's patient "strained" himself by lifting some twenty days before his admission to hospital. The "strain" was accompanied with extreme but transitory pain. Four days later frequency of micturition developed. Two days after

this he began to have pain in the right testicle. There was no history or evidence of his ever having had gonorrhoea. On examination he was found to have an acute epididymitis and orchitis, with tenderness and slight swelling along the cord and vas deferens. The prostate and seminal vesicles were not tender nor enlarged. His urine contained considerable pus. The epididymitis progressed so as to require surgical treatment, though when opened no true pus was found. Cultures made from the urine, prostatic fluid, and the epididymis all showed the bacillus coli. There was marked destruction of the tubules of the epididymis, fragments of which could be seen in the material removed on incision. General and local measures, combined with the administration of coli vaccine, brought about a complete recovery.

**A Neuromatous Myoma of the Mesentery.**—The boy, whose case Peter Paterson here reports, was nine years old and poorly developed both mentally and physically. About five months before, he had been operated upon for the removal of his appendix, which was believed to have been the cause of his acute abdominal symptoms. This organ was not found to be materially diseased. After leaving the hospital he had frequent severe attacks of abdominal pain, accompanied by vomiting and constipation. There was no fever. On examination a smooth, tender mass was felt almost free in the abdomen. This was removed on operation, having been found to lie encapsulated in the mesentery. The child made a good recovery and has since been free from symptoms. The tumor was 6.5 centimetres long by four centimetres in the short diameter. Oval in shape and smooth, it was found to have a soft reddish centre, while the outer part appeared much like a fibroma. Microscopic section from the centre showed it to be composed almost wholly of medullated nerve fibres and a few ganglionic cells. Parts nearer the surface showed the fibres in ill defined bundles, bound together with fibrous tissue, and containing strands of smooth muscle. These latter increased as the capsule was approached, where the tissue was almost wholly muscle.

BOSTON MEDICAL AND SURGICAL JOURNAL.

October 9, 1911.

**The Value of the Röntgen Method in the Study of Chronic Appendicitis and Inflammatory Conditions about the Cecum and Terminal Ileum.**

—Ariel W. George and Isaac Gerber thus summarize their article: In a series of cases which clinically show severe constipation, and more or less indefinite gastric symptoms, examination by the Röntgen ray has shown the causes to be definite surgical conditions in the right lower quadrant. In all of these cases the demonstration of mere ileal stasis or obstruction is not as important as the more positive demonstration of the actual conditions. In chronic appendicitis the kinked and adherent appendix is shown. In case of Lane's kink we can demonstrate the fixed and distended terminal loop of ileum. In cases of Jackson's membrane we can show the effect of the adhesions under the fluoroscope, as well as the presence of a characteristic mechanism of filling. Various adhesions in this

region as the result of the old inflammatory disease or congenital anomaly can also be shown in the same manner. Cecum mobile and left sided appendicitis can be readily demonstrated.

**Our Little Balloons. Some Observations on Gas and Ptosis.**—E. A. Codman says that so far every theory seems based on the idea of the weight of the viscera producing a downward drag, and emphasizes another neglected element—the balloon effect of the gas in the hollow viscera. The x ray shows that we have at least four little abdominal balloons which are constant in all individuals; the stomach, the hepatic flexure, the splenic flexure, and the small intestine. These support the transverse mesocolon upon which rests the stomach. Looking at ptosis from this point of view he suggests several interesting questions. Should we not feed ptotic individuals with gas producing foods, and teach them to endure temporary distress from distention, for the sake of crowding their organs up into place? Should we not urge these poor collapsed individuals to retain the gas which they seem impelled to eruct or expel? What are the effects in the standing patient of inflation of the colon as seen by the x ray? Do different articles of food produce different kinds of intestinal gas? Are different kinds of gas equally agreeable to the intestine? What are the toxic effects of the absorption of different gases? Why is it that some patients who are obviously not distended complain of distress from gas? What are the laws governing the manufacture and absorption of intestinal gas? Do individual coils rise and fall in the abdomen according to the weight of their contents?

**Report of a Few Cases Where Sutures Instead of Packing Have Been Used after Submucous Resection of the Nasal Septum.**—Margaret L. Noyes holds that the advantages of suturing the flaps in this operation instead of the usual method of packing the nose are: 1. The operation does away with the discomfort of nasal packing; 2, allows free breathing through the nose at all times following the operation; 3, results in less trauma to turbinates and thus in a quicker healing and restoration to normal of the functions of the nasal mucous membrane. The only disadvantage she mentions is that five or ten minutes are necessary to place the sutures.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

October 11, 1913.

**Gastroscopy,** by H. H. Janeway.—See this JOURNAL for June 28th, p. 1364.

**Points of Value in the Röntgenoscopy of the Gastrointestinal Tract,** by R. W. Mills.—See this JOURNAL for June 28th, p. 1364.

**Local and Spinal Anesthesia in Gynecology and Obstetrics,** by George Gelhorn.—See this JOURNAL for June 28th, p. 1369.

**Spinal Anesthesia in Gynecology, Obstetrics, and Abdominal Surgery,** by W. W. Babcock.—See this JOURNAL for June 28th, p. 1369.

**One Hundred Cases of Water Trap Stomach,** by G. R. Satterlee and L. T. LeWald.—See this JOURNAL for June 28th, p. 1364.

**Further Points on the Sterility of Women,** by Edward Reynolds.—See this JOURNAL for June 28th, p. 1366.

**The New Immigration as It Affects Orthopedic Surgery.**—Wallace Blanchard says that a larger number of severe rachitis deformities of the legs have been rapidly corrected by bloodless osteoclasis in Chicago than in any half dozen other cities in the world. The records of the free orthopedic hospitals and dispensaries there show that the new immigrant gives them eight times their normal ratio of rachitic deformities, and twice their normal ratio of scoliotic deformities, and twice their normal ratio of tuberculous deformities. The emigrant woman has nearly twice as many children as the American born woman, statistics showing 4.7 against 2.9 per cent. Bad rachitic deformities, tuberculous joints, and scoliosis in the young of these new emigrants mean a large element of helpless pauperism for the future. If the government and the community could be roused to the necessity of caring for the welfare of the immigrant mother for the first year or two in her new home, it would be a great uplift for the future American citizen.

**Functional Test (Phenolsulphonephthalein) of the Kidney in Scarlet Fever.**—M. Fishbein states that the test has now been made on many hundred cases, and in over forty post mortem examinations have confirmed the presence of conditions suggested by the test results. In the cases reported in the paper the dye was injected intramuscularly. The bladder was emptied, and specimens collected after one hour and after two hours. The colorimeter used was that described by Cabot and Young, consisting of a series of twenty tubes, containing five, ten, fifteen, etc., per cent. of the dye. The author's conclusions are as follows: There seems to be a general lowering of the renal function during the later stages of scarlet fever. In nearly all uncomplicated cases examined, from the third to the fifth week a total output averaging fifty-five per cent. was observed, as compared with a normal of from sixty-five to eighty-five per cent. In the instances of acute nephritis an increased output was observed in two, a lowered output in one. In several instances in which headache and nausea occurred, although no albumin was found in the urine, the test showed a decreased function of the kidney. The practical value of the test as aid in the treatment of this disease, in which nephritis is so common a complication, is apparent.

**The Whitman Operation for Talipes Calcaneus Paralyticus.**—J. P. Lord reports that during the past year he has done the Whitman operation twenty times upon eighteen patients, and the immediate results have been so gratifying that he endorses the procedure with enthusiasm. It is his observation that too few surgeons employ this method of radical relief, and he therefore desires to aid in its popularization through the report of the results of his experience. The operation, moreover, has a wider range of application than for calcaneus alone, and may be modified by various tendon transfers to meet special indications. In brief, the Whitman operation consists of, 1, the removal of the astragalus; 2, the freeing of the malleoli and the preparation of a new articulation; 3, the transplantation or resuture of the perineal tendons; 4, the backward displacement of the foot; 5, the fixation of the foot in equinus. In the after-treatment a fixation plaster is kept in position for

about four weeks; then an ambulatory plaster is used for about five months. As to the results, cavus and lateral instability are corrected, the backward displacement checks dorsal flexion by direct contact and by change in leverage, and the power of the transplanted muscles is made more effective. This operation is the only effective procedure for an advanced deformity, and it is also indicated in early cases as a preventive of progressive deformity. The typical or stereotyped operation is not always to be adhered to, because indications vary; especially when the operation is performed to ameliorate conditions other than the one for which the operation was originally devised.

**Results Obtained in the Nonsurgical Treatment of Tuberculosis of the Joints.**—H. W. Orr says that some years ago he began to be impressed with the fact that patients with joint tuberculosis who had previously been operated upon were, in general, much more seriously disabled, and that the active stage of their disease was much more prolonged than even the advanced cases in which surgery had not previously been resorted to. Wishing to compare, in patients operated upon and those not operated upon, the periods of active disease processes and the amounts of resultant deformity, he has recently checked up a series of fifty patients of this character, of whom he had satisfactory records for the purpose. The results of this study show a wide margin of advantage for the patients not operated upon. Operation in adults especially is perhaps most frequently resorted to as a time saving expedient. In the patients studied this proved to be a fallacy, as these patients were disabled much longer than the average of patients conservatively treated. All our experience with bone and joint tuberculosis teaches us that a large proportion of good results may be obtained by conservative treatment when the diagnosis is made early and the treatment carefully carried out. It is unquestionable that careless diagnosis and ignorance on the part of some overenthusiastic surgeons of the admirable results obtainable by efficient mechanical treatment prompt them to do operations which might better have been left undone. The author's own experience has been that equally good results may be obtained even in those patients requiring a minor surgical procedure, even in late cases, when it is combined with careful mechanical treatment and strict surgical aftercare.

#### MEDICAL RECORD.

October 11, 1913.

**The Modern Treatment of Tabes.**—Joseph Collins expresses his belief that tabes is a syphilitic disease in every instance, and discusses the treatment under three headings: Causal therapy, symptomatic therapy, and plan of treatment. Under the first he says that the treatment of tabes is far more satisfactory now than it was before the advent of salvarsan, though salvarsan alone does not seem to bring about the degree of recovery that salvarsan plus mercury does. If neosalvarsan is used instead of salvarsan, the intervals between the administrations should be less. In addition to antisyphilitic treatment, many measures are utilized which are directed, not so much against the cause of the disease or the disease process, as against the inroads

which the disease makes upon the patient's vitality. Among these are electricity (galvanism and the high frequency current), massage, hydiatic measures, cauterization, nerve stretching, diet, climatic consideration, medication, and reeducation of purposeful movements. As to the ineradicable belief in the rank and file of the profession that tabes is a "tertiary" manifestation of syphilis, and that therefore potassium iodide, which is regarded as a "specific" for tertiary manifestations, should be given to tabetics, the author says that those who, like himself, are daily witnesses of the baneful effects of the iodide will continue to protest against its use whenever occasion offers. There are symptoms of tabes which demand mitigation or relief, such as pain and paresthesias, vesical and rectal incompetency, gastric and laryngeal crises, arthropathies and perforating ulcers, hypotonia and ataxia, ocular palsies and insomnia, and to ameliorate them is an important part of the physician's problem. The most important factor of the treatment, next to the administration of the substances which destroy the cause of the disease, but one that is almost uniformly neglected, is the general nutrition of the patient. Possibly of even equal importance with the causal treatment of tabes is the plan of treatment. Nothing does so much injury to the patient or his prospects of recovery as a pessimistic attitude on the part of the physician. In the majority of instances it is advisable for the latter to explain to the patient fully, and in a way that will not alarm him, just what the disease is, that it need not materially shorten his life; that from fifteen to twenty-five years of comparative efficiency may be vouchsafed him, and that, with the disease vigorously combated, a certain degree of functional preservation and restitution may be anticipated. It cannot be expected that every case of tabes will justify such prophecy, but the majority of instances will.

**The Use of Tuberculin in the Diagnosis of Obscure Conditions in the Genitourinary System.**—Edwin Beer emphasizes the importance of this very useful and much neglected aid in the diagnosis of tuberculous conditions in the genitourinary tract. He first refers to the evidence in favor of the influence of the tuberculin reaction, and then cites some illustrative obscure cases of renal, prostatic, and testicular diseases in which tuberculin definitely assisted in making the diagnosis. He also refers to the experience of some others along the same lines, and states that all the more recent evidence goes to show that this drug is not dangerous when carefully used under proper restrictions. In his work he employs imported "old tuberculin," and this is diluted so that five drops are equal to half a milligramme. He by no means recommends the use of tuberculin as a routine procedure in genitourinary disease. On the contrary, he makes it a rule to employ every available means of diagnosis before resorting to it.

**The Paroxysmic Attack of Metatarsal Pain (Morton's Metatarsalgia).**—C. K. Austin regards it as practically certain that this condition is due to the nipping of one of the branches of the external plantar nerve in the fourth intermetatarsal space, owing to spreading of the transverse arch, which allows the second and third metatarsals to sink down. He relates a case and presents a radiograph



of the patient's foot, which shows no lesions. Treatment is either palliative or radical. In the first instance an attempt is made, by the use of tight bandaging or of felt pads or leather insoles so fashioned as to bring pressure upward behind the heads of the second and third metatarsals, to prevent the foot from widening when weight is thrown on it, and the arch from lowering. Radical treatment consists in excision of the fourth metatarsophalangeal joint, with its adjacent soft parts. In the case reported the condition has apparently been quite relieved by a well fitting shoe and a bandage passing several times around the transverse arch.

**A Study of the Bacteriemia in Pneumococcus Infection of the Rabbit.**—G. A. RUECK studied the bacteriemia following intravenous inoculation with the pneumococcus in forty-two rabbits, in series or in sets of from one to six animals, and in summarizing the results of his experiments states that it is evident the course of pneumococcus infections varies greatly even in the rabbit, although equal doses of the same organism are used. The rabbit's tissues, therefore, have some antibacterial properties. Large doses of the pneumococcus cultures or the more virulent pneumococci neutralized these antibacterial substances in the body tissues, and the bacteriemia progressed immediately to fatal issue. The temperature may rise, or it may fall; but this apparently had no effect on the bacteriemia in these animals. Moderate doses of less virulent pneumococci give rise to a longer course of infection, with fluctuating bacteriemia and temperature. These prolonged infections also are often fatal, though occasionally recovery takes place. In the experiments there was no very definite evidence of a retarding influence of an elevated temperature upon the growth of pneumococci in the rabbit. A temperature of from 105° to 106° F., which retards or arrests pneumococcus growth in the test tube, and which may also inhibit growth in the rabbit's tissues, does not necessarily diminish the bacteriemia.

## Proceedings of Societies.

### MEDICAL ASSOCIATION OF THE SOUTHWEST.

*Eighth Annual Meeting, Held at Kansas City,  
Missouri, October 7 and 8, 1913.*

The President, Dr. W. T. WOOTON, of Hot Springs, Arkansas, in the Chair.

**Prophylaxis of Syphilis and Professional Ethics.**—Dr. ALFRED SCHALEK, of Omaha, said that syphilis must be attacked in two directions, in its relation to society and to the individual. Syphilis was contracted directly by sexual contact and indirectly through a virus carrier. Sexual functions were indulged in legitimately in marriage and promiscuously outside of it. Prostitution contributed the greatest factor in spreading infection. It was only a question of time before every prostitute became diseased. The problem how to deal with prostitution was not solved. Official regulation had proved a failure wherever attempted. Abso-

lute suppression was the only relief. While seemingly an Utopian dream, it was feasible with the honest cooperation of everybody concerned. It could not be achieved by the closing of the bawdy houses alone. It necessitated measures to stop all other sources leading to prostitution, such as strict enforcement of the white slavery laws, to be inaccessible to the poor. When the time came that syphilis was looked upon only as a pathological condition, in no way different from others, when its stigma of disrepute had been removed, when our therapy would destroy the microorganisms and eliminate their toxins, and not only secure a symptomatic but a real cure, our ambition to make syphilis a disease of the past would be realized.

Dr. WILLIAM FRICK, of Kansas City, Missouri, who opened the discussion, emphasized the fact that a great many cases of syphilis were innocently contracted. He recalled the case of a young woman in whom a chancre on the upper lip developed. How it occurred was a mystery for some time. It was finally learned that she was having her teeth repaired, but this particular dentist was not clean about his instruments, and during the times of repair of the teeth injury was done to the upper lip, and about the proper length of time a chancre developed. She had a secondary eruption, not knowing what it was. This was one phase of the subject that deserved great stress. He had seen quite a number of such cases.

Dr. J. D. KERNODE, of Boyle, Oklahoma, believed ignorance was at the bottom of the trouble. There was not a boy or girl who did not know right from wrong, but they did not know the tremendous consequences following a wrong. They needed education along these lines.

Dr. E. H. MARTIN, of Hot Springs, Arkansas, said if every house of prostitution was raided and the inmates all treated regardless of symptoms, there would be less danger than now. If we admitted we could cure syphilis, we would admit that the best method was prophylaxis. He stood almost alone in believing from observation and practical experience that salvarsan would cure syphilis. He had had more than fourteen cases of reinfection after having treated cases with salvarsan. He had one patient who had had three primary lesions in eighteen months. His method was to give one dose of salvarsan in proportion to the patient's weight every week until there was absolutely no reaction from the dose. In the secondary stage, after the chancre colony was broken up, and the organisms were expelled, after the chancre had softened, the average number of doses was three, given ten days apart.

Dr. R. H. T. MANN, of Texarkana, Texas, asked if it was possible to eradicate syphilis from America? It was, and that such a thing could be done and done only when the medical profession awakened to its full responsibility and got the assistance of various communities and State governments. Whether this task could be performed in this generation, or whether it would fall upon future generations to drive syphilis out of America, depended wholly upon the activities of the physicians now living, but it was a task that could be accomplished. The medical profession owed it to humanity to eradicate syphilis from this country.

Dr. E. G. MARK, of Kansas City, Missouri, stated that in the prevention of venereal disease we must take the stand as physicians that prostitution could not be eradicated. It was the oldest profession in the world. You could not eradicate it, but you could segregate and control it. It had been brought to our attention in the last few weeks that Minneapolis, Chicago, and other cities had eradicated prostitution, but the facts were it was not so. With proper segregation, proper inspection, venereal diseases could almost be eradicated; but prostitution could never be suppressed.

Dr. ROSS GROSSHART, of Tulsa, Oklahoma, said that in doing away with the segregation of prostitutes, they were driven into various districts and were living in the midst of respectable people. Venereal diseases and their dangers should be taught to the pupils of high schools, and when this was done sexual evils would be lessened and much done toward the wiping out of syphilis.

Doctor SCHALEK in closing said that he did not agree with Doctor Mark regarding the suppression of prostitution. Fifteen years ago he read a paper in which he stated that the suppression of prostitution was impossible, but he did not believe it now. He believed it was possible to wipe out prostitution. Most women were driven to prostitution; others wanted to lead a lazy life; they wanted to enjoy luxury, but these were few in number as compared with those who were driven to it for money.

**The Operative Treatment of Glaucoma.**—Dr. R. H. T. MANN, of Texarkana, Texas, said that the conjunctival flap should be made large. Care should be taken not to let the trephine enter the eye too far back. Should the piece which had been removed with the trephine fall into the anterior chamber, this could either be removed or left in the anterior chamber, as it did no harm when it was left there. It seemed with a permanent opening in the eye, that infection might take place, but so far as the records went there was no danger of this.

He did not believe that any one of the operations for glaucoma would be the operation permanently adopted for the cure of chronic glaucoma. He felt sure, however, that the operation finally adopted would be an operation which produced a filtering cicatrix, and until a better operation was devised the Elliott operation should be the one adopted in chronic glaucoma.

In the discussion which followed, Dr. C. L. WILLIAMS, of Topeka, Kansas, said as to this trephining operation for chronic glaucoma, the consensus was in making an opening through to include a portion of the sclera and a portion of the iris, going down through the cornea and corneoscleral incision, and by a mixture of the different formations of tissues permanent drainage would be established, thus relieving tension. However, we had not sufficient data at present to know the permanent value of this operation in chronic glaucoma.

Dr. J. ELLIS JENNINGS, of St. Louis, Missouri, said he had had a set of these trephines sent to him from London and had done four or five of these operations recently. He had had one case of late of a very rapidly advancing chronic glaucoma in which he did the LeGrange operation and removed quite a bit of the sclera, and that case had turned out beautifully. He had to use eserine in that eye

for several months, but since that time no eserine had been used. The tension was fine and the sight had improved. This trephining operation was very delicate, but one from which we could hope for very beneficial results.

Dr. JOSEPH S. LICHTENBERG, of Kansas City, Missouri, said glaucoma was not a disease, but a symptom, and since we did not know what glaucoma was, all this work was, more or less, done from the standpoint of treatment of the symptoms, and not from a clinical point of view. The operation of trephining was simple and efficacious.

**Tumor of the Nasopharynx.**—Dr. C. L. WILLIAMS, of Topeka, Kansas, said the points of interest he desired to emphasize were: 1, persistent growth in the nasopharynx, with a tendency to occur when removed; 2, frequent hemorrhages difficult to control and threatening the life of the patient; 3, the difficulty in arriving at the true pathology of this tumor.

Dr. JOSEPH C. BECK, of Chicago, Illinois, who opened the discussion, said the tumor was undoubtedly a small spindle cell sarcoma. These growths arose from the posterior naris in the region of the ostium tubæ and extended to the postnasal space and also into the nose. The literature was teeming with reports of these cases, so there was nothing to be said in regard to that. The method of removal of these tumors was that of Pynchon, of Chicago. When the doctor removed the adenoids, if he had made an examination it would have shown the sarcomatous nature of the tumor.

Dr. W. T. BLACK, of St. Louis, Missouri, said it looked very much like a small spindle cell sarcoma. The fact that the doctor was able to shell it out so easily was another indication that it was a sarcoma. We knew that fibroma of the nasopharynx was a difficult tumor to remove.

Dr. R. H. T. MANN, of Texarkana, Texas, said that a good many years ago he operated on five or six of these tumors in one year. One tumor was a very large fibroma. If one knew he was going to have a severe hemorrhage, it was best to ligate the external carotid artery on the side on which the tumor was situated. If this was done before the operation, one would have little or no trouble from hemorrhage.

Dr. M. F. JARRETT, of Fort Scott, Kansas, said he had one of these cases at his office yesterday; he had been treating the patient for three or four months. It was probably six months since he removed the last adenoid tissue. He did not examine the tissue under the microscope, but supposed it was the adenoid tissue. The patient was thirty-five years of age. The growth had returned slowly. The slowness of the growth led him to think it was malignant.

**The Complete Removal of the Tonsil in Its Capsule (Sluder Method) by Means of a New Tonsillotome.**—Dr. J. ELLIS JENNINGS, of St. Louis, Missouri, said that Sluder had described a method of removing the tonsil in its capsule complete by means of the guillotine or tonsillotome. The essential and distinctive feature of this method was removing the tonsil completely out of its normal bed and upward onto the eminence of the lower jaw produced by the last molar tooth, and the util-

ization of this prominence in putting the tonsil through the aperture of the guillotine. For this operation a tonsillotome of great strength and leverage power was essential. Doctor Sluder used a MacKenzie guillotine which he had modified by doubling the thickness of the shaft, shortening its length, and making the handle longer. The blade was driven home by pressure with the thumb. He had designed an instrument for this operation with a ring knife to cut on the pull. The instruments necessary for the operation were the tonsillotome, the mouth gag, tongue depressor, several sponge forceps, and tonsil hemostat.

**The Tonsil, with Especial Reference to the Sluder-Ballenger Operation.**—Dr. EUGENE DIXON, of Oklahoma City, said the Sluder-Ballenger operation could be done with either local or general anesthesia; personally he preferred the latter, and would only mention the local in a way of warning against the too concentrated epinephrin solution, as many sudden deaths were being reported from tonsillectomies by its use, but it was safe with the weaker solution and just as effective in controlling hemorrhage. In this operation above all others, it was essential to have a competent anesthetist, one who knew at all times just in what stage of anesthesia his patient was, as it was very important not to begin the operation until the patient was thoroughly anesthetized and to have given 1/200 grain of atropine sulphate, one half hour before the anesthetic was started. Following the Sluder method of removal of tonsils, there was less trauma, and consequently less cicatricial tissue. If one examined his cases three months after operation he would not find both pillars bound together, obliterating the sinus tonsillaris, nor would he find contractions and shortening of the muscles interfering with the action of the throat and soft palate, thus putting the singer out of business. If those who insisted upon using the angular knife and snare would follow their patients up for several months and make a record of the condition of each throat they would soon be convinced.

**Surgical Treatment of Tonsillitis.**—Dr. T. L. HIGGINBOTHAM, of Liberal, Kansas, said that tonsillitis was just as much a surgical disease as was appendicitis, a carbuncle, an osteomyelitis, or a blind infected eye, and should receive the same determined and energetic treatment as the conditions named, and just as early, that the dangerous complications might be prevented. Since November, 1909, he had operated in 142 cases of tonsillitis, in all stages of inflammation from the onset to bilateral quinsy, and with the results obtained he felt perfectly free to condemn methods that were inefficient and deceptive. With the vast number of men doing the perfected enucleating operation, this method of treatment could be extended to the most remote rural districts, just as was emergency surgery in other lines, and in the meantime assume obligations that were ours as well as elevate the standard of our calling.

The discussion was opened by Dr. A. E. HERTZLER, of Kansas City, Missouri, who said he had not found a general practitioner yet who was not enthusiastically in favor of removing the tonsils soon after the beginning of the disease. He had been skeptical as to the correctness of the reports re-

garding the sudden dropping of the temperature and rapid convalescence. It would seem that laryngologists had been behind the general surgeon in recognizing the acute lymphatic inflammations in this region as a proposition for prompt and radical surgery. He had a number of specimens of these acute tonsils and it was exceedingly interesting to lay them side by side with acute appendices removed in the early stages of appendicitis.

Dr. JOSEPH C. BECK, of Chicago, Illinois, said that with his tonsillotome Dr. Jennings removed, but did not cut the tonsil. In a paper he had described the method of using Mathieu's tonsillotome, and the technic did not vary one particle so far as the use of the instrument was concerned from that described by Doctor Jennings. He did not agree with Doctor Hertzler. The anatomical structure of the tonsil was different from that of the appendix; it did not matter at what time one operated on the tonsil, but it did on the appendix.

Dr. E. M. SEYDELL, of Wichita, Kansas, said in a few instances he had removed acutely diseased tonsils. Patients had come to him and wanted the work done at once, and he had taken the chances of removing their tonsils, but at times had felt sorry he had taken these chances for fear of Ludwig's angina developing.

Dr. D. L. SHUMATE, of Kansas City, Missouri, had operated in acute tonsillar cases when the patients came to him from the outside and had not seen any bad effects from it. In removing tonsils, if one removed all tonsillar tissue, one would have good results, no matter what method he adopted.

Dr. F. B. TIFFANY, of Kansas City, Missouri, said he had had the privilege of studying with Lennox Browne and Morel MacKenzie many years ago, and they never hesitated to operate when the tonsils were acutely inflamed. That had been his practice and he had not seen any bad results from it.

Dr. J. F. SHELLEY, of Elmdale, Kansas, said he had been in practice for twenty years and had hesitated to remove tonsils when they were acutely inflamed and when there was slight catarrh of the mucous membrane. In removing the tonsils when they were acutely inflamed one opened the raw surfaces for infection that came from surrounding tissues, and he was laying himself liable to a damage suit. He would not do it under any circumstances.

Dr. C. L. WILLIAMS, of Topeka, Kansas, said it had been his practice in the past two or three years to watch the effect of operating in acute tonsillitis, or when patients were getting over the attack, and he was firmly convinced that if one operated in an acute case the wound would take longer to heal and it kept the patient away from his work longer.

Dr. WILLIAM E. JONES, of Oklahoma City, Oklahoma, said that at first he had some fear in operating in acute cases of tonsillitis, but with increased experience that fear had passed away. While the symptoms in a few cases were alarming from operating in acute cases of tonsillitis, they soon subsided.

**Surgical Constipation.**—Dr. A. L. BLESCH, of Oklahoma City, Oklahoma, said that aside from various stenoses, congenital or acquired, constipation had principally to do with the colon, or (to better express his meaning) the colon had most to do with constipation. Coprostasis was the *fons et*



origo of a train of pathological sequences ranging from the misnamed "biliousness" to true organic nephritis and other organic degenerations which had long been treated as entities. The field of so called idiopathic or purely functional constipation was becoming more and more circumscribed. More and more we were coming to realize that mechanical interference was at the bottom of the condition. These mechanical causative factors frequently consisted in embryological deviations having their origin in evolutionary processes, i. e., reversions to some remote ancestral type. Many of these deviations existed without symptoms being fully compensated in one or more of the several ways. They might exist symptomless for a time and then be brought to the surface by some grave crisis, such as reducing illness, and especially by labor, in which hitherto compensating elasticity of a tense abdominal wall was lost by overstretching. That compensation, when it consisted in muscular overdevelopment of the colon itself, might be lost, as was the case with any other overmuscularization of a hollow viscus. He had anchored the colon in eight cases, with complete relief of constipation and sequences in four patients; partially relieved two, unimproved two patients; ileosigmoidostomy with separation of ileum was done in five patients; completely relieved three; unimproved two patients. Cecosigmoidostomy was performed in two patients, completely relieved them. Lane short circuiting, severing of the ileum with implantation low in the sigmoid, was done in three patients; all were much improved, but all had had attacks due to regurgitation mentioned above. This work covered the periods comprised between the dates of November 1, 1912, and August 1, 1913.

**Operative Treatment of Constipation.**—Dr. W. J. FRICK, of Kansas City, Missouri, stated that the operative treatment of constipation was indicated when some degree of organic obstruction of the intestine existed. He was not an advocate of surgical interference in this condition except after all efforts at a medical cure had failed, and the patient was threatened with a permanent invalidism. Undoubtedly there were intraabdominal and intrapelvic conditions, purely surgical in nature, which were clearly responsible for the constipation. He referred to the recently much talked of developmental bands, membranes, adhesions, etc., with the resulting kinks in the intestinal tube, tumors in the intestinal wall, tumors of other abdominal and pelvic organs, and displaced viscera, many of which might be the direct or indirect cause of constipation by inhibiting in some degree the normal peristalsis of the gut. Such cases were clearly operative, as there was no other method of dealing successfully with the primary cause of the trouble. Concerning the bands, membranes, adhesions, and kinks as described by Treves, Jonnesco, Jackson, Lane, and others, we could not yet be certain whether they were the cause or the result of constipation. According to the available evidence, it would seem that they were the cause rather than the result since the most recent researches appeared to support the theory that they were developmental in origin rather than the result of inflammatory processes. But that they might bear neither causal nor resultant relationship to constipation was shown by the clin-

ical experience of competent observers. Certainly, much improvement followed the division of these structures in some cases; just as certainly this treatment had given not the slightest benefit in other cases.

Another of the causes of constipation was the result of chronic pelvic peritonitis. He had in mind the fixation of the pelvic colon to the pelvic floor or to the rectum. Tuttle recommended in this condition division of the adhesions and, if necessary, the fixation of the pelvic colon to the abdominal wall to prevent a recurrence of the angulation of the gut. In a series of fifteen operations of this kind he declared there was no case in which bowel movements were not free and comfortable after operation. In this series the operation was not always done solely for constipation; however, all of the patients operated upon for no other reason than constipation were completely relieved.

Some fibroids of the uterus, retrodisplacements of the uterus, and tense cysts were capable of exerting such pressure upon the pelvic colon as to cause difficult, painful, and inefficient defecation. After removal of the tumor, or correction of the displacement, these patients recovered from their constipation.

Among other short circuiting operations was one done for exclusion of the splenic flexure, that is, anastomosis between the ascending limb of the transverse colon and the descending colon. Gant successfully established an anastomosis between the pelvic colon and the rectum after a division of the adhesions and fixation of the prolapsed pelvic colon to the anterior abdominal wall had failed. Mr. Lane was very enthusiastic about the more radical operation, colectomy. It was safe to say that this operation relieved all the trouble that might have existed in the colon; however, the removal of the colon was a formidable operation and was not without danger even in the hands of such a great abdominal surgeon as Mr. Lane. It was not an operation for one who had not had a large experience in abdominal surgery.

It must ever be borne in mind that all short circuiting operations of whatever type were contraindicated in cases in which the cause of the trouble lay distal to the lower portion of the pelvic colon. In such cases ileosigmoidostomy could not relieve, but on the contrary might even aggravate the trouble.

(To be concluded.)

## Letters to the Editor.

### SENSE OF SMELL AS AN AID TO DIAGNOSIS.

ZURICH, October 6, 1913.

To the Editor:

Dr. Robert Coughlin's article under this title, published on July 17th, has many points of interest and some open to criticism. Perhaps as regards the latter it would be as well to speak of the sense of smell as a *confirmation* of diagnosis—the proper clinical diagnosis should precede the other. Diagnoses of the moment are liable to have a very considerably need of correction afterward.

Dr. Coughlin speaks of the odor of the breath and the sputum in tuberculosis; he says nothing of the odor of perspiration.

For many years I have noticed a *pungent acid odor* of the perspiration of the body, especially also in the armpits,

but not from the feet of tuberculous subjects—or to speak more correctly, in patients suffering from *active* tuberculosis.

If patients are very careful about their personal cleanliness, and make ablutions every day and have warm baths once or twice a week, this odor is often absent, but yet, even then, it is sometimes present. If they are not so careful about their personal hygiene, I can detect the odor in a majority of cases of *active incipient tuberculosis*, so much so that for years I make a note in my register "specific odor." I have never detected it in any other disease than pulmonary tuberculosis, and I suppose it to be due to certain specific toxins eliminated by the skin. As to prognosis I have nothing to say, as nearly all patients in incipient cases—first or beginning of second stage (Turban)—recover under proper treatment, dietetic, hygienic, and, if necessary, climatic. It might be worth while to follow up these observations on a larger scale.

THEODORE ZANGGER, M.D.

### Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*Vicious Circles in Disease.* By JAMIESON B. HURRY, M.A., M.D., Ex-President of the Reading Pathological Society. With Illustrations. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. xiv-260. (Price, \$3.)

Until one glances through such a book as this he does not realize the universality of the vicious circle. It is very clearly shown how such circles tend to arise and to continue indefinitely unless some measure is adopted that will break the circuit. The author divides vicious circles into the following generic groups, organic, mechanical, infective, neurotic, chemical, those due to imperfect repair, and artificial. In this latter class are included those circles resulting from the misuse of cathartics, alcohol, morphine, and various other drugs. The chapters dealing with the breaking of the circle by art and by Nature are full of interesting points and show how harm may be done by too much interference with the processes of Nature. A study of this volume would tend to make one much more familiar with the correlation of pathological conditions to clinical symptoms and in that way would be a valuable aid in diagnosis.

*Aids to the Diagnosis and Treatment of Diseases of Children.* By JOHN McCaw, M.D., R.U.I., L.R.C.P., Senior Physician to the Belfast Hospital for Sick Children, etc. Fourth Edition. New York: William Wood & Co., 1913. Pp. xiv-431. (Price, \$1.25.)

The fourth edition of this little treatise which aims to be particularly an aid to diagnosis and treatment, has been somewhat enlarged by the addition of several new chapters. It is by no means a compend and if the book were printed in larger type, on heavier paper, it would present a more dignified appearance, and conform to the modern demand for a readable page. In the article on Infant Feeding there is a surprising admixture of the new and the old. There are a bewildering number of methods of feeding described, and while they show a familiarity with the subject, they must only serve to be confusing to the reader who may not be in a position to winnow the wheat from the chaff. He would give the impression that the laboratory method is the one extensively followed in America. Modern methods of treatment which have proved of value are, as a rule, described, and the treatment is in commendable detail. The reviewer feels, however, that a form of treatment such as direct blood transfusion in hemophilia neonatorum, for example, should outrank and precede the recommendation of a drug such as the perchloride of iron which he advises. The new article on cerebrospinal meningitis is well written and the use of Flexner's serum is unqualifiedly recommended. The author's statement that salvarsan has not been successful in the inherited forms of syphilis will not be generally accepted. The book is more meritorious than the ordinary student's compend, and will be of decided help to the student in this branch of medicine.

*Organic and Functional Nervous Diseases.* A Textbook of Neurology. By M. ALLEN STARR, M.D., Ph.D., LL.D., Sc.D., Professor of Neurology, College of Physicians and Surgeons, Medical Department of Columbia University, Consulting Neurologist to the Presbyterian Hospital, etc. Fourth Edition. Thoroughly Revised. Illustrated with 323 ENGRAVINGS in the Text and 30 Plates in Colors and Monochrome. New York and Philadelphia: Lea & Febiger, 1913. Pp. ix-970.

The fourth edition of this standard textbook fulfills the aim of the author to keep abreast of the rapid advances in neurology which have been made since the publication of the third edition, some three years ago. In particular might be mentioned the new material which has been added to the chapters on poliomyelitis, syphilis of the nervous system, and tumors of the brain. It is, however, in the third part of the book, that dealing with functional diseases, that the most additions have been made, compensating for a possible deficiency of the last edition: Thus, psychasthenia is considered in a chapter by itself; various forms of psychotherapy including suggestion, hypnotism, and psychoanalysis are discussed; and in the chapter on hysteria the varying theories of Babinski, Janet, and Freud are presented. A pleasing feature of the work lies in the fact that, while due consideration is given to current literature of the subjects treated, it represents in a large measure the personal experience of the author.

*Die Anaemie.* Von winkl. Geheimrat Professor Dr. P. EHRICH, Direktor des k. Institutes für experimentelle Therapie in Frankfurt a. m., and Dr. A. LAZARUS, Universitätsprofessor in Berlin-Charlottenburg. II. Abteilung: Klinik der Anaemien. Von Dr. A. LAZARUS, in Berlin-Charlottenburg. Zweite, vermehrte, und umgearbeitete Auflage. Mit 2 Tafeln in Farbendruck und 3 Kurven. Wien und Leipzig: Alfred Hölder, 1913. Pp. viii-256.

As the author has introduced into this second edition much of importance that has been published since 1900 it is considerably enlarged. First taking up the acute post-hemorrhagic anemia, Professor Lazarus goes into much detail concerning the changes in the blood and in the organs. The transfusion methods of treatment are dealt with quite fully. Under the heading of simple chronic anemia come those due to hemorrhage, those resulting from poor hygiene and insufficient food, those accompanying or following other diseases, and those due to poisonings of various kinds. To progressive pernicious anemia is given by far the greatest space. The author at the start lays emphasis on the point that this condition is not a definite entity, but is a common grouping of symptoms that may be present in various forms of disease conditions. It is of interest that the German statistics show this condition to be much more frequent in women than in men. The subject is dealt with under the following divisions, origin, symptomatology, pathology, course, complications, diagnosis, and treatment. This volume is a very valuable one, giving as it does so thorough a review of such important conditions.

*The Modern Treatment of Nervous and Mental Diseases.* By American and British Authors. Edited by WILLIAM A. WHITE, M.D., Superintendent of the Government Hospital for the Insane, Washington, D. C., Professor of Nervous and Mental Diseases in the Georgetown University, etc., and SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Adjunct Professor of Diseases of the Mind and Nervous System in the Postgraduate Medical School and Hospital, Visiting Neurologist to the City Hospital, etc. Volume I. Illustrated. Philadelphia and New York: Lea & Febiger, 1913. Pp. xvi-867. Volume II. Illustrated. Philadelphia and New York: Lea & Febiger, 1913. Pp. viii-816.

The appearance of these two large volumes, devoted primarily to the treatment of nervous and mental diseases, will be cordially welcomed, not only by the alienist and neurologist, but by all who have the welfare of the human race at heart since the work deals not only with the treatment of the individual forms of nervous and mental disease, but presents in their broadest aspect the fundamental agencies at work in the production of these diseases and the means of preventing and controlling them. Much space is devoted to the social relations of

man, and emphasis laid upon psychic problems of life. "The present work sets forth doctrines of nervous and mental hygiene, reconstructive factors in social organization as applied to human ills, and endeavors to present a broad front to the pessimistic nihilism in therapeutics that has been too long current in these fields." The first volume contains nineteen chapters by as many different authors, and is devoted largely to a consideration of sociological problems, such as eugenics and heredity in nervous and mental diseases, by White; sexual problems, their nervous and mental relations, by Havelock Ellis; the educational treatment of the feeble-minded, by Goddard; delinquency and crime, by Healy; immigration and the mixture of races, by Salmon, as well as to the treatment of the neuroses and psychoses. Freud's methods of treating neuroses and psychoneuroses is admirably presented by Ernest Jones. The second volume contains seventeen chapters which deal with few exceptions with organic diseases of the nervous system, and which represent the contributions of authors of recognized prominence. Without exaggeration it may be stated that the present work is unique in being a complete exposition of the present day status of the prophylaxis and treatment of disorders of the nervous system.

*Lectures on Clinical Psychiatry.* By Dr. EMIL KRAPELIN, Professor of Psychiatry in the University of Berlin. Authorized Translation from the Second German Edition. Revised and Edited by THOMAS JOHNSTONE, M.D. Edin., M.R.C.P. Lond., Member of the Medico-psychological Association of Great Britain and Ireland, etc. Third English Edition. New York: William Wood & Co., 1912. Pp. xvii-368. (Price, \$3.50.)

While not posing as a textbook, this book presents in the form of clinical lectures carefully analyzed material concerning the most common and important forms of mental disease. The personality of Kraepelin is prominent throughout the work, the greatest value of which lies in the elucidation of the author's methods of investigation and analysis rather than in the presentation of scientific records.

*Anatomy, Descriptive and Applied.* By HENRY GRAY, F.R.S., Fellow of the Royal College of Surgeons, Lecturer on Anatomy at St. George's Hospital Medical School, London. A New American Edition, Thoroughly Revised and Recedited. With the Ordinary Terminology Followed by the Basle Anatomical Nomenclature in Latin. By EDWARD ANTHONY SPITZKA, M.D., Director of the Daniel Baugh Institute of Anatomy and Professor of General Anatomy in the Jefferson Medical College, Philadelphia. Illustrated with 1,225 Engravings. Philadelphia and New York: Lea & Febiger, 1913. Pp. xxii-1502.

The nineteenth edition, called in the title page the New American Edition of Gray's Anatomy, prepared by Dr. Edward Anthony Spitzka, has appeared a few weeks ago. There have been quite a number of changes made, especially under the heading of Applied Anatomy. Many important medical and surgical considerations have been added, but the greatest change, which will be welcomed by every student of anatomy, has been the addition of the Basle nomenclature (which is used in Italics). The number of illustrations has been increased from 1,208 to 1,225, while the number of pages has been hardly altered at all. The proof reading has been very carefully done and many errors of former editions have been corrected. We congratulate the publishers as well as the editor upon the appearance of an edition of a book which will always remain dear to the heart of every medical student.

*Malaria.* Etiology, Pathology, Diagnosis, Prophylaxis, and Treatment. By GRAHAM E. HENSON, M.D., Member of the American Society of Tropical Medicine, Medical Reserve Corps, United States Army, etc. With an Introduction by CHARLES C. BASS, M.D., Professor of Experimental Medicine, Medical Department, Tulane University, New Orleans. Twenty-seven Illustrations. St. Louis: C. V. Mosby Company, 1913. Pp. 190. (Price, \$2.50.)

At the present time there is probably no disease of greater importance to, at least, the southern portions of the United States than malaria. It is the disease, the eradication of

which, probably permitted the completion of the Panama Canal. Henson in his volume gives in most interesting form a very thorough presentation of this important subject. The chapter dealing with the general considerations reviews the widespread geographical distribution of this disease as well as the economic loss which is truly tremendous. In successive chapters the etiology, diagnosis, prophylaxis, and treatment are considered at length. Bass's method for the cultivation of malarial plasmodia is given fully. In regard to treatment the author uses a slight modification of Manson's method. He gives five grains of quinine sulphate every four hours during clinical manifestations; five grains three or four times a day for ten days or two weeks after the subsidence of symptoms; and after that ten grains in two or three doses every alternate day for at least a month. This publication is a very valuable addition on the subject of malaria and can be recommended highly.

## Meetings of Local Medical Societies.

MONDAY, October 27th.—Medical Society of the County of New York.

TUESDAY, October 28th.—New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Psychoanalytic Society; New York Dermatological Society; Metropolitan Medical Society of New York; New York Medical Union; New York Riverside Practitioners' Society; Valentine Mott Medical Society, New York; Washington Heights Medical Society, New York; Woman's Hospital Society, New York; Alumni Association of Seneb Hospital, Brooklyn; Buffalo Academy of Medicine (Section in Pathology); Rome, N. Y., Medical Society.

FRIDAY, October 31st.—Hospital Graduates' Club, Brooklyn; Audubon Medical Society, New York.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending October 15, 1913:*

Anderson, J. F., Surgeon. Directed to proceed to Asheville, N. C., for conference regarding the investigation of a remedy for tuberculosis. Lumsden, L. L., Surgeon. Directed to proceed to Cumberland, Md., to continue investigations of typhoid fever; also to Martinsburg, W. Va., for conference with health authorities and to deliver an address on the present status of typhoid fever in that section. McMullen, John, Surgeon. Directed to rejoin station at Baltimore, Md., stopping at the Bureau of Medicine and Surgery, Washington, D. C., en route.

#### Boards Convened.

Board of medical officers convened to meet at the Bureau, Monday, October 27, 1913, at 10 o'clock a. m., for the examination of Passed Assistant Surgeon Herman B. Parker, to determine his fitness for promotion to the grade of surgeon. Detail for the board: Surgeon W. G. Stimpson, chairman; Surgeon H. S. Cumming, member; Surgeon John McMullen, recorder.

Board of medical officers convened to meet at Honolulu, Hawaii, Monday, November 3, 1913, at 11 o'clock a. m., for the examination of Third Lieutenant R. A. Bothwell, United States Revenue Cutter Service, to determine his physical fitness for promotion. Detail for the board: Surgeon F. E. Trotter, chairman; Passed Assistant Surgeon C. M. Fauntleroy, recorder.

Board of medical officers convened, at the request of the Commissioner General of Immigration, to meet at the call of the chairman, for the reexamination of Elias Hoffman, an alien child now under treatment in the Garfield Hospital in Washington, D. C. Detail for the board: Surgeon Joseph Goldberger, chairman; Surgeon J. W. Schereschewsky, member; Surgeon B. S. Warren, recorder.



## United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending October 18, 1913:*

**De Witt**, Wallace, Major, Medical Corps. Relieved from duty in the Hawaiian Department, and upon arrival at Honolulu of the transport to sail from Manila on or about December 15, 1913, will proceed to San Francisco, Cal., and report for further orders. **Duncan**, Louis C., Captain, Medical Corps. Relieved from duty at Washington Barracks, D. C., effective on arrival of Captain Mark D. Weed, Medical Corps, and will proceed to Fort Bliss, Texas, for duty. **Duncan**, William A., Captain, Medical Corps. Granted leave of absence for one month. **Eastman**, W. R., Major, Medical Corps. Granted leave of absence for three months, from about October 1, 1913. **Freeland**, H. L., First Lieutenant, Medical Reserve Corps. Granted leave of absence for three months, about January 1, 1914, with permission to apply for one month's extension. **Gapon**, Nelson, Captain, Medical Corps. Relieved from duty as attending surgeon, Boston, Mass., to take effect on arrival in that city of Lieutenant Colonel Henry A. Shaw, Medical Corps, in compliance with orders heretofore issued, and will then proceed to Fort Rover, Mass., for duty. **Haig**, Chester R., First Lieutenant, Medical Corps. Relieved from duty at the United States Military Academy, West Point, N. Y., effective upon the arrival of Captain W. Cole Davis, Medical Corps, and will then proceed to Plattsburgh Barracks, N. Y., for duty. **McMurdo**, H. B., First Lieutenant, Medical Corps. Ordered to Columbus, N. M., for temporary duty. **Moncrief**, W. H., Captain, Medical Corps. Will report in person without delay to the commanding officer, Fort Myer, Va., for temporary duty. **Pariseau**, G. E., First Lieutenant, Medical Corps. Arrived in New York on October 10th on three months' leave of absence. **Roberts**, Ernest E., First Lieutenant, Medical Corps. Granted leave of absence for three months. **Van Poole**, Gideon McD., Major, Medical Corps. Relieved from duty at Fort Washington, Md., and on January 5, 1914, will take transport for Honolulu, H. T., for duty. **Wilson**, Elsworth, First Lieutenant, Medical Reserve Corps. Relieved from treatment at the Letterman General Hospital, San Francisco, Cal., and will proceed to his home, and on expiration of leave of absence will stand relieved from active duty in the Medical Reserve Corps; granted leave of absence for three months and fourteen days, effective on arrival at his home. **Wright**, F. S., Captain, Medical Corps. Ordered to Fort Sill, Okla., for temporary duty.

## Births, Marriages, and Deaths.

## Married.

**Butler—Dodd**.—In Trenton, Tenn., on Wednesday, October 1st, Dr. Willis Pollard Butler, of Nashville, and Miss Annie Perry Dodd. **Cunningham—Taylor**.—In East Lake, Ala., on Saturday, October 4th, Dr. Russell M. Cunningham, of Ensley, and Miss Annice Taylor. **Depro—Halley**.—In Baltimore, Md., on Saturday, September 27th, Dr. Albert P. Depro and Miss Elizabeth Halley. **Emmel—Batty**.—In Mount Vernon, N. Y., on Saturday, October 11th, Dr. Alfred Cortland Emmel and Miss Alma Marina Batty. **Ernst—Ibach**.—In Kutztown, Pa., on Saturday, October 4th, Dr. Morris Lincoln Ernst, of Shoemakersville, and Miss Florence May Ibach. **Farley—Shannon**.—In Collinsville, Conn., on Tuesday, October 7th, Dr. Edward B. Farley, of Hartford, and Miss Mary Elizabeth Shannon. **French—Pardee**.—In Natchez, Miss., on Tuesday, October 7th, Dr. Eugene Brewster French, Jr., and Miss Almira E. Pardee. **Goshorn—Tate**.—In St. Louis, Mo., on Wednesday, October 8th, Dr. Noah Jefferson Goshorn, of Washington, Ind., and Miss Suda E. Tate. **Hale—Raydure**.—In St. Louis, Mo., on Wednesday, October 8th, Dr. William Kelley Hale, of Wilmington, Ohio, and Miss Dessa C. Raydure. **Hamilton—Milnor**.—In Montclair, N. J., on Saturday, October 11th, Dr. Burton Everett Hamilton, of Boston, Mass., and Miss Eleanor Tyson Hamilton. **Harvey—Upson**.—In Kensington, Conn., on Wednesday, October 8th,

Dr. LeRoy Austin Harvey and Miss Lura Hart Upson. **Hunsucker—Moore**.—In Hickory, Tenn., on Tuesday, October 7th, Dr. Charles L. Hunsucker and Miss Fletz Moore. **Leake—King**.—In Baltimore, Md., on Saturday, October 4th, Surgeon James Payne Leake, United States Public Health Service, and Miss Mary C. King. **O'Donnell—Brophy**.—In Frostburg, Md., on Thursday, October 9th, Dr. Thomas Joseph O'Donnell, of Baltimore, and Miss Anna May Brophy. **Oswalt—Peavy**.—In Thomasville, Ala., on Tuesday, October 7th, Dr. John Roy Oswalt, of Union Springs, and Miss Mildred Peavy. **Stearns—Robinson**.—In Baraboo, Wis., on Saturday, October 4th, Dr. Melvin J. Stearns, of Ogdensburgh, N. Y., and Miss Jennie W. Robinson.

## Died.

**Ayers**.—In Philadelphia, on Friday, October 10th, Dr. Charles A. Ayers, aged sixty-one years. **Bartlett**.—In Oakland, Md., on Thursday, October 2d, Dr. Edward H. Bartlett, aged eighty-two years. **Beatty**.—In Pittsburgh, Pa., on Sunday, October 5th, Dr. Hamilton Kelly Beatty, aged sixty-five years. **Biggs**.—In Somerville, N. J., on Friday, October 10th, Dr. Thomas J. Biggs, of Stamford, Conn., aged forty-eight years. **Brodie**.—In Charleston, S. C., on Thursday, October 2d, Dr. Robert L. Brodie, aged eighty-four years. **Brown**.—In Jackson, Tenn., on Saturday, October 4th, Dr. Horatio Henry Brown, aged forty years. **Crowley**.—In New Haven, Conn., on Wednesday, October 8th, Dr. Forrest G. Crowley, aged thirty-five years. **Devereaux**.—In Cresson, Pa., on Sunday, October 5th, Dr. Robert Devereaux, aged sixty-eight years. **Fishel**.—In New York, on Sunday, October 10th, Dr. Solomon Fishel, aged forty-three years. **Garber**.—In Hartford, Conn., on Friday, October 3d, Dr. Jonathan Burmond Garber, of Dunkirk. **Hall**.—In Wilmette, Ill., on Thursday, October 9th, Dr. Lorin Hall, aged fifty-nine years. **Harris**.—In Scarsdale, N. Y., on Monday, September 29th, Dr. Sally A. Harris, of New York. **Harrod**.—In Olmsted, Ark., on Friday, October 10th, Dr. J. H. Harrod. **Hartzell**.—In Philadelphia, on Sunday, October 12th, Dr. L. H. Hartzell, aged twenty-four years. **Hathaway**.—In Cincinnati, Ohio, on Wednesday, October 8th, Dr. William E. Hathaway. **Huber**.—In Brooklyn, on Thursday, October 10th, Dr. S. S. Huber, aged seventy years. **Jennings**.—In Reading, Pa., on Friday, October 10th, Dr. Chester Belding Jennings, aged fifty-three years. **Jones**.—In Poplar Bluff, Mo., on Thursday, October 9th, Dr. Benjamin C. Jones, aged seventy-seven years. **Kennedy**.—In Green Hill, Ala., on Wednesday, October 8th, Dr. Hiram Raleigh Kennedy. **Kleinschmidt**.—In Milwaukee, Wis., on Sunday, October 12th, Dr. George Kleinschmidt, aged forty-nine years. **Kortbein**.—In Cincinnati, Ohio, on Friday, October 3d, Dr. Louise A. Kortbein, aged sixty-two years. **Leatherwood**.—In Asheville, N. C., on Wednesday, October 8th, Dr. Timothy Miles Leatherwood, of Tuscaloosa, Ala., aged forty-nine years. **Lewis**.—In Chicago, on Sunday, October 5th, Dr. W. H. Denslow Lewis. **Merrill**.—In Skowhegan, Me., on Thursday, October 2d, Dr. John N. Merrill, aged seventy-one years. **Minard**.—In Boston, Mass., on Thursday, October 9th, Dr. William F. Minard, of Waterbury, Vt., aged forty-six years. **Patterson**.—In Philadelphia, on Wednesday, October 15th, Dr. Howard Patterson, aged sixty-three years. **Reefy**.—In Elyria, Ohio, on Tuesday, October 7th, Dr. Philip D. Reefy. **Robinson**.—In Cleveland, Ohio, on Tuesday, October 7th, Dr. Ray De Witt Robinson, of Akron, aged forty-four years. **Shepard**.—In La Rose, Ill., on Thursday, October 2d, Dr. Charles W. Shepard, aged sixty-six years. **Sloan**.—In Chicago, on Thursday, October 9th, Dr. Henry H. Sloan, aged seventy-seven years. **Springsteen**.—In Decatur, Ill., on Tuesday, September 23d, Dr. David R. Springsteen, aged sixty-nine years. **Stone**.—In Minneapolis, Minn., on Wednesday, October 8th, Dr. John Leslie Stone, aged sixty-two years. **Theiss**.—In Akron, Ohio, on Sunday, October 12th, Dr. Herman C. Theiss. **Thomas**.—In Sturges, Miss., on Saturday, October 11th, Dr. D. H. Thomas. **Wathen**.—In Louisville, Ky., on Tuesday, October 7th, Dr. William H. Wathen, aged sixty-seven years. **Zineman**.—In Philadelphia, on Wednesday, October 15th, Dr. William B. Zineman, aged forty-nine years.

# New York Medical Journal

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### Original Communications.

#### COMMON ERRORS IN THE DIAGNOSIS AND PROGNOSIS OF GALLSTONE DISEASE.

*Illustrated by a Report on Twenty-seven Recent  
Operations.*

BY BENJAMIN T. TILTON, M. D.,  
New York.

The great advances that have been made during the past few years in our knowledge of gallstones, and particularly of the changes they produce in the biliary system and in other organs, are largely due to the experience gained at the operating table. The end results seen at autopsy throw comparatively little light upon the sequence of events which have led to the fatal outcome. Operation, however, has revealed the local conditions of every stage of inflammation or obstruction, and has cleared up debated questions to a degree not possible by any other form of study. The surgeon has thus become the authority in regard to the manifold changes produced by the presence of gallstones, and is in a position to refute many of the theories and conclusions based on purely medical and post mortem investigations. In his studies the surgeon has, it is true, had great assistance from the clinical pathologist and, in fact, is often dependent upon the latter's findings, for the exact diagnosis and the indications for surgical treatment. It should be frankly admitted by the general practitioner that the surgeon has come to possess superior practical knowledge of gallstone disease, owing to his familiarity with the pathological findings in the living. Consequently a case of supposed gallstones should have the combined advice of the internist and surgeon just as is the general custom in cases of appendicitis. This will be not only of the greatest value to the patient, but will be mutually advantageous to the internist and surgeon by an interchange of views very differently acquired.

The physician would profit greatly by more frequently visiting the operating room, and seeing the actual local conditions on the living. The knowledge here obtained would be a useful supplement, and would bring home forcibly the various stages of the pathology, the simplicity of procedure in early cases, the difficulties and dangers in complicated cases, and the correlation between disease of the gallbladder and that of the adjacent organs. It has seemed to the writer that there are still current

among the profession certain ideas regarding gallstones, which are not in keeping with the actual facts as demonstrated by operative experience. As a result of these incorrect views, mistakes in diagnosis are inevitable, and patients are treated over long periods for other troubles, and valuable time thus lost.

#### ASSOCIATION OF JAUNDICE WITH GALLSTONES.

It is remarkable how strongly rooted the impression is in the profession that gallstones are usually associated with jaundice. As a matter of fact this combination is the exception and has been estimated to occur in as few as twenty per cent. of the cases. To exclude cholelithiasis then because there is no sign or history of icterus is manifestly absurd. It is possible for the patient to have numberless attacks of pain and very marked changes in the gallbladder without a sign of jaundice, simply because there has been no mechanical or inflammatory arrest of the flow of bile through the common duct. Even though stones reach the common duct and remain there, jaundice may be entirely absent. I recently operated in a case in which I found no less than twelve good sized stones in the common and hepatic ducts, and no jaundice. The most common cause for jaundice in connection with gallstones is not mechanical obstruction by a stone, but inflammatory swelling of the mucous membrane of the hepatic and common ducts. This jaundice is not infrequent, when there are stones in the common duct, and then it is intermittent. The theory that this intermittent jaundice was due to the ball-valve action of the stone is probably not correct. When the stone has not gotten beyond the gallbladder or cystic duct, jaundice from mechanical obstruction is hardly conceivable, except in the case of a very large, distended gallbladder which might press upon the common duct or cause angulation of the same or, in the case of adhesions constricting the duct. Exceptionally the stone in this situation may be the cause of jaundice, by causing first a cholecystitis which may spread to the hepatic and common ducts, producing inflammatory thickening of the mucous membrane with obstruction. A still further cause for jaundice is the extension of the inflammation to the head of the pancreas, with chronic thickening of the same, and secondary obstruction of the common duct. This may occur in the case of stones in the gallbladder as well as of those in the common duct. The stone thus plays in itself a small rôle in the direct causation of jaundice, and usually acts indirectly by causing inflammation which, by obstruction, may result in jaun-

dice. In very rare cases a stone may actually occlude the ampulla of Vater, in which case the jaundice would be due to the mechanical action of the stone in this location. If not dislodged by nature, or by operation, such a stone completely arrests the flow of bile into the intestine, and a fatal cholemia results. Such a case is most exceptional and should not be taken as a type of common duct obstruction. After long persistence of inflammatory changes in and about the gallbladder and ducts, jaundice may result from obstruction of the common or hepatic duct, by adhesions compressing the same, or by stricture due to healed ulceration. These again

lavage, antacids, gastric sedatives, etc., without relief.

I recently operated upon a woman who for ten years had been under the constant care of a prominent specialist for stomach trouble. Operation revealed a gallbladder distended with large stones, secondary pancreatic carcinoma, and resulting common duct obstruction with jaundice. It was this long delayed symptom of jaundice which first suggested to the physician the possibility of gallstones. It is true that many cases begin with typical symptoms which point directly to the biliary system, and which are extremely easy to diagnosticate. Hence

I.	Name.	Sex.	Age.	Symptoms other than those pointing to biliary tract	Jaundice.	Stones.	Complications.	Operation.	Outcome.
				For several years epigastric pain and vomiting					
II.	Y. S.	F.	52	None	Intermittent	In gallbladder and common duct	Contracted gallbladder, adhesions, dilated common duct	Cholecystectomy and drainage of common duct	R.
III.	L. D.	F.	52	For 2 years pain in epigastrium after eating, nausea, and vomiting	Absent	In gallbladder	Primary carcinoma of gallbladder	Exploratory laparotomy	D.
IV.	S. D.	F.	32	Personal history not obtainable	Absent	In gallbladder	Acute empyema of gallbladder	Cholecystostomy	R.
V.	K. R.	F.	55	For 10 years epigastric pain, nausea, and vomiting	Absent	In gallbladder	Acute cholecystitis	Cholecystostomy	R.
VI.	J. C.	F.	28	For several years pain in epigastrium after eating	Absent	In gallbladder	None	Cholecystectomy	R.
VII.	P. H.	M.	35	Those of appendicitis	Absent	In gallbladder	None	Cholecystostomy	R.
VIII.	A. R.	F.	27	None	Absent	In gallbladder	None	Cholecystostomy	R.
IX.	D. L.	F.	51	None	Absent	In gallbladder	None	Cholecystostomy	R.
X.	G. S.	F.	49	None	Absent	In gallbladder	Acute cholecystitis	Cholecystostomy	R.
XI.	M. W.	F.	25	Pain in appendicular region	Absent	In gallbladder	Acute cholecystitis	Cholecystostomy	R.
XII.	L. W.	F.	48	Stomach symptoms	Absent	In gallbladder	Acute cholecystitis	Cholecystostomy	R.
XIII.	L. H.	F.	35	For years stomach symptoms only	Absent	In gallbladder	None	Cholecystostomy	R.
XIV.	S. P.	F.	38	For 7 years epigastric pain, nausea, and vomiting	Absent	In gallbladder	None	Cholecystostomy	R.
XV.	D. M.	F.	60	For 8 years epigastric pain after eating with nausea and vomiting	Absent	In gallbladder	Acute cholecystitis	Cholecystectomy	R.
XVI.	T. A.	F.	54	None	Absent	In gallbladder	Acute suppurative cholecystitis	Cholecystostomy	R.
XVII.	C. K.	F.	45	Epigastric pain, eructations for several months	Absent	In gallbladder	None	Cholecystostomy	R.
XVIII.	A. D.	F.	48	None	Absent	None	Acute cholecystitis	Cholecystostomy	R.
XIX.	M. K.	M.	27	For past 4 years attacks of epigastric pain, vomiting after eating	Absent	In gallbladder	Acute suppurative cholecystitis	Cholecystostomy	R.
XX.	R. S.	F.	48	None	Absent	None	Acute pancreatitis, fat necrosis, cholecystitis	Cholecystostomy	R.
XXI.	T. S.	F.	36	Epigastric pain and eructations	Present	In gallbladder	None	Cholecystostomy	R.
XXII.	A. H.	F.	25	None	Present	In gallbladder	Cholecystitis	Cholecystostomy	R.
XXIII.	R. S.	F.	62	For 10 years attacks of epigastric pain, eructations, and distention after eating	Absent	In gallbladder	Acute cholecystitis	Cholecystostomy	R.
XXIV.	L. R.	M.	53	For past 2 years attacks of epigastric pain in left hypochondrium and vomiting	Absent	In gallbladder	Acute cholecystitis	Cholecystectomy	R.
XXV.	D. C.	F.	40	None	Absent	In gallbladder	None	Cholecystostomy	R.
XXVI.	A. F.	F.	41	"Indigestion" for 10 years	Present	In gallbladder	Carcinoma of pancreas, and secondary of liver	Cholecystostomy and cholecystectomy	D. <sup>2</sup>
XXVII.	A. L.	M.	51	Treated for gastritis 2 years	Present	In gallbladder	Chronic hepatitis, chronic myocarditis, nephritis	Cholecystostomy	D.

<sup>1</sup>R., recovery; D., died.

<sup>2</sup>Died of exhaustion in 7 weeks.

are merely secondary results of stones and may persist after removal of the same.

#### INCORRECT INTERPRETATION OF SYMPTOMS.

Another common belief held is that the symptoms caused by gallstones are always directly referable to the liver and biliary ducts. This mistaken idea has probably been the cause of most errors in diagnosis. The classic symptoms that have long been ascribed to cholelithiasis are unfortunately the exception. We are now realizing that other organs, particularly the stomach, give the first evidence of gallstones, and that it may not be until months or years later that the symptoms point directly to the liver and bile ducts.

Patients with epigastric pain and stomach symptoms are constantly being treated for "indigestion," while the real trouble—gallstones—is entirely overlooked. Stomach clinics are visited by patients with gallstones who are religiously treated by stomach

physicians have come to associate a certain group of symptoms with gallstones, and the absence of these symptoms leads them into the error of excluding cholelithiasis from the diagnosis. This seems only a natural mistake, but at the present time is not an excusable one. Continued attacks of epigastric pain, distention, and vomiting, unrelieved by medical measures, in an individual at the gallstone age, especially a woman who has had numerous children, and in the absence of definite changes in the chemistry of the stomach analysis, should make the physician suspect gallstones even though there is no enlargement or tenderness of the gallbladder, pain in the scapular region, or jaundice. The following case illustrates in a typical way this puzzling group of symptoms.

CASE. A woman of forty years had been treated for five years by different physicians for acute attacks of stomach disturbance, which were very severe and accompanied by excessive vomiting. The attacks were not asso-



ciated with much pain. A few days rest in bed and careful diet brought relief. The stomach analysis was normal and the x ray negative. Nothing suggested cholelithiasis. No jaundice, scapular pain, nor tenderness over the gallbladder. On account of recurrence of the attacks and persistent loss of weight an exploratory laparotomy was deemed justifiable. The stomach was found to be normal, but the gallbladder contained between two and three hundred faceted stones of medium size. The gallbladder was not the seat of inflammation or obstruction. Removal of the stones and drainage of the gallbladder resulted in a cure.

#### TENDENCY TO UNDERESTIMATE THE SERIOUS CONSEQUENCES OF GALLSTONES.

It is evident that a failure to recognize the real nature of these cases, over a long period of time, may lead to serious changes in the gallbladder, bile ducts, pancreas, and other organs. As a consequence a simple lesion becomes a complicated one and the patient runs the risk of a sudden attack of acute cholecystitis, obstruction of the common duct, infectious cholangitis, or of the gradual development of painful adhesions about the gallbladder and ducts, pyloric obstruction, chronic pancreatitis, cancer of the gallbladder, and other lesions resulting from the continued presence of stones. We can no longer regard gallstones as a menace only to the comfort of the individual. They are a real menace to life as well. The physician too often shares the view of the patient that relief from the agonizing pain is equivalent to a cure. The surgeon knows too well that stones which have once begun to cause marked symptoms will continue to do so on account of the anatomical changes that were associated with the first attack, and which will progress to still more important alterations in the biliary system. A gallbladder which has once been the seat of acute inflammation does not spontaneously return to the normal again, any more than the inflamed appendix does. Hence the repetition of the attacks until finally very serious changes occur, not confined to the gallbladder, but affecting the ducts, the liver, the pancreas, the stomach, etc. These changes mean, if unrelieved, danger to the life of the individual from sepsis, perforative peritonitis, cholemia, intestinal obstruction, pyloric obstruction, cancer (especially of the gallbladder), myocarditis, chronic nephritis, etc. It is important to recognize the presence of gallstones the moment that they cause their first symptoms, and apply the appropriate treatment, and not permit them to continue their local changes because of a wrong diagnosis or a disregard of their seriousness. It is no mere theory that the continued irritation from gallstones produces cancer of the gallbladder. Since the great increase in the number of operations on the biliary passages, gallbladder cancer has been found to be by no means a rare condition. It has been estimated that it is preceded by gallstones in 95 per cent. of the cases. Furthermore chronic pancreatitis, which Mayo Robson found in sixty per cent. of his cases of common duct stones, is undoubtedly a predisposing factor in the development of cancer in the head of the pancreas. The serious aspects of gallstone disease result, in the great majority of cases, from delay and, hence, the mortality rate increases with the duration of the disease. The same is true of the results of operative interference. Early operation in the absence

of serious complications means a low mortality, whereas late operation after the development of jaundice, adhesions, or cancer is attended with danger, and requires special skill and judgment to insure a good result. In the case of cancer of the gallbladder the outlook is almost hopeless. During the past year I have operated in twenty-seven cases of gallbladder disease, stones being present in all but three cases. I have taken pains to have noted in the histories the facts relating to the three points under consideration, 1, as to the occurrence of jaundice; 2, as to the presence, particularly at the outset, of other symptoms than those directly referable to the biliary system; 3, as to the occurrence of serious complications from gallstones that are allowed to remain. From the compiled cases it will be seen that jaundice was present four times in twenty-seven cases, or a little under fifteen per cent. There was a history of stomach symptoms in fifteen cases, or fifty-eight per cent. There were present at operation serious complications in eighteen cases, or sixty-six per cent. As regards the choice of operative procedure, cholecystostomy was performed fifteen times, cholecystectomy eleven times, and choledochotomy three times. The number of deaths in cases free from serious complications (ten in number) was *nil*.

Of cases associated with serious complications (eighteen patients) three died. Of these one had primary carcinoma of the gallbladder (Case III), a second carcinoma of the pancreas with secondary nodules in the liver (Case XXVI), and a third advanced myocarditis, nephritis, and chronic hepatitis with jaundice (Case XXVII). These three fatalities occurred in individuals with gallstones who had been for years under treatment (one for ten years), and were not advised to have an operation until the grave complications had shown the futility of further medical treatment. The blame for these deaths should clearly be placed upon the first medical advisers, who erred either in the diagnosis or prognosis of gallstones, and not upon surgery which cannot hope to save patients in whom cancer of the biliary apparatus has been allowed to develop, or advanced degenerative disease of the liver, heart, and kidneys.

14 EAST FIFTY-EIGHTH STREET.

#### SPECIAL TECHNIC IN PALPATION.

BY L. NAPOLEON BOSTON, A. M., M. D.,  
Philadelphia,

Professor of Physical Diagnosis, Medicobiochemical College; Physician to the Philadelphia General Hospital; Pathologist to the Frankford Hospital.

It is the purpose of this paper to describe by text and show by illustrations, practical methods not generally in use.

The correct employment of palpation for the recognition of disease of the lung is believed by the writer, to be among the most valuable of physical methods. Whenever it is desirable that the exact extension of a pulmonary lesion be ascertained, palpation serves this purpose equally well, and at times more advantageously than any other physical method.

The accompanying illustrations are taken from cases in the wards of the Philadelphia General Hospital, and the findings resulting from the employ-



FIG. 1.—Determining the exact boundary of an area of pulmonary consolidation through the degree of vocal tactile fremitus. The left index finger recorded far more fremitus than did the right.

ment of palpation have in each and every instance been confirmed by further physical study, the x ray, and at times by autopsy. In comparing the two halves of the chest it is all important that we employ corresponding areas for study. One must ever keep in mind that pleural adhesions may conduct abnormal vibrations to the chest wall. In order to eliminate the misleading element of increased fremitus resulting from pleural or pericardial adhesions. A useful practice is to employ only the index fingers of the two hands. (Fig. 1.) The tip of the index finger receives sensations from an area of the chest approximately the size of a dime. It will be found that but little additional time is necessary to traverse the entire chest wall in this manner, and the results obtained are by far more valuable than those gained through the application of two or more fingers of the same hand to the surface of the chest. Again, the index finger is decidedly more sensitive than are the other fingers. The index, the second, and half of the third fingers are supplied by the median nerve, while the other half of the third, and the fourth fingers are supplied by the ulnar nerve. (Fig. 2.) Where all the fingers are placed upon the chest, sensations conveyed to the first, second, and third fingers give the operator the mental impression that the entire area upon which these three fingers rest, is responsible for the increased fremitus present. Should the four fingers be separated at some distance, any unusual vibration conveyed to any of the fingers is liable to confuse the operator, a feature especially true when the abnormal sensations are received only by the fourth finger and by the index finger (the evidence being that the entire surface palpated is responsible, while the index and fourth finger may be the only tracts to receive abnormal fremitus). (Fig. 3.) A

similarly imperfect record is obtained when abnormal fremitus is conveyed only to the third finger (Fig. 2), and here again the mental record is such as to lead the operator to believe that the entire surface palpated by all four fingers gives increased fremitus.

After it has been found that a certain portion of the chest gives increased fremitus, the next step in the examination is to determine the exact extension of the lesion accountable for such fremitus. This is done by placing one index finger some distance beyond the area where increased fremitus is produced, and traveling slowly with this finger toward the lesion. Whenever the palpating finger reaches a point where the fremitus is increased, this point should be designated by the pen. This same procedure should be employed to ascertain the boundary of the area of abnormal fremitus on all sides. After the area of increased fremitus has thus been roughly outlined, place one index finger immediately inside the limiting line, and upon the area where fremitus is increased (Fig. 1), and at the same time place the index finger of the other hand but a short distance beyond the line. In this last position carry the two fingers in a steplike manner along the line designating the approximate limitation of the area of increased fremitus. The finger palpating over the lesion will be found to elicit increased vocal tactile fremitus, while the other index finger palpating immediately beyond the lesion detects a lesser degree and in many instances normal fremitus. This method will be

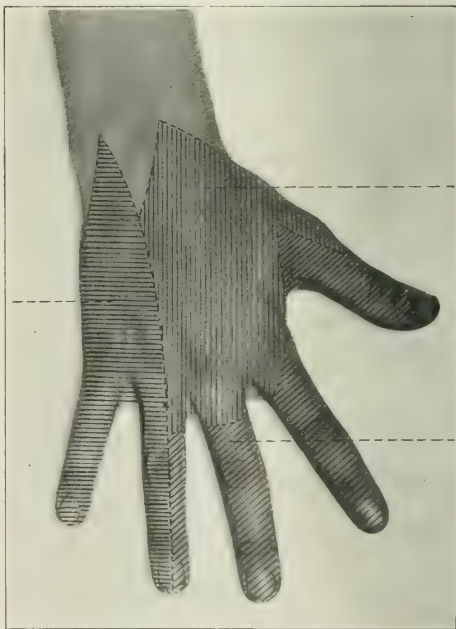


FIG. 2.—The transverse lines represent the areas supplied by the ulnar nerve, the vertical lines occupy that area supplied by the radial nerve, and the oblique lines indicate areas supplied by the median nerve.

found of special service where the lesion and consequently the area of increased fremitus are irregular in outline.

In palpating for the detection of expansible pulsation, the position of the operator's fingers must vary, depending upon the location of the aneurysm. Apply the four fingers and the thumb to the pulsating mass in such a way that they more or less completely surround it. (Fig. 4.) The sensation of true expansion with each heart beat is conveyed to the operator's hand most distinctly, when the above described technic is followed. This method has been employed by the writer in distinguishing between aneurysm of the carotid regions, and pulsations due to other causes. In studying aneurysm of the abdominal aorta and pulsations conveyed



FIG. 4.—Method of detecting expanding pulsation of the abdomen. The patient displayed extreme pulsation of this area, which was shown by autopsy to be an aneurysm of the abdominal aorta.

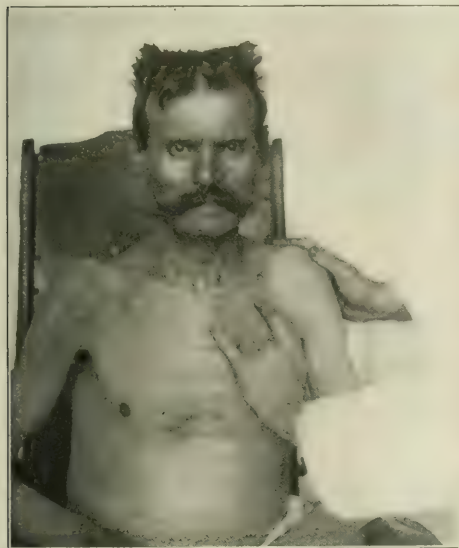


FIG. 3.—Palpation of two small areas where fremitus is increased.

through some solid viscus or growth, this technic has proved of inestimable value.

To establish the outer margin or area over which pulsation is detected employ the method described under palpation of the lung. (Fig. 1.) After the boundary of the pulsating area has been established by careful palpation, adjust the four fingers' tips and the thumb along the margin of the pulsating mass, and gradually cause the fingers to approach the centre of the pulsating surface until a heaving or expanding sensation is apparent at each finger. (Fig. 4.)

In palpating for the edge of the liver, a procedure which I have seldom seen employed, and which in my hands serves as one of real worth is as follows: While the patient is standing place the fingers of the palpating hand at approximately the lower border of the liver; and direct the patient to raise the heel of the right foot so that he stands with but a small portion of his weight upon the right toe. This position (Fig. 5), will be found to



FIG. 5.—Here the patient rests the right foot upon a small box, which gives identically the same result as standing with but a small portion of his weight upon the right toe.



relax the abdominal wall over the right hemisphere. This method serves of equal value in palpation of the right kidney, and of the appendicular and pelvic regions. The same procedure is equally well adapted for the study of the left abdominal hemisphere.

During the past six years it has been the writer's custom to employ the technic hereafter described for the purpose of determining the degree of tension over various portions of the abdominal surface. It will be found that in normal subjects, when the patient is resting upon his back with the thighs flexed, there is a slight increase in tension immediately below the right costal margin (hepa-

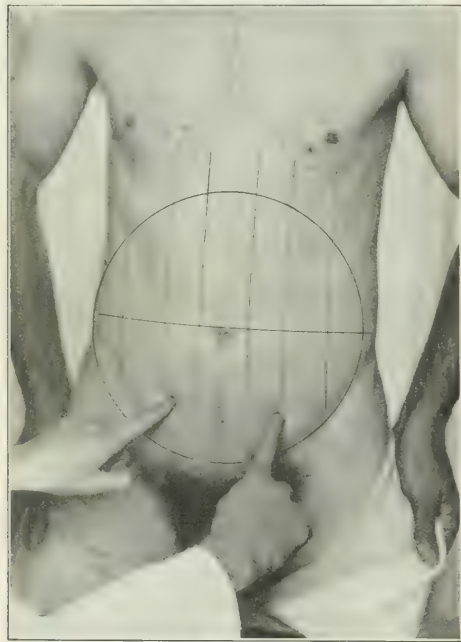


FIG. 6.—Method of determining the degree of abdominal tension.

tic tension). This area when compared with the same area in the left superior abdominal quadrant, offers slightly more resistance to the palpating finger. Comparing the two sides of the abdomen, one or two inches above the level of the umbilicus, the same degree of resistance is offered to the palpating fingers. There is no appreciable difference in the resistance of the two sides of the abdomen below the umbilicus during health. (Fig. 6.) This method for palpating the two halves of the abdomen simultaneously, as shown by the accompanying illustration, is to begin immediately above Poupart's ligaments, ascending in lines drawn from the centre of Poupart's ligaments to the costal border. Continue by comparing the two halves of the abdomen at equal levels ascending to the margin of the ribs. One may also palpate the abdomen, employing the same scheme and ascending from the

inferior abdominal region to the costal margin, following lines approximately two inches to the right and the same distance to the left of the line previously mentioned. (Fig. 6.) Through this method of palpation it is possible to elicit one of the most delicate signs of new growths of the abdomen. Enlargement of the liver, spleen, kidneys, uterine, ovarian, cystic growths, and fecal impaction are all placarded by a localized increase in tension of the abdominal wall over the site of the lesion. Pro-lapse of any viscus causes a lessened resistance to the finger when palpating over its normal position; and increased tension is detected immediately over the present position of such migrating viscus. Localized inflammatory processes involving the abdomen are accompanied by undue tension over a limited portion of the abdomen, and this is exemplified in acute appendicitis, pyosalpinx, gastric cancer, and conditions accompanied by localized peritonitis. Posture may materially alter the degree of abdominal tension, therefore it is preferable to palpate while the patient is resting upon his back, on his right side, on his left side, and when standing.

## INDUCED PNEUMOTHORAX,

### *Preliminary Report.*

By H. SCHWATT, M. D.,  
Edgewater, Colorado,

Superintendent of the Sanatorium of the Jewish Consumptives' Relief Society.

The treatment of advanced pulmonary tuberculosis by means of induced pneumothorax is gaining wider and wider recognition and the literature on artificial pneumothorax has, within the past few years, become voluminous. It is, however, to be regretted, in a procedure which constitutes, perhaps, the greatest advance in the treatment of cases previously considered hopelessly advanced, that there exists so much of radical difference of opinion as regards nearly every important phase of the subject. It is the conflicting opinions of clinicians with the greatest experience in this field in regard to the indications, and the numerous modifications of apparatus and technic, which deter us from undertaking this method of treatment, which in numerous cases has been productive of brilliant and lasting results and that irrespective of any particular form of technic employed.

The value of artificial pneumothorax must eventually be decided upon the results obtained in a large number of cases so treated, and in order to draw definite conclusions from reports they must emphasize certain definite and important points. In many cases the most vital data relating to the case are left to the imagination of the reader and information is omitted which is absolutely essential in establishing a correct opinion regarding the value of the treatment, or whether the ill results described have been due directly or indirectly to the collapse of the diseased lung.

It is not my purpose to cover in this preliminary report the entire field of the theory and practice of

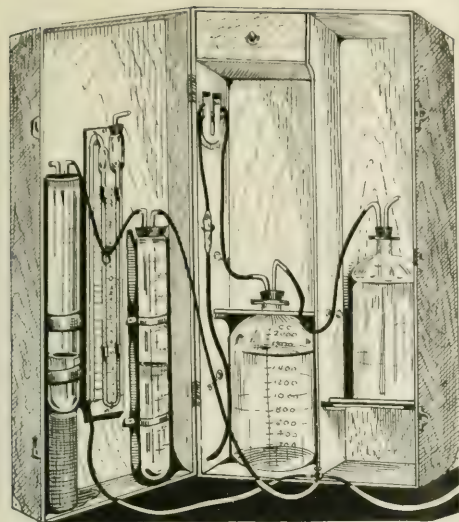


FIG. 1.—Author's injection apparatus.

artificial pneumothorax. It is merely intended to call attention to:

First, the technic employed.

Second, the method of presenting case histories and of keeping uniform records of cases treated by means of induced pneumothorax.

#### TECHNIC.

The Forlanini, or the so called puncture method, has been employed in the cases reported.

The injection apparatus and the needles employed are not described in detail. (Fig. 1.) All apparatus in use are based upon the same principle and are modifications of those originated by Forlanini, Brauer, Saugman, von Murali, and Kornemann. The cylindrical jars seen in the illustration were added to the original apparatus and are for the purpose of using oxygen gas if desired. The needles are graduated at ten millimetres' distances from the point so that the operator may easily determine at what depth it enters the free pleural space, and as a guide for subsequent operations. The needle is provided with a sliding circlet of a definite length (ten millimetres), and may be fixed at any desired point by means of a set screw to prevent the needle from slipping. (Fig. 2.)

All instruments employed are to be sterilized as for a major operation. The patient is given an injection of one eighth grain of morphine. The side of the chest to be operated on is then thoroughly cleansed with tincture of green soap followed by alcohol. The operator, whose hands are sterile, then injects at the selected site about one cubic centimetre of a solution containing novocaine, grain one third, and epinephrin, grain 1/200. This injection is made by inserting the needle under the skin in all direc-

tions and down to the pleura. The site of the puncture is then painted with tincture of iodine, and after waiting a few minutes to allow the local anesthetic to act, an incision down to the pleura is made with a sharp narrow scalpel. The latter is provided with a guard. Occasionally there may be slight bleeding at the point of incision, and it is advisable to wait until this ceases before inserting the pneumothorax needle so as not to aspirate blood into its lumen. The needle is first tested by allowing some of the gas to flow through it into alcohol. The threeway stop cock of the apparatus is then turned in such a manner that the needle is connected with the manometer only. Through the incision the needle is slowly inserted under the guidance of the manometer until respiratory oscillations set in and a reading is obtained which indicates that the point of the needle has entered a free pleural space. The circlet is then fixed by means of the set screw and the injection of gas may be proceeded with.

The author uses oxygen gas for the first, and frequently for the second injection. Under no circumstances is any gas allowed to flow in before there is a conclusive indication that the point of the needle is in a free pleural space. What methods have we for determining that such is actually the case? Without entering into a discussion of the manometer readings obtained under various conditions, suffice it to say that a distinctly negative reading with both inspiration and expiration, and a greater negative reading with inspiration than with expiration, are practically conclusive evidence that the needle has entered the pleural cavity. Occasionally we find a distinct negative reading with inspiration which becomes slightly positive on expiration. This may be due to forcible expiratory efforts of the patient as a result of excitement. As a further indication the patient is instructed to take a moderately deep inspiration and to hold his breath at the end of it. If the manometer then remains stationary at a negative reading, one may be certain that the point of the needle has reached a free pleural space. Should the point of the needle be in the lung tissue, the column will drop from negative to zero while the patient is holding his breath. The insertion of the needle into the lung tissue is in itself devoid of any danger.

The patient is placed in a position which allows of the widest separation of the ribs, and so that the point of injection is the highest in relation to the chest wall.

It is the author's practice to inject the gas in small quantities especially at the first operation. No more than from fifty to one hundred cubic centimetres of gas are injected without taking a manometer read-

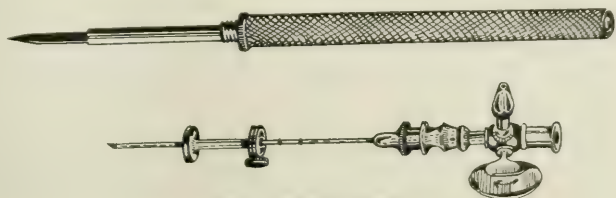


FIG. 2.—Needle and scalpel.



FIG. 3.—Case I, showing partial collapse of left lung.

ing and a record of the pulse and respiration. At the first operation no more than from about two hundred to three hundred cubic centimetres are injected, and at subsequent operations never more than from five to six hundred cubic centimetres. The second injection is usually given on the following day, and subsequently and until, by physical examination, it is shown that a partial pneumothorax has been established, at three days intervals. If the patient, during the operation, complains of pain, which may be ascribed to the stretching of adhesions, the gas is stopped.

It is the opinion of the author that many unfavorable results, both immediate and remote, are produced by injecting large amounts of gas. Except in cases where it is sought to induce a pneumothorax for the purpose of stopping hemorrhage, nothing can be gained, and great damage may be done, by injecting large amounts of gas. It is equally wrong to inject the gas under a pressure greater than that furnished by the injection bottles. We must keep in mind that the other lung, apparently healthy, or to a certain extent involved by active or inactive disease, must take up the burden of the collapsed lung. The slower this additional work is placed upon it, the less likely for a dormant process to flare up, or a slightly active process to extend, and the slower the diseased lung be collapsed, the less likely the aspiration of secretion from possible cavities into the healthy lung. The tearing up of adhesions by the injection of large quantities of gas, or by pressure appliances, is a procedure which should be strongly condemned. The amount of gas injected should be further regulated by the position of the mediastinum. We find in some cases a very easily displaced mediastinum, especially after a moderate or complete collapse has been established. In such cases the position of the mediastinum should be determined even during the operation.

After the desired amount of gas has been injected the needle is withdrawn and the site of puncture is sealed with collodion. The author makes

it a practice for his patients to assume the erect posture gradually, especially in cases where the mediastinum has been displaced to any marked degree. This procedure obviates the occurrence of dizziness and nausea which frequently follow the operation. Where the patient is subject to a cough, a small pill bottle is secured over the puncture by means of adhesive plaster for about twenty-four hours to avoid the occurrence of subcutaneous emphysema.

With careful technic the accidents and complications in induced pneumothorax are reduced to one—emphysema of the cellular tissue. This usually occurs as a result of the escape of gas during or after the operation due to coughing. It may be the result of injury of the lung tissue, in which case the emphysema may be considerably increased by respiratory movements and coughing. Occasionally the extent of the emphysema may appear alarming. It is, however, rarely a dangerous complication. If it is due to severe cough it is advisable to give a sedative for a few days. Further injections should not be given until the emphysema has completely disappeared.

#### METHODS OF PRESENTING CASE HISTORIES AND KEEPING RECORDS.

In undertaking to induce an artificial pneumothorax, many factors must be taken into consideration. The patient should be made acquainted with the seriousness of the treatment and should be impressed with the fact that the induction of an artificial pneumothorax is a major operation and subject to various accidents and complications. The most important questions to be considered as to whether or not the treatment should be undertaken are: 1. The duration of the disease. 2. The previous methods of treatment pursued and results obtained. 3. The general condition of the patient. 4. The physical findings. 5. The x ray findings. 6. The complications, tuberculous and nontuberculous. 7. The economic factors.

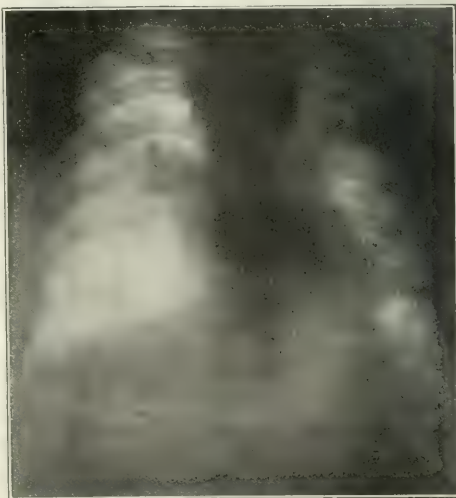


FIG. 4.—Case II, showing collapse of right lung.



All these points should be embodied in reports of cases treated by artificial pneumothorax.

The indications for the performance of an induced pneumothorax have been set forth by various authors within varying limits. The writer has confined himself to unilateral cases or cases with inactive involvement of the other lung. In regard to the firmness or extent of the pleural adhesions, it may be said that neither by physical examination nor by x ray findings can it be positively determined beforehand, whether it will be possible to produce an artificial pneumothorax, or the extent to which the lung may be collapsed.

The author has devised a blank which is used to record each individual operation. The other side of the blank serves for a clinical report since the last injection in regard to cough, expectoration, appetite, digestion, bowels, sleep, night sweats, kidneys, dyspnea, pain, chills, temperature, pulse, etc.

Before each injection an examination of the lungs is made with special reference to the presence of fluid. Particular stress is laid on the examination

and after the first injection the patient suffered a rather alarming degree of shock with rapid and weak pulse and nausea, followed by vomiting after the needle was withdrawn.

The following injections had been given to date:

April 26th	475 c. c.	June 14th	600 c. c.
April 29th	450 c. c.	June 25th	600 c. c.
May 2d	400 c. c.	July 11th	600 c. c.
May 6th	200 c. c.	July 25th	600 c. c.
May 9th	400 c. c.		
May 17th	300 c. c.		

a total of 5,000 c. c. of nitrogen gas in eleven injections.

Three x ray plates had been taken since the injections were begun, the last on July 24th, showing a very satisfactory degree of collapse. The mediastinum was somewhat displaced, about three centimetres to the right. The only complications during the course of treatment had been dizziness, nausea, and vomiting following the eighth injection. Physical examination of the right lung showed no change. (Fig. 3.)

The improvement in this case had so far been very satisfactory. There had been no rise of temperature above normal. The expectoration had diminished to about half an ounce, and on many days the patient had had none. The sputum had been repeatedly examined and was first found to be negative on May 12th. Repeated examina-

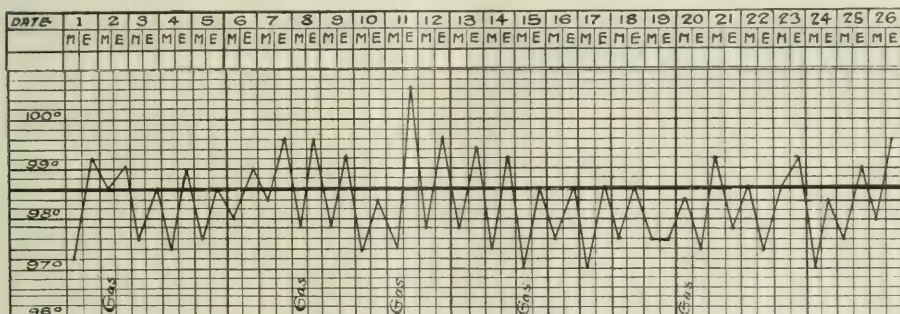


FIG. 3.—Chart of Case III, showing effect on temperature

of the healthy lung. The position of the mediastinum is noted before and after each operation.

#### REPORT OF CASES.

CASE I. R. S., male, aged twenty-six years. Admitted March 18, 1913. Duration of disease, fifteen months. Previous treatment, medical. He had lost twelve pounds since July, 1912. He came to Denver from St. Stephens Bay, N. B., Canada, in December, 1912. Two weeks before admission he had a moderate hemorrhage. On admission he complained of severe cough at night, dyspnea on slight exertion, occasional chills, moderate degree of fever, and pains in the left side. The patient was pale and presented an unhealthy and hectic appearance.

Physical examination: Extensive infiltration of the left lung and harsh breathing, with slightly prolonged expiration at the right apex. No râles on the right side. Crackling râles over the entire left lung. The patient was confined to bed more or less until the pneumothorax treatment was undertaken, with his temperature rising frequently to 100° F. and 100.4° F.; his pulse ranged from 78 to 104; he had a cough, which was especially severe at night, and an expectation of from three to four ounces in twenty-four hours. Tubercle bacilli found in sputum. By April 1st the patient had lost five pounds. He felt that he was losing ground and asked that a collapse of the left lung be undertaken.

An x ray plate confirmed the physical findings of the left lung, but also showed some infiltration of the right lung which, on account of the absence of physical signs, was considered inactive. The first injection of nitrogen gas was given April 26th. The needle was introduced in the seventh interspace in the midaxillary line. During

tions by the ordinary and antiformin methods failed to reveal bacilli. Patient had entirely lost his cough. The general condition was splendid. There had been a gain of ten pounds since the treatment was begun. There was no dyspnea. Patient was anxious to leave the sanatorium to take up his work as shoemaker.

CASE II. S. L., male, aged twenty-nine years. Admitted March 26, 1913. Duration of disease, according to patient, nine months. Previous treatment, medical. Came to Denver six weeks before admission. Had lost sixteen pounds since the onset of the disease. He never had any hemoptysis. On admission he complained of moderate cough at night and an expectation of about one ounce in twenty-four hours. Tubercle bacilli found in sputum. He was a well nourished individual of medium build, but of a somewhat cyanotic appearance. The physical examination was confirmed by an x ray plate showing an extensive infiltration of the right lung. Moist râles throughout. Left lung: Moderate involvement at base and in lower axilla. A few crackling râles over these areas which largely disappeared after coughing.

In this case a pneumothorax was induced not for the relief of any particular symptoms, but at the request of the patient, who desired to take this means of regaining his health and to return to earning capacity.

The following injections had been given to date:

May 17th	395 c. c. oxygen	June 21st	500 c. c. nitrogen
May 21st	425 c. c. oxygen	June 25th	500 c. c. nitrogen
May 26th	350 c. c. oxygen	July 2d	450 c. c. nitrogen
June 2d	500 c. c. oxygen	July 11th	500 c. c. nitrogen
June 11th	500 c. c. nitrogen	July 20th	500 c. c. nitrogen
June 14th	600 c. c. nitrogen		

a total of 5,130 c. c. of gas in eleven injections.



FIG. 6.—Case III, showing collapse of right lung; note bandlike adhesions extending to diaphragm.

No complications during the treatments. Three x ray plates taken, the last on July 24th, showed a satisfactory degree of collapse. No change in the left lung. Sputum negative on July 12th, and on subsequent examinations, by the ordinary and antiformin methods. No cough nor expectoration. Gain of weight, three pounds. No subjective evidences of disease. (Fig. 4.)

CASE III. B. L., female, aged twenty-five years. Admitted August 7, 1912. Duration of disease, six months (?). Previous treatment, medical. Came to Denver six weeks before admission. Symptoms on admission: Severe cough with an expectoration of four ounces in twenty-four hours; tubercle bacilli found in sputum; general condition unfavorable; weight, eighty-five pounds. From day of admission the patient had practically been completely bedridden with the following symptoms:

Temperature of a pronounced hectic type ranging from 96° F. in the morning to 103° F. in the afternoon, and at no time normal. Pulse ranged from 88 to 130. Night sweats, chills, gastric disturbances, and severe cough were present. The general condition of the patient being very unfavorable, she requested that a pneumothorax be induced.

Lung condition: Extensive involvement and fibrosis of the right lung with a large cavity at the apex and amorphic breathing extending to the third rib; also an infiltration of the left apex with a few râles on expiratory cough. There was harsh breathing over the entire left lung. An x ray plate confirmed the findings in the right lung and showed extensive infiltration of the left lung. On account of this it was explained to the patient that, if the treatment were undertaken, it would be done simply as a last resort. In spite of this, the patient requested to have it done. The following injections had been given to date, the needle being introduced through the fifth interspace in the midaxillary line:

June 11th...200 c. c. oxygen	July 2d...400 c. c. nitrogen
June 14th...250 c. c. nitrogen	July 8th...350 c. c. nitrogen
June 18th...300 c. c. nitrogen	July 11th...300 c. c. nitrogen
June 21st...250 c. c. nitrogen	July 15th...250 c. c. nitrogen
June 28th...300 c. c. nitrogen	July 20th...300 c. c. nitrogen

Physical examination now showed an extensive pneumothorax, confirmed by an x ray plate taken July 24th. No change in the findings of the left lung. Effect on symp-

toms: There had been a decided drop in the temperature, particularly since the sixth injection. (Fig. 5). Expectoration had decreased from three ounces to about one half ounce in twenty-four hours. The cough was very slight. There were no night sweats. The appetite was good, and the bowels regular. The improvement in the general condition of the patient was pronounced; she was then up and about the greater part of the day. (Fig. 6.)

CASE IV. S. S., male, aged forty-two years. Admitted February 18, 1913. Duration of the disease, one and one half years. Onset with slight hemorrhage. In November, 1912, he had a profuse hemorrhage. He had an hemoptysis in December, 1912, and in January, 1913. He lost fourteen pounds since the onset. On admission he complained of severe cough with an expectoration of two ounces in twenty-four hours. Tubercle bacilli found in sputum. He had some digestive disturbances. His temperature was subnormal though rising occasionally to 100° F. His pulse ranged from eighty-eight to ninety-six. On March 22d the patient had a slight hemorrhage and raised bloody sputum until April 11th. Hemoptysis on May 3d and from May 31st to June 2d. Hemorrhage, ten ounces, on June 3d; hemoptysis to June 10th. Hemorrhage, eight ounces, on June 11th; hemoptysis until June 21st.

Physical examination showed extensive involvement of the right lung with cavity formation and crackling râles throughout. In the left lung there were moderately numerous râles up to the second rib. At the request of the patient an artificial pneumothorax was attempted on June 24th. It was not possible to have an x ray picture taken, the patient being bedridden.

The needle was inserted in the fifth interspace in the anterior axillary line, to the depth of thirty millimetres; no reading of the manometer obtained. The needle was reinserted at a little distance from the first puncture and, at a depth of sixteen millimetres a typical lung reading was obtained. The patient had a severe attack of coughing and before the needle was withdrawn an extensive emphysema developed. Within a few hours this extended to the other side of the chest, and up to the clavicles and to the abdomen. By July 2d the emphysema had disappeared. On July 2d the needle was introduced in the fourth interspace in the anterior axillary line and a free pleural space found. Two hundred and fifty cubic centimetres of oxygen were injected. On July 8th the reading was so indefinite on account of an attack of cough that,



FIG. 7.—Case IV, showing slight collapse of right lung.

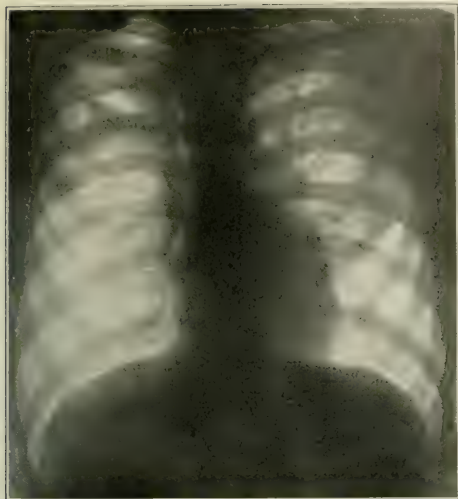


FIG. 8.—Case V, showing partial collapse of right lung.

after injecting twenty c. c. of oxygen the needle was withdrawn.

The following injections were subsequently given:

July 15th....115 c. c. oxygen	July 20th....500 c. c. oxygen
July 16th....400 c. c. oxygen	July 23d....400 c. c. oxygen

An x ray plate taken July 24th showed a small area of collapse. The under portion of the lung was dense, apparently firmly adherent, and it was doubtful whether it would be possible to obtain a collapse. The injections were to be continued. There had been a marked diminution in the cough. (Fig. 7.)

CASE V. A. N., male, aged eighteen years. Admitted February 27, 1913. Duration of disease, four months (?). Previous treatment, medical. Came to Denver six weeks before admission. On admission complained of moderate cough and an expectoration of about one ounce in twenty-four hours. General condition, poor. He had some gastric disturbances. His temperature was subnormal, but occasionally rose to 99.6° F. His pulse was about 100. Tubercle bacilli found in sputum. The patient was steadily losing weight, which was 126½ pounds on March 15th, and 116 pounds on July 1st. Physical examination showed extensive involvement of the right lung, with moist râles throughout. Left lung: Some râles below clavicle to third rib, and harsh breathing posteriorly in the suprascapular area. X ray plate confirmed findings in right lung, but showed more extensive infiltration of left lung than was found on physical examination. On account of the rapid loss of weight and generally unfavorable condition of the patient it was decided to attempt to collapse the right lung. The following injections had been given, the needle being introduced through the sixth interspace, anterior axillary line. After the first injection the patient suffered a marked degree of shock:

July 8th....200 c. c. oxygen	July 20th....400 c. c. nitrogen
July 11th....300 c. c. oxygen	July 23d....400 c. c. air
July 15th....400 c. c. nitrogen	

An x ray plate taken July 24th showed a favorable degree of collapse of the upper and lower lobes. The middle lobe appeared to be held by adhesions. There had been a marked diminution in the cough and in the amount of the expectoration. (Fig. 8.)

In two cases we decided to undertake the collapse of the more diseased side on account of the more extensive involvement of the other side, as shown by the x ray plate, than was supposed to be

present on physical findings. In one case one attempt was made, and further attempts given up, it being unlikely that a free pleural space would be found. In one case ten, in another seven, in another two, and in one three attempts were made without success. In several of these cases the Brauer method will probably be tried. In one case treatment was begun and interrupted as a result of an hemoptysis followed by aspiration pneumonia. In this case treatment will be continued. A collapse is being attempted in a case of abscess of the lung with unfavorable results so far.

The writer desires to thank Doctor Beggs, Doctor Taussig, and Dr. John Ostro for their assistance in giving the treatments.

## THE TOXICITY OF COAL TAR PRODUCTS.

BY G. HOWARD WHITE, JR., A. B., M. D.,  
Baltimore.

In view of the recent government report by Hale describing a method for the determination of the toxicity of coal tar disinfectants, it does not seem out of place to call attention briefly to a fact which is of importance in this connection.

The method mentioned above employs mice as the subjects, and the drug is injected hypodermically in increasing doses until the minimal lethal dose is reached. The minimal lethal dose of phenol is used as a basis of comparison, and this figure divided by the minimal lethal dose of any particular disinfectant gives a factor which is termed the "toxicity coefficient" of the disinfectant in question.

In toxicity work the commonly accepted methods for the introduction of drugs are the hypodermic, the intraperitoneal, the intravenous, and the intragastric. On first thought it would appear that any one of the four methods would give practically identical findings where merely comparative results were desired between drugs of the same pharmacological group. Such, however, is not the case.

In 1907 Weyl reported an extensive series of experiments in which he introduced cresol, quinosol, and other preparations into rabbits by the hypodermic, intraperitoneal, and intragastric methods with widely divergent results.

In a series of experiments carried out by the writer using rabbits and the intragastric route for the determination of the minimal lethal dose of phenol and of one of the modern coal tar disinfectants, a toxicity coefficient was obtained which was less than half that reported by Hale for the same preparation.

A superficial review of the literature has failed to show other reports bearing directly upon the question, but the evidence in hand would indicate that a further consideration of the methods of toxicity determination is advisable in the case of these drugs, particularly as the intragastric route most closely approximates actual conditions.

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1020 CATHEDRAL STREET.



## METHODS OF TEACHING SEX HYGIENE.\*

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Associate Neurologist, Demon Dispensary, Lecturer, Society of  
Sanitary and Moral Hygiene.

Thanks to the splendid, unselfish, and foresighted work of the late Dr. Prince A. Morrow, it has become an accepted fact that sex hygiene must be taught, but the determination of wise methods of teaching it, and of the best time for teaching it are still matters of study and debate in many quarters. At the present time, however, there are generally acknowledged to be two successful methods called the physiological and the biological, though to my mind these two are really subdivisions of one complete method. These two—be they associated or distinct—are variously adapted to different ages or times of teaching. The biological should be, almost exclusively, the method adopted with little children; the physiological may be, almost as exclusively, the wisest method with adults, and a combination of biological and physiological is unquestionably most successful, according to present experience, during the decade between twelve and twenty-two.

I have been asked to explain to you to-night the physiological method, but I wish to say a word in defense of my statement that this and the biological method are really one. Strictly speaking biology includes physiology, therefore I think the whole method should be called biological, and the two subdivisions might better be distinguished as physiological and evolutionary or comparative. The evolutionary or comparative method is best for little children and also associatively most helpful in the second decade of life, because it can more easily be graded and modified to meet the years and experience of the individuals being taught, and because it can be easily kept impersonal and still made personally helpful by analogy rather than direct application, and therefore by promoting an unconsciousness of self obviates any tendency toward emotional disturbance, or, if rightly handled, should do so.

The physiological method on the contrary, because of its strictly personal and directly human application, requires a greater balance of emotional self control, and because of the greater and more detailed nature of its information, necessitates a more mature intelligence and greater reasoning ability than is to be found before the middle or last of the second decade of life.

To be most helpful, however, the evolutionary method should have been used to lay a foundation for the physiological, and if sex hygiene is taught, as it should be taught, from early childhood through adolescence, these two biological subdivisions will supplement and dovetail each other as a complete unit.

To come now to the subject matter of my talk to-night, i. e., the physiological method of teaching sex hygiene, let me say, first that a thorough and exhaustive knowledge of general human physiology is essential to any one aspiring to teach by this method; second, a more or less thorough, and at least an intelligent knowledge of general physiology

on the part of the pupil is an essential basis for any really helpful instruction; and third, a true appreciation of the unity of the human mechanism, of which sex, digestion, nerves, etc., are but parts, must be obtained by both teacher and pupil and all tendency to isolate one function and magnify its importance over others must be rigorously avoided.

In presenting the topic as briefly and sketchily as I must to-night, I wish to take it up in three parts: First, the general physiology of that individual, who for convenience we will call sexless, I mean the boy or girl under eight years of age or thereabouts; second, the physiology of the female sex; and third, the physiology of the male sex.

Obviously I cannot be exhaustive in the time at my disposal and the accompanying chart must help to clear up matters by furnishing headings:

SEXLESS.		MALE AND FEMALE.
Nutritional Functions:	Digestion and absorption	Physiological changes in functions and appearance of sexual characteristics, mental, physical, emotional, and social. Differentiation and its influence on life.
	Glandular: { Secretions { External	
	{ Excretions { Internal	
	Circulation { Heart and bloodvessels	
	{ Lymph	
Motor Functions:		
Bones		
Ligaments and tendons		
Muscles		
Nervous Functions:		
Sensory { Special		
{ General		
Motor		
Sympathetic and associative		
Mental		
Reproductive Functions:		
Latent		

I will briefly sketch the physiology of the child under eight years of age by this tabulation. In nutritional functions throughout its life the growth and development of digestive and absorptive systems has been phenomenal. The mechanisms of digestion and absorption in the average child of eight or ten are perfect and much more mature than many other functions of the body. The child is capable of eating, digesting, and absorbing such foods as may be naturally required by all tissues for growth, for repair, and for work. Unless the glandular functions, especially those having to do with internal secretion, are deranged, the child is also capable of assimilating any food which he or she may digest and absorb. Just here let me emphasize some physiological distinctions in terminology: Digestion, technically means the preparation of ingested food, i. e., food taken into the mouth, for absorption. The preparation of food for absorption includes (1) mastication, or chewing and mixing with saliva, (2) swallowing, (3) gastric, i. e., stomach, changes brought about by chemical activity due to the effects of the fluid called gastric juice, which is the external secretion of the stomach glands, and (4) enteric, i. e., intestinal, changes brought about by further chemical activity, due to the effects of several fluids, i. e., intestinal juice, pancreatic juice, and bile, which are all external secretions of important glands. At this point digestion *per se* ends and the food has so to speak been separated into the sheep and the goats, the former for absorption and use in the bodily economy, the latter for excretion from the bowel as solid waste matter.

Absorption, technically, is the taking up into the

\*Read before Conference of Settlement Workers at the New York Diocesan House, May 12, 1913.

blood and lymph supply of the digestive tract, such of the digested food as can be used by the tissues for the processes of growth, repair, and the production of energy.

Assimilation, technically, means the extraction of nutritive particles from the blood and lymph by the tissues, and their construction into essential elements of the tissues themselves for growth, repair, or work. This function of the body is sometimes too little understood, and as it is a very vital one and intensely dependent upon the integrity of the glandular functions of the body, I may perhaps be pardoned for a brief apparent digression from my outline. Glandular activity is to-day considered to consist of two kinds called external and internal secretions; the first, i. e., external secretion, is composed of some absorbed food elements, extracted from the blood or lymph, which are elaborated within the gland into a complex fluid, and poured out, through a duct, upon some skin, mucous, or serous surface for chemical or mechanical use in digestion, lubrication, or excretion; the second form of glandular activity, i. e., internal secretion, is composed of some absorbed food elements extracted from the blood or lymph, which are elaborated within the gland into a highly complex material and returned from the gland into the blood or lymph stream and carried to more or less remote parts of the body for use by the tissues in promoting assimilation. Internal secretion is a vitally important function and one of the existence of which science has known for a relatively brief period, and therefore we are just beginning to understand it and its tremendous importance to health. So far as we now know all glands have internal secretions; some glands have both internal and external secretions, and I ask you to keep these facts in mind until later.

To return to our so called sexless child of eight, he digests, absorbs, and assimilates healthily, and these several functions are relatively fully matured. The blood, which is the common carrier of absorbed food for assimilation of the food elements essential for glandular activity, and of the products of tissue waste which must be excreted from the body, must be kept moving and the circulatory functions of the average healthy eight year old child are adequate for his purpose. That is to say the heart is strong enough, and the bloodvessels elastic enough to keep the blood moving; the lymphatic glands and other sources of supply for the distinctive elements, which compose the blood, are active enough to keep the lymph and blood rich enough to fulfil their function of carrying and distributing nutritious material to the tissues and conveying waste products from them. The circulatory functions are, however, relatively less mature than the digestive, absorptive, and assimilative functions, and have still much growing to do prior to and during the period known as puberty, which is approaching.

The motor functions of this sexless individual, like the circulatory, are adequate for their purpose. The bones have not yet lengthened to adult proportions, nor the muscles, ligaments, and tendons been toned up to their mature functions, but for all the necessities of child life they are sufficiently serviceable. Just prior to puberty, and during the early part of that time, the bones, etc., take a big spurt

in growing, and this appears as though Nature, having been so absorbed in maturing digestion, absorption, and assimilation, suddenly appreciated that motion and locomotion had been neglected and precipitately attempted to make up for former insufficiency.

In the nervous functions of this child of eight we have some very interesting and important facts to notice. His sensory functions *per se*, i. e., the special senses, and such general sensation as hunger, thirst, fatigue, well being, and the like are matured the motor functions of the nervous system are like the motor functions of his body as a whole, adequate to meet the demands of his age; the associative functions between motion and sensation and *vice versa* are equal to all emergencies arising in his life; the sympathetic nervous system, which is in reality the guardian spirit and regulator of circulation, digestion, absorption, assimilation, secretion, and kindred functions, is sufficiently mature to maintain the delicate balance and adjustment of functions during health, provided it is not too roughly abused or disarranged by shock, be it fright or other emotional crisis. More of this sympathetic system and its functions in a minute or so. The mental development of our sexless child is a matter of vital interest and great importance. Up to this time the evidences of psychic development have been largely, if not entirely, motosensory, the emotions such as are directly associated with sight, hearing, smell, and other so called special senses, and with muscular activity *per se*. The child is and has been an essential egoist, either absolutely unsocial or asexual in his social activities. Boys and girls have mixed together, played together, indiscriminately and without distinction or differentiation (unless imposed from without by some custom of their adult guardians), and with no true consciousness of any vital difference between boy and girl, with no true feeling of distinctive qualities, abilities, or functions. This attitude is perhaps aptly illustrated by the question of the little girl, "Mamma, how can you tell the difference between brother and me, when we are in the bath?"

So far in the study of this child we find practically no difference between boy and girl. In the remaining group of functions in our chart, we find a kindred similarity: the reproductive functions are latent. All the essential organs of reproduction, including the connections through the sympathetic nervous system and the emotional and other mental nerve elements, are present in the child before eight years of age, but they are latent or inactive in large measure; and they should be so inactive, in the *normally healthy* child, as to be largely negligible except as the general hygiene of the bath, for instance, necessitates cleanliness. This inactivity is not always a fact, however, because unfortunately accident, lack of cleanliness, tight or improperly fitting clothing, or vicious companionship, or instruction may have resulted in masturbation before the age of eight, and thus have produced a precocious maturity of functional activity in the reproductive system, which is detrimental to the perfect physical and mental balance of the child. These points in sex hygiene must be watched for and guarded against from early infancy; they belong to the pathology and not to the physiology of sex instruction, and

therefore must wait to-night until later for our consideration.

Before leaving this sexless child allow me to return to the sympathetic nervous system for a few moments and quote from a paper which I read in Brooklyn a year ago on the *Value of a Healthy Girlhood*.<sup>1</sup>

Health rests on the wholeness, the completeness, the harmony of the human body and all that is contained therein, both physical and mental. We hear much at times of the influence of mind over matter, and I must emphasize the fact that there is also something to be said on the side of the influence of matter over mind.

The human body is a very complex mechanism, so delicately adjusted that each part works in harmony with every other part. The least abuse or faulty action on the part of any one organ has its influence on all others, and frequently shows its most marked evidence of being "out of gear" by some symptoms occurring in organs very remote from the scene of the real trouble. These symptoms are known as reflex, and usually are the result of activity by that part of the human machine known as the sympathetic nerve. Many of you are familiar with the headache, which is apt to accompany constipation; some of you may know from experience the sense of nausea, or of goneness in the region of the stomach, which sometimes occurs on looking down from a great height. These conditions are reflex effects, remote from their direct cause, and are more or less due to the close and intimate connection of the parts concerned by the sympathetic nerve, a seemingly misnamed part of our anatomy.

Having made a note of the dependence upon glandular secretions, of digestion, excretion, and assimilation, let me call your attention to the fact that the glands are necessary to make the secretions and throw off the waste; the secretions are necessary to digest and assimilate the food; the food, waste, and air are necessary to supply the material upon which the glands can work, and the blood is the common carrier.

In order to be an efficient common carrier, the blood must keep moving. It appears to have some automatic apparatus, which keeps reiterating two familiar phrases, "Step lively, please," and "Mind your step." This apparatus is literally the sympathetic nervous system, which automatically governs the circulation.

For example, for some time after eating the digestive glands need an extra supply of blood for two reasons: (1) In order to provide extra material for their secretions, since there is no reservoir system which could store up secretions until needed, and (2) in order to provide a large stream to absorb and carry off the digested food, since the reservoir capacities of the stomach and intestines are limited. Very likely the individual, just prior to eating, has been working, and by that term I here include manual labor, physical exercise, mental labor, and even the laborious process of "killing time," which require a large supply of blood in muscles, brain, skin, or other parts of the body remote from the digestive organs. The entrance of food into the stomach, for instance, is like the ringing of an alarm bell, which is heeded by the sympathetic nervous system, and two things happen: First, the small blood vessels in the skin, brain, etc., contract their calibre under the influence of the sympathetic nerves in their muscular coats; second, the small bloodvessels of the digestive system dilate their calibre under the influence of the sympathetic nerves in their muscular coats, and, *presto*, automatically more blood is sent to the digestive system and less to the superficial vessels and other systems. Later, when the individual begins work again, the call of the tissues used in that labor is heeded by the sympathetic system, and the two processes are reversed, superficial vessels dilate, and deep or digestive vessels contract. Thus you may understand why rest is recommended for a short time after meals, why hot baths are inadvisable immediately after eating even a late supper, since external heat dilates peripheral vessels.

Now, perhaps we have some insight into the reason for calling this nerve sympathetic, and, perhaps, too, we can appreciate why the symptom of a disorder does not always appear at the location of trouble but shows up as a

reflex symptom. People have been known to have colic who took hot baths after eating; that is an illustration of pain at the seat of disorder; but sometimes, instead of colic, the expression of trouble is convulsions that is a reflex symptom in that case. Convulsions are frequently very dangerous, and it takes a doctor to tell whether they are simply a form of colic or something very different and more serious. Wherever convulsions occur there is disturbance of the nervous system, not only of the sympathetic nerve, since in some forms of convulsions that nerve is not directly involved, but the whole system. It is through the nervous system that the alarm bell is rung, which tells of food in the stomach requiring digestion; it is through the nervous system that the call of the working tissues for nourishment is sent out; it is because of activity on the part of the nervous system that we feel, taste, smell, hear, see, move, and think. Without co-operation from the nervous system the glands would not secrete, even though the blood flowed about them, carrying all the materials they required for their activity. And on the other hand, without sufficient flow of blood containing the requisite food supply, the tissues, of which the nervous system is composed, could not do their work. Here again we see the closed circle. Without a break, it means health. With the least misadjustment of a single link, it means inconvenience of function to all parts, and, if long continued, disability and disease.

Now to turn from the general physiology of the sexless child and add to all we have considered the complexities of sex differentiation, so that we may understand how the child changes first to the boy or girl, and then to the man or woman. Perhaps no section of the human body is more generously supplied with connections with the sympathetic nerve than the sex organs, and this fact may account for the great number of ills which "flesh is heir to," which express themselves in various and more or less remote parts of the body, but which are directly due to some unnatural condition, activity, or inactivity, of the sex organs. This sympathetic nerve connection may also serve to explain to you why slight disorders, such as a light cold, wet feet, or some other more or less insignificant thing, may have a most marked influence in upsetting the regularity of the sexual functions.

Let us consider for a few minutes that lower portion of the trunk of the woman's body called the pelvis and imagine two views of that. One view would show the relative position of the pelvic bone in front, the bladder close behind, then the uterus, the rectum, and back of all again pelvic bone. From this you will understand why it is important to empty the bladder and prevent it from pushing the uterus backward, and also why it is important to keep the rectum empty, by moving the bowel, and so prevent the uterus from being pushed forward. Then, too, you can imagine what must happen to that little cradle of the human race if both bladder and rectum are full; because, as you see, the whole human trunk is packed very closely and all the coils of intestines lie above it. On our other imaginary view, you must imagine the front part of the pelvic bone removed, and behind you could see the muscular and bony structure at the sides, the bladder in the centre and foreground, and the two ovaries and two armlike projections called Fallopian tubes jutting out from the uterus, which lies in the centre behind the bladder.

In both of these views you should have noticed a canal leading down from the uterus, which is called the vagina, or birth canal, and which is the exit through which the baby must come into the

<sup>1</sup>Woman's Medical Journal, August, 1912.



world after being carried for nine months, or 280 days, in the uterine cradle. These organs form what are known as the internal sex organs of woman. The uterus, a hollow, muscular organ, not as big as my hand, is so planned that it will stretch and stretch until it holds a seven or eight pound baby comfortably, and then will contract again to nearly, if not quite, its original size. The ovaries are small (about the size and shape of an almond), and every twenty-eight days, from the beginning of a woman's sex functional life until the end of menopause, each ovary brings to maturity a small ovule which contains the germinal ovum (the egg or seed), and this, if impregnated, will become a child. In order to nourish properly the impregnated seed, when the time for such nourishment arrives, Nature begins a woman's functional life by establishing a habit on the part of the circulation of sending, every twenty-eight days, an increased blood supply to that part of the body to hasten the maturity of the ovule. If not required for the further nourishment of the ovum, some of the extra blood supply is thrown off to assist in carrying away the little excreted germ, and thus we have what we know as the monthly menstrual flow. Nature is always lavish in her provision for life, and especially for reproduction, and she furnishes every month from puberty to menopause a seed for possible impregnation, and when you realize that the majority of women, nowadays, only have at most four or five children, you will appreciate how much value Nature attaches to the ova that come to full fruition. The seed, which must reach the interior of the uterus through the Fallopian tube and pass out through the vagina, is so small it could not be seen by the naked eye, and yet, as soon as impregnated it contains all the potentialities or latent possibilities of character, of temperament, and of physique, which the future human being will possess.

While still contained within the ovary, or some authorities assert, within the uterus, this minute ovum is susceptible to influence through the action of the maternal sympathetic nerve, and, accordingly, may develop desirable or undesirable potentialities for the future child. Does this suggest to you how careful the young girl, as well as the mature woman, should be not to jar that sympathetic influence by bad hygiene in other parts of the body, or by careless or thoughtless abuse of any part, or parts, of the complex human mechanism? Beside maturing the ovum each month, the ovaries, as ductless glands, produce an internal secretion which has a very important influence in maintaining the healthy function of the whole body; and it is wise for us all to realize that these two little bodies have this dual function, one of which pertains directly to reproduction, the other to the maintenance of the general health.

Unlike the sex organs of the girl which we have just reviewed, the sex organs of the boy are carried largely outside of the trunk of the body, but they have a very close resemblance, in functions, up to a certain point.

The boy has two glands similar to the ovaries, which are called the testicles, and which, like the ovaries, have a dual function, i. e., they have an internal secretion which helps to maintain the general

health, and they produce a germinal seed, called the spermatozoon, which must unite with the ovum before the child can be conceived and grow in the maternal organism. These two testicles are suspended in a baglike body, called the scrotum, which, when necessary to force the spermatozoa out of the testicle, can, with the aid of other structures, accomplish this result. The boy also has organs which we may compare to the uterus and Fallopian tubes, and which are contained within the pelvic cavity; they are called the prostate gland and the seminal vesicles, and in them the semen, in which the spermatozoa may live and are expelled from the body, is made and stored for a short time prior to expulsion. In the male the seminal vesicles and prostate gland are in much the same situation as the uterus in the female, that is, they may be compressed between an overdistended bladder and an overfilled rectum, unless the emptying of these organs is habitually and properly attended to, and therefore neglect of these duties will have equally bad results in boy and in girl. Corresponding to the female vagina is the male penis, an organ composed, as is the vagina, largely of erectile tissue and having a canal through which the semen and spermatozoa are expelled. Like the scrotum and unlike the vagina, this penis is outside the body. It also has a dual function, because its canal is the duct by which the bladder is emptied.

Three years ago I had occasion, in lecturing on the care of nervous children,<sup>2</sup> to allude to sexual disorders, and I beg your indulgence to allow me to quote from that paper some passages which may be helpful here in explaining some physiology and a little of the pathology which we must touch on so lightly to-night.

The cleansing of the sexual regions in the boy or girl is of great importance, because, if it is not properly attended to, little particles of a normal secretion collect in the crevices and harden into little sandlike, white balls called smegma. These balls, as the movements of the limbs cause them to rub over the tender skin, set up an itching, which the child naturally rubs or scratches. Rubbing or scratching, or any friction of a certain part of the body, as you all know, draws to that part blood in extra amounts, and thus it follows that, when the child handles the genitals, the blood is drawn to that region. In two salient particulars the anatomy of the genital region differs from that of other parts of the body which are more frequently discussed and therefore better known to the public. There are proportionately (1) more bloodvessels and (2) more nerve endings in the genitals than in any other portion of the body of similar size. This peculiarity of structure is accompanied by a peculiarity of function; congestion of these bloodvessels produces mechanical pressure upon the nerve endings and this species of squeezing is agreeable to these nerves, and they, therefore, carry to the brain a sensation of pleasure and satisfaction. Hence, we readily see a reason why a child may soon acquire a habit of handling the genitals in order to produce this pleasurable feeling, and thus, even in early infancy, establish a habit of masturbation, or self abuse.

Increased congestion of the genitals is normal in the adult under certain circumstances and at certain times, and anywhere in the body, where increased congestion is normal, its appearance is followed by increased functional activity. This then is what follows masturbation: The genitals become increasingly active, which in childhood—at least prior to puberty—is not at all normal, and in infancy is absolutely pathological. As the child grows older, he or she should be taught to acquire the habit of properly

<sup>2</sup>"The Nervous Child—Its Management and Care," *The Woman's Medical Journal*, November, 1910.

cleansing these parts as a matter of routine; and this should be taught the child with as little ostentation as the cleansing of the hands, teeth, and mouth. The parents should see to it that no nursemaid or other servant inculcates bad habits into their child.

As the child approaches puberty, and this is the age I particularly wish to emphasize for the nervous child, there comes a very critical era in his or her sexual life, and here at this time is frequently laid the foundation for many a case of nervous prostration later. In the years between ten and sixteen too many cases of invalidism are established in girls, and too many cases of ill health and false morals are begun in boys. At about the age of ten or eleven years we find evidenced the first consciousness of sex difference; the boy's hero worship assumes a true manliness not always constant in him before this time, and the girl begins to show evidence of womanly aspirations. About this time there occurs, normally, in the body a series of changes, which everyone nowadays considers critical in the child's life. These changes are due in part to the beginning maturity of the sex functions. Prior to this period the child has grown in a variety of ways, in some functions more than others, and there exists in the body a peculiar lack of equilibrium. Some organs and their functions are mature, others immature, and within the next few years a complete readjustment must be effected. In itself this final establishment of an adult equilibrium is no light matter, and the strain of it falls most heavily upon the nervous system. There is a type of nervousness which appears and develops with puberty, and is due in large measure to the extra stress put upon the nervous system of the child by a combination of the normal pubertal lack of balance and incident metamorphosis, with a host of unanswered questions, unsolved enigmas, strange and unaccountable emotions which appear, oppress, and exhaust the child.

With the dawn of maturity in the sexual functions there normally arises a group of emotions, sensations, feelings, and the like, which are entirely new to the child; this is equally true of both sexes, but perhaps, morally at least, more dangerous to the boy. Unless fitting explanation of these phenomena be given the child by the parent, some reason or theory is sought for elsewhere, and the field that is thus opened, not only for immoral practices, but also for the establishment of nervous disorders, is incalculable. With the approach of puberty the parent should warn the child that many feelings and problems will arise in the course of time, which the little one will not understand, but which the father or mother can and will explain, if the child will but come and ask for the explanation. In this way there is opened the opportunity for the parent to explain to the son or daughter that these strange pubertal emotions are due to the dawn of manhood and womanhood, and that they are perfectly healthy, normal, and natural, and that, like other pure emotions such as fear, anger, etc., are to be restrained within healthy limits and not allowed to dominate the will and character. In this way also is obviated the danger of instruction being given to our children by charlatans and unprincipled adults, who play upon the fears, which are constant sequels of new and explained emotions, and who teach the pubertal child that these perfectly normal sensations are the early symptoms of serious diseases, and who lead them, by their fears, into the pitfalls of immorality, licentiousness, and illicit living.

I have said this was a critical period for both sexes. You will say that what I have just stated applies only to the boys, for they alone are led off by such tales into the paths of immorality. I tell you it is not so! The girls are led astray quite as surely, not into the paths of immorality, but into lives of invalidism, neurasthenia, and the like. These unexplained and all pervading pubertal emotions play havoc with the nervous system of the maturing girl upon whom the normal stress of puberty falls heavier than on the boy, because she has naturally greater changes to undergo in a briefer period of time. Partly because of instinct and partly because of generations of training, the girl does not actively seek any explanation, in the outright, plainspoken fashion of the boy, but she broods and ruminates over these sexual emotions. Sooner or later she forms mental habits—if not physical habits—of self abuse. By that I mean she, having been taught that it is wrong to speak of sexual matters, infers it is wrong to think of them, and soon convinces herself that

the natural emotions, which are followed inevitably and constantly by such thoughts, are sinful and wrong. This leads to a brooding on her own sinfulness, a pathological habit of introspection, and, eventually, by continuous mental self accusation or self abuse, to melancholia, neurasthenia, or other neuroses.

Sometimes, by force of fortunate circumstances, such a girl is pushed into marriage; and, if her married life is happy and fruitful, she escapes the snares of this habit of mental self abuse. She acquires external cares which make continuous introspection impossible. There are, however, far too many cases where the double standard of morality has allowed the husband to "sow his wild oats," and to acquire a disease which renders the marriage sterile, if it does not result in actual transmission of the disease to his wife; and to a woman whom puberty has made introspective a sterile marriage is perhaps the worst curse she could have, for she broods more than ever, and her habits of mental self abuse become indelibly confirmed and dominate her life.

For the boy who seeks to learn explanations for pubertal emotions away from home and from watchful loving parents, the road is open, as I have suggested, to immorality and prostitution, but in reality the parents of such a lad are standing with him at the cross roads and passively pointing the way and bidding him "God speed!" down the road to prostitution and disease, or a life of debauchery, misery, and ultimate nervous disease; for, of all the numerous nervous and mental diseases of adult manhood, the largest number are due, directly or indirectly, to one of the so called social diseases—i. e., syphilis, which is acquired chiefly by illicit intercourse.

Almost the first evidences of sex awakening are mental ones, i. e., the natural segregation of the sexes—boys into "gangs" and girls into "sets." This in reality is a cessation of the former promiscuous mixing of the unsocial child, due to the appearance of a social instinct not unconnected with a vague consciousness of sex differentiation, and usually precedes in slight degree of time the anatomical differentiations and reproductive phenomena, such as appearance of hair on various parts of the body hitherto uncovered by much hair, deepening of the boy's voice, broadening of the girl's hips and her increased bust development, and similar anatomical sex characteristics.

These in turn usually precede by a brief period the appearance of the menstrual flow in the girl, and the first nocturnal emissions of seminal fluid in the boy, which evidences of the establishment of reproductive functions are accompanied, if not preceded by various sexual emotions heretofore unknown, and which are thoroughly disconcerting to the groping mind of the pubertal child, and almost terrifying in their persistence, insistence, and vigor. Not the least distressing of these emotions are those new sensations and the accompanying and alternating feelings of exuberance and of weakness which accompany the earliest nocturnal emissions and the onset of the first few menstrual periods. The unenlightened boy or girl does not comprehend the meaning of such phenomena, both physical and emotional, and is most easily led by fears at this time into indiscreet acts which may result in permanent injury. The boy who understands that nocturnal emissions are a normal function, the excretion of excessive secretion, just as the menstrual period of the girl is an excretion of excessive material, will not be led by his fears of being diseased, to attempt quack treatments for nonexistent pathological conditions, nor will he be tempted to prostitution in order to "prove himself a man," if he understands the true economy of Nature's apparent lavishness.

Nocturnal emissions two or even three times a week, with their accompanying dreams, are not abnormal, and need not alarm the properly instructed boy or man, any more than the appearance of the menses every twenty-eight days need alarm the girl or woman.

The interesting experiments with the balance table, on which a subject is delicately balanced, and then, while doing a sum in mental arithmetic, sinks by the head, whereas during an imaginary dance, especially if accompanied by some such feet stirring music as the Merry Widow waltz, sinks by the feet—show conclusively the influence of thought in directing the blood supply. If we understand this problem thoroughly, we may also understand the insistence and frequency of sex emotions at the time of sexual awakening, and appreciate the fact that the exercise of will power to control the thought may in large measure cure what appears to be a morbid sexual activity. The boy or girl, who thinks sexually much of the time, is evidencing weakness of will and lack of sex hygiene, and is also promoting excessive sexual activity which may result in some unpleasant morbid consequences later.

The normal sex hygiene, like the normal method of teaching it, consists (1) in a reasonable amount of accurate information on the sex functions, as well as on other physiological functions, such as digestion and respiration, and (2) in giving just as much thought and no more, to the sex functions as one gives to motion, circulation, or any other physiological process.

In closing allow me to call attention to a few very potent dangers in the teaching of sex hygiene. First I must place the danger of introducing pathological data,—by that I mean not only morbid and detailed information about masturbation, sex anomalies, and kindred diseased conditions, but also statistics on the prevalence of sexual diseases, and of prostitution. With young children such data are absolutely inexcusable, and with adults the introduction thereof into *sex hygiene* talks is a species of alarmist or "yellow" journalism that is to me most repugnant and unnecessary. Especially is this so if the teacher is not a physician, and therefore absolutely well versed and certain of the accuracy of data and statistics. Even when physicians handle such pathological data, harm not infrequently results, and the enthusiasm of lay teachers sometimes carries them into exaggerations of statements which have appalling effects upon the audience. I have in mind especially a case, told me by the surgeon, of a household in which cancer developed in the wife, who was also a mother, and immediate operation was advised. The wife's maiden sister heard the diagnosis, and either from misinterpretation or misinformation, immediately charged the unhappy husband with immorality. The whole family was thrown into turmoil by the unfounded accusation, and it was with greatest difficulty that the matter was adjusted at all. Finally the sister in law was convinced that cancer was not a sexual disease, concerning which she had recently heard appalling statistics cited by a lay lecturer on sex hygiene, and the misunderstanding was glossed over, but unhappiness and distrust persisted for a very long time.

Second, I must place the danger of overemphasis

on sex. The problem has swung so far into the old fashioned silence on all sex topics that we are in serious danger of saying too much and talking too often, without making plain the facts that (1) the reproductive function is only one function of the body, (2) that it is physiologically no more vital than any other, and (3) that it is closely associated with and interdependent upon all other mechanisms of the human machine.

Third and last I must mention the danger of too detailed information, and in this relation permit me to quote from the report of the special committee of the American Federation of Sex Hygiene, on *Matter and Method of Sex Education*, as follows:

"Sex instruction has a purely practical aim and should be strictly limited by this aim. Its purpose is to impart such knowledge of sex at each period of the child's life as may be necessary to preserve health, develop right thinking, and control conduct. Its aim is both hygienic and ethical; and whatever knowledge of sex and of sex relations in human life is not necessary at any particular period of the child's life for these ends should not be imparted at that period."

101 WEST EIGHTIETH STREET.

## A CLINICAL STUDY OF THE LEUCOCYTES.\*

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It is only comparatively within the last few years that laboratory methods have been used by the bedside worker, and it is not so long ago that the laboratory worker was looked upon as one to whom we could refer in a few obscure and uncertain conditions. Not so to-day however, and the bedside man that will not avail himself of practical laboratory methods cannot expect to succeed as a diagnostician. In no direction has modern medicine made greater progress than in the study of the blood in disease—hemopathology.

Starting some years ago with the simple knowledge that in certain pathological processes we have an increase of the white cells, all increased counts grouped under the general term of a leucocytosis, we have advanced to the point of knowing that in a great many diseases we have a definite blood picture comprised of an increase or decrease of the various white cells, this picture sometimes being positive evidence of certain disease, and at other times a valuable link in the chain of evidence that a specific pathological process exists. The field is a broad one and I shall only attempt to bring out a few of the valuable suggestions we may receive from an absolute and from a differential count of the white blood cells.

In normal blood we find approximately 7,000 white cells to the c.mm.; there may be however a variation of one or two thousand in either direction consistent with fairly good health. These cells are classified under two distinct groups, the mye-

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ogenous group—cells originating from the bone marrow, and the lymphogenous group—cells originating from the lymphatic tissue, and in normal blood they hold a certain numerical relation to each other.

Under the first group are included the polymorphonuclear neutrophiles, eosinophiles, mast cells, and large mononuclear cells; the second group includes all of the lymphocytes. The numerical relation of these various cells is as follows: Polymorphonuclear neutrophiles, sixty-five to seventy per cent.; large lymphocytes, two to six per cent.; small lymphocytes twenty to thirty per cent.; eosinophiles, one to four per cent.; mast cells, 0.05 to one per cent. However, just as the total white cell count may vary within certain limits in good health, so also may be seen a certain variation in these percentages. In addition to the cells enumerated above as occurring in normal blood, we find in certain diseases still another white cell—the myelocyte. It belongs in the myelogenous group, being a mononuclear neutrophile, in fact, later in development it emerges as the polymorphonuclear neutrophile.

An absolute white cell count is made for the purpose of determining the total number of these cells to the c.mm. If the count be above normal the increase may be due to a leucocytosis (polymorphonuclear neutrophilia), a lymphocytosis, an eosinophilia, or a myelemia; we then by a differential count determine what change from the normal numerical relation of these cells to each other exists, or in other words find what cell is responsible for the increase, and only by so determining are we able to determine the full significance of a high white cell count. If the count be below the normal, it is termed a leucopenia.

#### LEUCOCYTOSIS.

There has been a good deal of confusion in the past as to what really constitutes a leucocytosis. Cabot (1) defines the term as, "An increase in the number of leucocytes in the peripheral blood over the number normal in the individual case, this increase never involving a diminution in the polymorphonuclear varieties, but generally a marked absolute and relative gain over the number previously present." Emerson (2) writes, "By this term was meant an increase above normal of the white cells of the blood, but the term now means a transitory, symptomatic, absolute increase of the polymorphonuclear neutrophiles especially, in the peripheral blood above the maximum that is normal for a given individual in the condition in which he at that time finds himself." This author gives the following good illustration of a true leucocytosis, as the term is now applied, by citing the case of Frazier and Holloway. With a count of 13,040,—the polynuclears were 78.2 per cent., i. e., 10,197; the small mononuclears 16.8 per cent., i. e., 2,191. As the disease progressed the total count rose to 54,960—a differential count at that time showing that the polynuclears constituted 90.4 per cent., i. e., 49,684; and the small mononuclears four per cent., i. e., 2,198; thus showing that the total increase was due entirely to an increase of the polymorphonuclear neutrophiles. Therefore, by a leucocytosis, as the term

is now applied, we mean an absolute increase of the polymorphonuclear neutrophiles, a clear distinction from the blood picture of a leucemia, in which, while there is an enormous absolute increase of the white cells, there is little if any increase in the polymorphonuclear neutrophiles.

In considering the significance of a leucocyte count there are many conditions that have to be taken into consideration. Thus we may be treating some disease in which a leucopenia may be present, but some complicating process may produce a leucocytosis; but that leucocytosis may not necessarily mean a high count. Illustrating this important point Emerson reports a case of typhoid fever with a white cell count of 1,600; a complicating parotiditis brought the count up to 3,200, which constituted a leucocytosis for that person at that particular time. Again, a poorly nourished and ill-fed person may have a normal count in their usual health state of 3,000 or 4,000 instead of 7,000; in other words, such a person may have a chronic leucopenia. While this constitutes a pathological condition, at the same time, if in such a person an attack of acute appendicitis developed a leucocyte count showing ten, or even eight, thousand would constitute in that individual a very decided leucocytosis. Turck (3) in considering The Hematological Reactions to Infective and Inflammatory Processes, very tersely sums up the situation by saying: "It seems absurd to presume that the white cells of a feeble and anemic child of ten will show exactly the same reaction in infections of equal scope and virulence, as the cells of a strongly robust man of forty, yet the literature is teeming with definite standards of white cell counts applicable to definite conditions." There can be no question that before the full significance of a leucocyte count can be interpreted that it is requisite that we have a knowledge of the personal standard, as what constitutes in one individual a leucocytosis may be a normal count for another and *vice versa*. It is not, of course, practical in private practice to have on record a white cell or a general blood picture of all of our patients, but effort should be made to secure such records just as far as such procedure is practical, and as Drysdale (4) writes: "Every opportunity should be taken when an occasion offers, as when a patient enters a hospital, to determine by routine examination the standard for each individual, so that should the examination of the blood become of importance we may start with a better foundation to our knowledge." A great deal of care should be maintained in drawing deductions from low white cell counts where we may have reason to expect high counts, and an absolute count showing a decided increase in the white cells should not be pronounced a leucocytosis, until after a differential count has been made and the fact established that there is a decided increase in the polymorphonuclear neutrophiles, for in splenomyelogenous or in lymphatic leucemia the white cells often reach many thousands above normal, so that a high white cell count may be very wrongly construed unless it is definitely determined whether this increase is among the polymorphonuclear neutrophiles or other white cells. The full significance and importance of the differential count is well illus-

trated by Turck (3), who quotes a case of noninflammatory appendicitis clinically typical in which the white total count was 40,000, but the differential count showed that the eosinophiles constituted fifty per cent. of the total white cells. The appendix was histologically normal, but its cavity was filled with *Oryzæ vermiculæ*.

A leucocytosis may be physiological or pathological. The former we will not dwell upon other than to say, in passing, that the condition occurs after the ingestion of food, is seen in the newborn, is frequently present in the pregnant state, and is often observed after violent exercise or following cold baths.

A pathological leucocytosis may be (a) posthemorrhagic, (b) inflammatory, (c) of malignant origin, or (d) due to experimental influences.

(a) Posthemorrhagic. Following a severe hemorrhage the white cells within a few minutes will be found in excess, numbering from 16,000 to 18,000. It is supposed that the increase is due to the fact that with the volume of blood reduced the tissue lymph which goes into the vessels takes with it many white cells.

(b) Inflammatory. The conditions in which we may find an inflammatory leucocytosis are very numerous, and I shall only mention here those in which we may require this link of evidence in establishing a diagnosis. These are pneumonia, appendicitis and all abscess formations, the suppurative stage of smallpox, acute arthritis, acute cerebrospinal meningitis, together with puerperal and all other septic conditions. The time at my disposal does not allow a separate discussion of the diagnostic value and significance of a leucocytosis in each and all of these conditions, but the extreme value of white cell counts in all cases of suspected appendicitis is such that I will, in a brief manner, discuss the deductions to be drawn in such cases. Every case of appendicitis will not show a high leucocyte count, and it is probable that too much attention has been given to the total count and too little to the differential. It is not in the marked case with a walled off abscess, presenting all the symptoms and giving the history of a pustular appendix, and showing a total leucocyte count of thirty or forty thousand, that we need the blood examination to confirm a diagnosis already made, but it is in those atypical catarrhal inflammations, in which the total count may be but little if any increased, but in which a differential count shows the polymorphonuclear neutrophiles with a proportion of from eighty to ninety per cent. In other words, where we may be uncertain in such conditions we have a valuable factor in the differential count, showing whether or not there is any increase of this particular cell, such increase indicating at all times in abdominal conditions serious trouble.

(c) Leucocytosis of malignant origin. The total count in malignant tumors is generally high, ranging all the way from 8,000 to 30,000, being more pronounced in sarcoma than in carcinoma. The polynuclears are always largely increased showing a true leucocytosis. An eosinophilia may also be present. In operative cases following the removal of the tumor the leucocyte count drops to normal, or at least becomes materially lowered. A return

of the leucocytosis may be taken as an indication that a recurring malignant involvement is taking place.

A pathological leucocytosis due to experimental influences, therapeutic influences, and shock is described in the textbooks, but it is not sufficient significance to make a discussion of the varieties worth while.

#### LYMPHOCYTOSIS.

By a lymphocytosis is meant an increase of the lymphocytes both absolute and relative. A differential count showing an apparent lymphocytosis should not be pronounced such, until an absolute count shows that there is an absolute increase, as the apparent increase shown in a relative count may be due to a diminution of the polymorphonuclear neutrophiles, a common picture in persons of poor health and low resistance. The blood of a child below five years always shows a lymphocytosis, so that care has to be taken in arriving at conclusions from the blood pictures of these children. Of especial significance in the diagnosis of malaria is an increase of the large mononuclear lymphocytes. A very marked increase of the small lymphocytes is seen in whooping cough; it is a valuable symptom and may be seen early in the catarrhal stage of the disease. The most pronounced lymphocytosis is seen in acute lymphatic leucemia in which the total count may run as high as 150,000, and Cabot (1) even reports a case showing the enormous total count of 1,480,000 with the lymphocytes holding the high percentage of 87.9 per cent. Lymphocytosis is also a valuable diagnostic link in hereditary syphilis.

#### EOSINOPHILIA.

An eosinophilia, or an increase of the eosinophiles, is of especial significance to the general practitioner of the South. It is always present in hookworm disease and in hookworm infection, and a routine examination of the blood will result in many carriers being found, possibly where the infection was not suspected. It is not uncommon to find individuals suffering with uncertain symptoms, general malaise, or a condition bordering on neurasthenia, and an examination of the blood in these cases will often disclose an eosinophilia; with this clue the feces are examined and the diagnosis completed. Among other conditions in which an eosinophilia may occur may be mentioned myelogenous leucemia, other intestinal parasitic diseases, many of the skin diseases, malignancy and bronchial asthma. In the latter disease the symptom is of especial value in determining that the attacks are of bronchial origin.

#### LEUCOPENIA.

In contradistinction to the various blood pictures already mentioned, showing an increase of the various cells, is leucopenia, a condition in which the white cells are reduced in number. It is constant in both typhoid fever and chronic malaria, and is nearly always present in acute malaria. A differential count will show an increase of the small lymphocytes in typhoid fever, while in malaria there will be an increase of the large mononuclears. In persons not suffering with acute disease it is an index of low vitality and poor resistance. It is also seen

in measles and tuberculosis, being an especially valuable symptom in the early stages of the latter disease.

In conclusion I would urge the necessity, when depending on the blood picture, of making both absolute and differential counts of the white cells, and to abstain from the too common custom of relying on one to the exclusion of the other.

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ST. JAMES BUILDING.

## NEOSALVARSAN AND MALARIA: A PERSONAL EXPERIENCE.\*

### *With Some Reflections on Suicide.*

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Ehrlich in his address before the recent International Medical Congress, in London, said that the step from the laboratory to the clinician's room was a dangerous one involving the use of the products of the laboratory on the human body with its manifold involvements of idiosyncrasies with which the general practitioner has always had to contend. I am for this and other reasons making this presentation as clinically complete as possible.

My first infection with malaria occurred in 1888 while on some special medical work in Kentucky and while residing on a stock farm near the Ohio river bottoms; the usual prodromata of lassitude, irritability, and pain in lower back from liver and spleen engorgement appeared; the onset was marked by a severe chill followed by fever; all of which were apparently promptly cured by quinine, cholagogues, and the fact that I was then twenty-five years of age. From that time till my next infection in 1898 I was free from ague. This second infection was by mosquito bites after a hard day's work in the month of August while waiting for a trolley car on the banks of a river in an adjoining State; five days later the prodromata developed; I had a severe chill the next day followed by fever. Apparently I have not been free from this second infection, for spring and fall I would be more or less troubled with a mild fever and general debility. Eight years ago, in one of these attacks, my daily temperature was over 102° F., and a medical student called my trouble typhoid; I called in Dr. Alfred F. Brugman who from my history and enlarged spleen and liver made a diagnosis of malaria. I had lost twelve pounds in this illness. Later I was under the care of Dr. Arthur B. Townshend with similar symptoms and received the usual treatment of arsenic, quinine, nux vomica, capsicum, and cholagogues.

The latter part of July, 1912, I was with some friends at Coney Island on a Saturday afternoon and evening and was badly bitten by mosquitoes; the following Saturday, after a day of pain in the

back, a profound chill developed which after six hours was followed by fever. I also had a heavy cold on the lungs and again lost twelve pounds in weight. I had been under the care of Dr. John B. Rae for right auditory nerve trouble, and during his absence on vacation, Dr. Robert L. Loughran took over the ear work; at this time I took sixty grains of quinine in three days. After a week the malarial condition apparently subsided, but my ear has needed treatment off and on ever since.

The latter part of June, 1913, I experienced a renewal of my old trouble though with no recollection of reinfection; my medication consisted of five grains of quinine daily in a bromide solution, grain per grain, and from a sixteenth to a tenth of a grain of arsenic. Hebetude, anorexia, and depression of spirits were constantly present; my medical work was done under compulsion and my weight was gradually diminishing. Finally my temperature rose to 101° F. (oral), though before and during this last indisposition it had been elevated only about a degree. The pain in the back was at times excruciating and the physical weakness was increased. My memory for anything except actual medical work became greatly impaired. Dr. Arthur R. Braunlich on examination found my spleen and liver swollen. Doctor Rae being again out of town, the next morning I consulted Doctor Loughran, who threw up his hands and said as to the use of from twenty to twenty-five grains of quinine daily: "You know the danger, Doctor." I then dropped in on Dr. Winfield Ayres for consolation, and on his remarking my woebegone condition I told him my story; this was on August 8th. He promptly advised neosalvarsan, and I as promptly got on his operating chair and received in the left arm 0.90 gramme of neosalvarsan in about six ounces of solution. This produced some pain in the front of the left shoulder and some discomfort or oppression about the heart; this treatment was repeated three days later with less discomfort about the shoulder, the injection being made in the right arm. Two days later an injection was made in the left arm of 1.20 grammes of neosalvarsan followed by the same pain in the left shoulder but not so much discomfort about the heart. This cardiac discomfort could hardly be described; it was not a pain, but a feeling as if something was flowing through the bloodvessels toward the heart, and there was an oppressive feeling in the left chest cavity in or above the heart. Doctor Ayres made all his injections with great care, expressing pleasure that he had a medical man to give him symptoms, and checking the flow of the solution from time to time.

An hour after the first treatment intestinal colic appeared and after two hours of decided discomfort I had to take a quarter of a grain of opium for relief; as I had been eating so little for the past weeks my bowels were distended by gas, and for nearly ten days after the first treatment the intestinal tenesmus from the tonic action of the arsenic was more or less persistent especially after the third treatment when I spent a restless night, and the next day suffered from muscular soreness over the whole body as if I had been engaged in severe manual labor. The intestinal tenesmus was

\*Presented to the Medical Society of the Borough of The Bronx, September 14, 1914.



so great that I could not stand erect but walked bent over for two days like a very old and feeble man. My temperature since the first treatment has not been over 99.8° F., and if any fever has been present the temperature has been usually from 99° to 99.6° F.; any exertion beyond the absolutely necessary work of practice would bring this on; for instance, being shorthanded, an half hour of work at a typewriting machine would cause much pain in my back, and an elevation of temperature. The day following the third treatment I was mildly jaundiced especially on my body, suggesting to my mind acute fatty degenerative changes in the liver. Doctor Ayres suggested strychnine in one thirtieth grain doses, and one dose almost took the top of my head off so to speak and caused a slight rise in temperature. Sixteen days after the last intravenous injection, feeling very wretched, I dropped in on my neighbor, Dr. Frank C. Hollister, who also thoroughly examined me and found a subnormal temperature and a general cachexia; but the liver and spleen being normal in size he advised a tonic mixture of nux vomica, quassa, and gentian compound, six drops of the tincture of nux vomica to the dose. This at first was highly stimulating but I am now taking two or three doses during the day; how much of the tonic action of the arsenic remains I cannot say. The anorexia being absent I am now making flesh, but having lost twenty pounds, I have not as yet regained my usual weight, but my general outlook on life is much for the better.

How much of the cachexia noted by Doctor Hollister was due to arsenical poisoning cannot be determined. Doctor Ayres's doses were heavy. He, however, knowing me intimately was quite disturbed by my condition and felt there was nothing to be gained except through active medication. I have given a rather full history for the benefit of the clinicians who may read this.

Curiously, when I was receiving my first intravenous injection, Ehrlich was addressing the International Congress, in London, on its value in malaria, stating that quinine sometimes lost its hold on cases and, after the exhibition of neosalvarsan, that quinine resumed its effect. As before noted, quinine in large doses was interdicted in my case; there are others who cannot use it; I know of one case in a Southern State in which the patient was in a state of collapse for twelve hours, needing artificial respiration and oxygen, the collapse being caused by the oral exhibition of two grains of the drug.

An editorial in the *Journal of the American Medical Association* of August 30, 1913, calls attention to the use of salvarsan in recurrent fever and framnesia and its apparently favorable employment in scarlet fever, smallpox, glanders, Vincent's angina, Aleppo boil, and amebic dysentery.

A recent writer, whose name I have forgotten, states that malaria in its worldwide relations kills more people than any other one disease. How correct this observation is I know not. Some pathologists state that the degenerative changes causing death are due to toxines set free by the quinine killing the plasmodia.

This I have to say: A man in the condition I have been sees little in life; the dragging feet, irritabil-

ity, pain and discomfort in the back, loss of appetite, and hebétude, especially shown in weakened memory, make him irresponsible if he commits suicide. How many cases of *felo de se* are caused by chronic malaria no one naturally knows, but it is my profound conviction that more instances of such form of death should be charged up to said cause. Personally I do not care to thus end my life.

How thoroughly I am cured I do not yet know, but I have taken absolutely nothing in the line of malarial medication except tonics. If I need further treatment by neosalvarsan, I am ready for the ordeal. Parenthetically, let me state that the plasmodia have not been found in my blood. It appears to me that we are opening up a new therapeutic range which, after careful examination and logical diagnosis, can be freely entered upon.

Finally, I thank Ehrlich the discoverer, Ayres the user, and the other medical men who have been so kind to me.

Case reported by Dr. Winfield Ayres:

CASE. Patient, aged forty years, a publisher, of Texas, was referred to me on August 15th by Dr. I. N. Hill who stated that the patient was a pronounced hypochondriac; that a Wassermann reaction was negative and that a search for malarial organisms had also been negative. The patient stated that he had had several very severe attacks of malaria and that at irregular intervals he was subject to mild chills and fever; that he had a headache almost every afternoon lasting three or four hours. I found his spleen slightly enlarged, and his liver enlarged and a little tender. With nothing else to account for the chills and fever I concluded they must be due to chronic malaria.

I gave him 0.9 grammes of neosalvarsan on the 21st and repeated the same on the 25th; after neither was there the slightest reaction or inconvenience; there was distinct improvement after the first treatment and the last time I saw him—on the 30th—he stated that he had not felt as well in years; that his headache had entirely disappeared as well as his indefinite pains; and that he had an appetite and enjoyed his food—a condition he had known in at least five years. The patient is now in Texas and is so sure that the neosalvarsan cured him that he intends to have it used again if he is reinfected.

October 16, 1913. The writer wishes to report, that the patient has used no further malarial medication; that his general condition has steadily improved; and that the conviction of the growing field of usefulness of Ehrlich's blood sterilizer is strengthened.

266 WEST SEVENTY-SEVENTH STREET.

## A PLEA FOR OILY INJECTIONS OF SALVARSAN.

BY HERMANN G. KLOTZ, M. D.,  
New York.

Principally in view of the occurrence, in a number of cases, of abscesses at the site of injections of oily suspensions of salvarsan and neosalvarsan from three to twenty-four months after a treatment Dr. H. H. Hazen, of Washington, D. C., in a paper entitled, *Oil injections of Salvarsan. A Warning* (*Journal of the American Medical Association*, May 24, 1913), advocates that the intravenous method should be the only one employed. I am personally indebted to Doctor Hazen for the information that he prepared the injected fluid immediately before use and that all possible precautions as to sterilization and aseptic conditions were applied, so that he cannot but feel that the salvarsan itself was responsible for the abscesses. In the opened ab-

scases no trace of the salvarsan could be found and in all the cases the therapeutic effect had been marked. Hazen states that he finds it rather difficult to account for these late troubles (particularly for the breaking down in one of his cases of *both* buttocks three months after an unilateral injection) except on the hypothesis that the injected material is toxic to the tissues at the site of the injection and that this dead tissue, if not absorbed, may act as a foreign body. Various investigations have indeed demonstrated that salvarsan causes considerable local injury to the tissues. Tomaszewsky, for instance, in a paper, *On Experimental Investigations on the Final Outcome of Intramuscular Injections of Salvarsan (Charité Annalen XXXV)* states that pathological and anatomical examinations of intramuscular injections of salvarsan in all instances have revealed extraordinarily severe tissue changes in muscles, fat, and connective tissue, necrosis of nerve fibres as well as thrombosis of all bloodvessels within reach of the injected mass.

Concerning the fifty-two oily injections of salvarsan and neosalvarsan made by him, Hazen admits generally excellent effects upon the lesions and on the Wassermann reaction, in the majority of instances also excellent immediate results with regard to pain and disability: twenty injections were practically painless, only twelve caused pain that was at all severe; only three patients lost time for work, one about ten days, the other two not over two days each. "There has not been a single patient who was not willing to take another injection." Four cases presented complications shortly after injection; in two slight abscesses of no particular importance developed, and in one peripheral phlebitis about two weeks later; the most serious accident was pulmonary embolism in one case from which the patient recovered within about two weeks.

My own experience with oily injections of salvarsan was in part derived from a number of injections made in my service in the German Hospital. A freshly prepared suspension in olive oil was employed under the same precautions as to sterilization and asepsis as practised by Doctor Hazen. In none of these cases were any immediate or later untoward symptoms observed, only a moderate swelling around the seat of the injection and some sensitiveness on pressure were usually present for a few days. In private practice I find that thirty-three injections of identical character were administered since February, 1911, to twenty-three patients. One patient received altogether five injections, one four, three each three, two received two, and the rest one each. In three cases only have I been unable to ascertain the immediate consequences of the injections owing to the fact that the patients had come from outside New York. In a number of cases the only reason for the administration of the salvarsan was a positive Wassermann reaction in the absence of other symptoms in the later stages of the infection. Where any specific lesions were present they belonged to the late secondary or gummatous class, mostly those that had proved refractory to mercurial treatment; the therapeutic effects were excellent as a rule. Otherwise the results were very similar to those observed by Ha-

zen. After twenty-three injections hardly any discomfort was experienced except the swelling and sensitiveness on pressure during the first days which one must naturally expect under the circumstances. They usually reached their maximum on the third or fourth day to gradually disappear not later than the end of the second week, although in a few cases a more or less hard but only slightly sensitive node did remain for a longer period, mostly when the patients had neglected to avoid any intense muscular exertion within thirty-six hours after the injection. In six instances a sharp pain was felt immediately extending from the seat of the injection down along the extremity, which persisted with diminishing intensity for several days, in the worst case for ten days. As far as I know none of the patients was actually disabled from attending to their business, perhaps largely due to the fact that preferably the injections were made on Saturday afternoon, giving a sufficient period of rest until Monday morning. I did not see phlebitis, abscess, necrosis, and pulmonary embolism, with the symptoms of which I have become sufficiently familiar since 1886 through the injections of insoluble mercurial salts, mostly the salicylate and calomel, the latter being much more liable to cause pain and produce nodes. Altogether I can safely state that the local subjective and objective effects incident to salvarsan injections have not essentially differed from those after insoluble mercurial salts, except as far as they were inevitably affected by the larger quantity of the injected fluid. Among the early cases of mercurial injections, like most observers, I saw a few aseptic abscesses but none afterward among thousands of injections; a case of superficial necrosis and some cases of pulmonary embolism I have published (*Archiv für Dermatologie, Festschrift für Pick*, 1898, and LXIV, 1903). The insoluble mercurial injections met with much opposition, particularly in this country, more or less general for a long time, often quite severe and almost fanatic; as late as 1907 the method was publicly assailed as cruel, dangerous, and unscientific, soon after to be generally recognized as the most efficient and legitimate method of mercurial treatment, although the shortcomings and incidental unavoidable disadvantages had not been entirely eliminated.

In view of this experience with the injections of insoluble mercurial preparations, while the profession certainly must be thankful for the candid and conscientious publication of unfavorable incidents of any method of old or new treatment, it seems hardly justified as yet to peremptorily condemn the oily injections of salvarsan, certainly not until one has very carefully and without prejudice considered the question whether this method does not offer sufficient advantages besides, and even over the intravenous method, which would fully justify its further recognition as a legitimate way of administering salvarsan.

When the edict was sent out by its author that salvarsan should be exclusively administered by the intravenous method, it was clearly understood that this preference was given because the subcutaneous and intramuscular injections of alkaline and neutral solutions heretofore employed were extremely

painful and frequently caused persistent infiltrations, necrosis, and other local disturbances. At that time oily injections had found but limited employment, so that an authoritative judgment was given neither for nor against them, and, as far as I have been able to follow the literature, none has been declared since. To the contrary we find that, particularly in Europe, intramuscular injections are frequently mentioned and recommended as supplementary to intravenous administration or alternating with it, or, as the only admissible method under certain conditions of the patient. Their efficacy has hardly ever been doubted and numerous authors, including outspoken partisans of the intravenous method, concede to the intramuscular injections a more powerful and particularly a more lasting effect on the disease, the latter being due to slower elimination as demonstrated by the presence of minute quantities of arsenic in the secretions even after months. A more rapid and immediate effect is usually claimed for the intravenous application, but I have observed as quick effects from intramuscular injection, as one could wish.

That the intravenous method is by no means free from immediate or more remote dangers and accidents, whatever may be their direct cause, is so well known that it is hardly necessary to enter here more fully into the subject. It is also often enough accompanied by not dangerous but sufficiently disagreeable symptoms like nausea, vomiting, diarrhea, headaches, etc., nor is it devoid of local troubles like thrombosis, phlebitis, phlegmon, etc., however avoidable such accidents may be. Sometimes the conditions of the veins either due to congenital irregularities or to previous pathological processes may render intravenous application very difficult or impracticable or considerably prolong the duration of the operation. But more frequently conditions of important organs like the heart, the kidneys, etc., furnish absolute contraindication to the introduction directly into the circulation of the salvarsan itself or of a larger quantity of fluid while the administration of salvarsan may seem highly desirable or even absolutely necessary in many of such cases.

To the patient the intramuscular injections offer decided advantages from the economical viewpoint. I am well aware that many physicians perform the intravenous infusion or injection in their office, allowing the patients to go home after a more or less extended rest. However, a large number of authors, some of them men of wide experience, strongly insist that intravenous application should invariably be performed in a hospital, sanatorium, or similar place, and that the patients be kept there under observation for not less than twenty-four hours. Still many patients can ill afford to go to a hospital or leave their occupation for a sufficiently long time, partly on account of the expense and loss in business, partly because they cannot risk the exposure of their infection with syphilis. Besides it is understood that a much larger fee can be and is usually charged for the intravenous than for the intramuscular operation.

Finally considering the interests of the physician himself, particularly those of the practitioner who does not enjoy the convenience of a hospital, an as-

sistant or a nurse, the intramuscular injection certainly appears much more simple, requiring less preparation, less time and work and involving less responsibility. The apparatus necessary for intravenous application may be simple and inexpensive enough, but the requirements of the strictest asepsis and particularly the use of freshly sterilized water render that operation much more exacting on the physician. For the oily injections a small glass mortar and pestle and a ten cubic centimetre syringe that can be easily sterilized is all that is required, with a needle preferably not less than 16 calibre if you wish to suspend 0.6 gramme salvarsan in not more than five cubic centimetres of sterilized olive oil. The injection itself can hardly offer any difficulties, certainly not to anybody who has had some experience with injections of insoluble mercurial preparations; a quick insertion of the needle, slow emptying of the syringe, and gentle massage after the quick withdrawal of the needle.

There appear then to exist sufficient reasons why the oily intramuscular injections of salvarsan should further be entitled to recognition as a safe, serviceable, effective, and, notwithstanding some disadvantages, as a legitimate mode for the administration of salvarsan. In the face of the universally acknowledged importance of salvarsan in the treatment of syphilis and of the possibility of effecting a rapid cure by its early employment, the facilities for obtaining these advantages should be multiplied rather than limited to a single method which is necessarily subject to some restrictions and not entirely free from objectionable features.

616 MADISON AVENUE.

## THE TREATMENT OF CHRONIC URETHRITIS.\*

By SAUL STEINER, M. D.,  
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Before entering into the discussion of the treatment of chronic urethritis, it is necessary to know when a gonorrhea is chronic. In other words, when does the acute stage end, and when does the chronic stage begin? The importance of this point is evident, when we take into consideration the fact that the treatment, in these two conditions, is entirely different.

We do not want to go into particulars concerning the details of these two stages of the disease; but we will admit that, roughly speaking, an acute attack of urethritis passes into chronicity when the discharge disappears or becomes very scanty, when the acute symptoms subside, when the urine contains only a few persistent shreds, or when the patient complains of a morning drop, or of some pain which is localized at some part of the urethra; all these after eight or ten weeks have passed, since the appearance of the initial symptoms. Pathologically, we could consider a urethritis chronic when the gonococci remain for a long period of time in the tissues or follicles, in spite of the treatment.

For the present I will pass over the symptoms and their causation: namely, the anatomopathologi-

\*Read before the New York Society for Genitourinary Diseases.



cal changes of the urethra, characterizing chronic urethritis. In the course of this paper we will take these symptoms up separately, we will see what anatomical conditions they are due to, and then we will discuss the treatment.

One fact must be stated, and perhaps we will repeat it a few times, but that fact cannot be sufficiently emphasized, the most important thing in the treatment of chronic urethritis is a correct diagnosis. We must not be satisfied with a general diagnosis, but we must point out with our finger the real cause of the trouble.

A patient presents himself for consultation with the complaint that every morning, upon arising, a drop of pus escapes through the meatus. Now, in order to treat this patient intelligently, we must know the virulence and the size of this drop.

Does it come from the anterior or posterior part of the urethra, and, moreover, what portion of the latter?

We first ask the patient whether he has had, in the course of his disease, an orchitis, epididymitis, or cystitis, which would prove a deep infection; when the patient tells us of having had repeated attacks of urethritis, we can safely suspect a deeply seated infection.

Suppose he does not. Then we squeeze from behind forward different parts of the anterior urethra, first the pineal portion, then the scrotal, and finally the perineal portion, trying thus to bring out the drop. If we do not succeed, it means that the patient must have just previously micturated, and consequently washed out the canal. We inquire about the time of the last micturition. This will indicate rather roughly how long it took that drop to form; if we cannot be present when the patient passes his first urine, we give him two slides, instructing him how to collect the drop. When we have received it, we examine it microscopically, and one of the three following conditions may be seen: Intracellular gonococci present; extracellular gonococci present; or, no gonococci present. If intracellular gonococci are present, it is an indication that there is a part of the urethra which is inflamed and harbors a nest of microorganisms. Now the diagnosis is not yet made; it is not enough to say that the patient has a chronic urethritis with gonococci present. The principal thing is to find out where this spot is located—the spot or spots which harbor these microorganisms so long.

Different methods are used to find the precise locality of the infection. A good test is "the glass test" of the urine. The "two glass test" is very unreliable. A very reliable method is Wolbarst's five glass test, which is so well known by all of us that we will not go into details. Next we take a metallic sound—the largest the meatus will admit (if the meatus is contracted, it is advisable to perform meatotomy before any treatment is begun)—and introduce it up to the prostatic urethra, not further; then, by pulling the penis along the sound, thus stretching the urethra with the left hand, we proceed, with the fingers of the right hand, to a regular and careful palpation of the urethra; thus we detect painful points, infiltration of the mucosa, enlargements and infiltrations of the follicles, granulations, etc. After this external examination we introduce the urethroscope and examine carefully

the whole length of the canal, verifying what information, if any, we get by palpation.

Then only can we say that we have made the right diagnosis, that we know the lesions and feel sure of what we must do for the patient. If we find congestion of the mucous membrane with no other visible lesions, we irrigate the canal with a solution of silver nitrate, or of potassium permanganate. I prefer a solution of potassium permanganate of various strengths, beginning with one in 6,000 up to one in 1,000 for the anterior urethra, and use the silver salts when the gonococci are extracellular. If we find granular patches we touch them through the urethroscope with a solution of silver nitrate up to ten per cent. in strength. Thalline sulphate in five per cent. solution is less irritating and more suitable for posterior urethritis. Solutions of copper sulphate are very irritating and not reliable.

If we have to deal with ducts which lead to paraurethral follicles, it is best to go into them with a very fine probe, and after dilating or opening them cauterize them with the galvanic or the high frequency current. In using these currents, one must be very careful; they are very dangerous even in experienced hands. Instead of using the electric currents I try to open the mouth of the follicle with a fine probe, and afterward, by introducing the metallic sound I make a thorough and strong massage with the fingers on the outside of the urethra, thus squeezing out whatever secretion is accumulated in the follicle. It is surprising to see the perfect results that can be accomplished by this method. The gonococci are imbedded in that follicle, and the keratinized tissue, newly formed over it, prevents the microorganisms from coming to the surface to be extruded. They stay there like prisoners, and two things may happen: Either they may proliferate, multiply, and form minute abscesses with all their complications (the abscesses may open toward the skin, causing fistulae, may open into the urethra, bringing about a recrudescence or a recidivation of the urethritis by an autoinfection), or they may undergo resolution—that is a digestion of the microorganisms by the leucocytes in these glandular retentions. The detailed technic of cleansing the urethra is this: The urethra is irrigated with potassium permanganate, about 500 c. c. of a one in 4,000 solution. Then about 300 c. c. of the same solution is injected into the bladder. Massage the urethra as already described, and then let the patient freely void the solution which is in his bladder. This will wash the whole surface of the urethra, bringing out from behind forward everything that previously was squeezed out from the follicles and brought to the surface by the massage. In this way we are not afraid of causing a fresh infection, because the gonococci squeezed out of the follicles are not allowed to remain in contact with the mucosa for any length of time. The same procedure is used when the microscope shows extracellular gonococci. But here instead of using the permanganate solution it is best to use a silver solution, which has a more direct influence upon the gonococci.

In the third case, namely, when the microscope does not show any gonococci at all, the treatment is different. But considering that in posterior

urethritis the condition is similar to that which we find in the anterior urethra we will discuss the treatment of this condition a little later when we study posterior urethritis.

There are cases of chronic anterior urethritis in which we cannot find any localized lesion, no matter how carefully we look with the endoscope, and still the patient has a very slight discharge in the morning, or he complains only of a pasting together of the lips of the meatus, without the microscope showing any gonococci in the discharge. In these cases we have most probably to deal with a catarrhal condition, the discharge containing a great number of epithelial cells, flat cells, and mucus. These patients do very well under the use of an astringent solution—especially a one per cent. solution of zinc sulphate—given by injection, by the physician, or by the patient. I personally do not favor the idea of allowing patients to use injections, for many reasons.

It is proper to mention here the objection to the use of urethral bougies made of cacao butter containing medicinal astringents or antiseptics. I once saw a case where a patient had used one of those bougies. In twenty-four hours it had provoked such an inflammation that the urethra was like a real fountain. It was dropping every two seconds a large, thick, yellow drop of pus. Micturition was extremely painful. Under the microscope the discharge showed very few gonococci, but an enormous number of micrococci, streptococci, and staphylococci. Evidently the bougie was not aseptic.

I want to mention here something about instillations in the anterior urethra. There are some chronic conditions in the anterior urethra in which nothing else is found but a thickening of the mucous membrane, a thickening which sometimes is very marked and which involves a large portion of the length of the penile urethra. This thickening is due to an infiltration of the mucosa which leads to the formation of additional keratinized tissue; it is not properly a stricture. In these cases we massage the urethra actively over a metallic sound, and after irrigating the canal as previously described, we instill from five to ten c. c. of a 0.5 per cent. silver solution, or a five per cent. thalline sulphate solution into the urethra, taking care not to push the liquid too strongly, so that the posterior urethra shall be protected, then we tie the penis right behind the sulcus glandis with a strip of bandage. The liquid should be retained about half an hour, or longer. I must admit that this procedure is quite painful, but most patients stand it well and derive great benefit from it. Undoubtedly massage and the use of larger sounds will do more good than the instillations, but the former must be employed every third day over a long period of time.

Quite often the pus is caused by a stricture. In long standing cases and mostly in patients with repeated attacks of urethritis, pathological changes occurring in the submucosa form a narrow constricting band which diminishes the lumen of the canal. The portion of the urethra behind the stricture, which is composed of strong connective tissue and consequently undilatable, being continually

forced by the stream of urine in the act of micturition, will give way gradually, become dilated, and, sometimes, form a pouch. In this pouch the inflammatory exudates constantly remain and cause erosions and granular patches which harbor the microorganisms. With the urethroscope we can see the change of color in the morbid area—a dull gray with tendinous striae.

From this, it is plain that the first step in the treatment of such conditions is to remove the stricture, afterward cauterizing the morbid surface behind it. It is of no use to treat the canal as long as there exists the smallest contraction in the urethral canal.

We come now to the consideration of posterior urethritis. In the posterior urethra the changes are more or less similar to those in the anterior urethra. The glands and follicles present the same pathological modifications, and the ducts may likewise become occluded. The mucous membrane is swollen and congested, the verumontanum elevated and softened. The symptomatology is different owing to the more important annexa which become involved—I mean the prostatic gland, the seminal vesicles, and the neck of the bladder. I will not go into details regarding all these pathological conditions, as they were partly enumerated in the consideration of the anterior urethra. It is enough to state that here, more than in the anterior urethra, epithelial growths, granulations, and cysts are found.

One of the characteristic features of chronic posterior urethritis is the rapid formation and shedding of the epithelial cells. If congested, eroded, or granular patches are present, there will be a constant oversecretion of mucus or mucopus, with exfoliation of epithelium. As to the treatment, here, as in the anterior urethra, the canal must be very carefully explored in order to find out the character and location of the particular lesion or lesions which keep up the discharge—the bougies à boule to locate the stricture and the urethroscope to determine the character of the lesions. If strictures exist they must be dilated to obliteration. If we find granular patches, they must be treated locally through the urethroscope. There are various instruments in the market, some straight tubes, some curved. The straight tubes are very dangerous, and their use is painful to the patient; and they are therefore condemned by most of the authors. The curved ones, on the other hand, are quite complicated, a fact which makes their use difficult. Through these tubes applications can be made to the diseased parts in the form of nitrate of silver or sulphate of copper. The silver salt can be employed either in solution, on a pledget of cotton, or fused upon the end of a fine metallic probe. An easier method of using nitrate of silver is by instilling the solution through one of the instillators, the Ultzman being the best. After making the patient urinate, the canal is washed out with boric acid solution or with plain sterile water; from two to three ounces of sterilized water is instilled into the bladder. The instillator containing the solution is inserted in the canal until we pass the cut off muscle, then the solution is slowly instilled, drop by drop, until

about twenty c. c. have been introduced. On withdrawing the instrument none of the solution should be allowed to come out, as it would then become an anterior urethral instillation.

If we find minute granulations, a good method is the introduction of a large steel sound. In this way we crush the granulations, we empty the follicles which contain pus, produce absorption of the infiltrated tissue, and stimulate the mucous membrane. Irrigations with an antiseptic solution must always follow the introduction of any instrument.

There are chronic cases of urethritis due to a too long and too harsh treatment. In these cases the epithelial surface is abraded, the whole canal is constantly inflamed and raw. Discontinuation of treatment in these cases will often bring about a rapid cure.

I only mention the urethritis in diabetics, tuberculous, gouty, etc. The general condition of these patients must receive appropriate attention and care.

There are some cases of chronic urethritis which cannot be cured, no matter how we treat them. These cases are found in psychopathic patients, and are well named psychopathic urethritis. These patients believe themselves the most unfortunate beings on earth, and go from doctor to doctor, seeking in vain the cure of a condition that does not exist.

I did not want to say anything about the complications of urethritis, but exception must be made regarding prostatitis and vesiculitis. The mucous membrane of the urethra is continued into the ejaculatory canal and the prostatic ducts, so that the inflammation of one is propagated by continuity directly to the others, therefore allow me to say a few words about the treatment of vesiculitis and prostatitis. We know as a fact, that whenever a patient presents himself with a chronic urethritis, treated or maltreated for a long time, and has still a drop of pus loaded with gonococci, these microbes are usually lodged in the canaliculi of the prostate or of the seminal vesicles. And more important: the retention of the microorganisms in those glandular organs is associated with, and caused by, poor conditions of drainage. Therefore, in order to free these organs of the gonococci, we must fight the retention and make free drainage. This is done by rectal massage of the prostate and the vesicles. The massage must be made carefully and persistently, it must be continued until the foci are emptied, and until the microscope shows only the perfectly transparent normal secretion of the seminal vesicles and prostate. It is a question how often we can safely massage the prostate. The rule is two to three times a week, but this is not sufficient. The massage treatment must be instituted daily without fear, as long as it is made with care. This massage is performed by a downward stripping, and the pressure is regulated by the painful sensations of the patient. At the same time dilatation of the posterior urethra with sounds will facilitate and hasten the cure.

#### CONCLUSIONS.

In conclusion, I will say, that in order to cure a case of chronic urethritis it is necessary to make a

careful investigation in each case, that we may discover the underlying cause, and prescribe the proper treatment. We, more than anybody else, know about patients treated for a long time without success. What is the reason? The general practitioner, unfortunately, immediately after seeing a patient with a discharge, or with some shreds in the urine, makes the diagnoses of urethritis and starts injecting silver salts into the canal. It seems that as soon as one pronounces the word gonorrhea, the other word, silver salts, appears before his mind. Gonorrhea means silver salts and nothing else. If we proceed in a systematic way, if we know our anatomy and pathology, if we are familiar with all methods of investigation, and with a judicious use of drugs and apparatuses at our disposal, we should find that there are no incurable cases.

17 LIVINGSTON PLACE.

## THE INTRAVENOUS TREATMENT OF RHEUMATIC FEVER.

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This method of treating rheumatism is the outcome of observations made in the tuberculosis division of the Metropolitan Hospital. When the intravenous injection of Doctor McDuffie's formula of sodium salicylate, guaiacol, and glycerin was given to patients who were suffering also from rheumatism, prompt relief of those symptoms was noticed. (NEW YORK MEDICAL JOURNAL, March 15, 1913.) Consequently Doctor Bolten, of the house staff of nineteen hundred and twelve, gave it in a case of acute articular rheumatism and the results were most pleasing.

This method of treatment has been followed in twenty-eight acute cases under our observation, also in several subacute and chronic cases, in one case of gout, and in one of gonorrheal arthritis, with most gratifying results.

Dr. McDuffie's original formula consisted of:

Sodii salicylatis, .... gr. xxxviiss (2.42 grammes);  
Guaiacolis, ..... gr. xiiss (0.80 grammes);  
Glycerini, ..... gr. l (3.22 grammes);  
Aque destillate, q. s. ad... 3viiss (220.00 grammes).

This was given intravenously. This was later modified and the following formula used:

Sodii salicylatis, )  
Guaiacolis, ..... ) ..... āā 5xΘii (41.29 grammes);  
Glycerini, ..... )  
Aque destillate, q. s. .... Oiv (2000.00 c. c.).

Of this prescription 75 cubic centimetres (two and one-half ounces) were given together with 125 cubic centimetres of normal saline at a temperature of 100° F.

No preliminary preparation of the patient was made, except the administration of a dose of magnesia sulphate or some saline water, and the patient confined to bed between blankets. The arm was prepared as for an ordinary infusion and the infusion was given under strict aseptic precautions. The mixture was allowed to run into the vein slowly, taking from five to ten minutes for the infusion. Early symptoms were not a feature of the treat-



ment, but in several cases the patients complained of dizziness or sleepiness. This is an indication to stop the infusion, but in no case were these symptoms manifested until at the close of the injection, and in no case was it necessary to discontinue the infusion. In one case, slight delirium was present just before the full amount had been given. This passed away in ten minutes.

It has been asked many times why guaiacol was included in the prescription, and why salicylate was not given alone. The salicylate alone causes vertigo, tinnitus, and embarrassed respiration, which is sometimes so alarming as to prohibit its use entirely. When guaiacol is included this is done away with; it also increases the hemoglobin from five to twenty-five per cent.

As a rule, within thirty minutes to one hour after the injection the patient began to perspire profusely. This continued for from four to ten hours and with it came complete amelioration of all symptoms. The inflammation, swelling, and pain disappeared, and all that remained was the feeling of stiffness of the joints involved. This stiffness gradually disappeared in from one to three days. In two cases with high temperature slight chills were experienced fifteen minutes after the injection, but they were not followed by a rise of temperature nor any bad effects.

The after-treatment has been routine. Liquid diet was continued for eighteen hours. Hunyadi János, Bokert Spring water, or magnesia sulphate was given every second morning. Sodium salicylate, fifteen grains, and sodium bicarbonate, five grains, were given every three hours for twenty-four hours, and then three times a day.

In the one case of acute gout the results were as satisfactory as in the rheumatic fever, and the case of gonorrheal arthritis was benefited. The swelling, inflammation, and achillodynia disappeared. However, two injections were given four days apart, before the temperature and stiffness were controlled. The temperature did not disappear altogether until the urethral condition was apparently cured. In the chronic cases a second intravenous injection was given four or five days afterward where some benefit was received, but not complete amelioration after the first injection.

The cases treated from the beginning of the attack left the hospital in from six to twelve days apparently cured. Two patients returned to the hospital, one in two weeks and the other after a longer period. Both gave a history of alcoholism and improper care of themselves and no treatment since leaving the hospital. Not a single failure as to relief has been observed, whether this is temporary or permanent remains to be seen. It was quite interesting to see fingers that were stiffened, movable the next day, and very gratifying to hear patients ask to be allowed up when twenty-four hours before they would do anything rather than move.

It is believed where a physician is able to follow up this intravenous injection by proper medication, dietetics, and hygiene, it is far superior to any treatment we have, not excluding the vaccines. For prompt relief, we know of nothing that will equal it.

METROPOLITAN HOSPITAL, BLACKWELL'S ISLAND.

## Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXXIX.—How do you treat chancrels? (Answers closed October 15th.)

CXL.—How do you treat the symptoms of scurvy, without organic disease, but showing approaching dissolution? (Answers due not later than November 15th.)

CXLI.—How do you treat frostbite? (Answers due not later than December 15th.)

CXLII.—How do you treat chronic constipation? (Answers due not later than January 15, 1914.)

CXLIII.—How do you treat gallstone colic? (Answers due not later than February 16, 1914.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXXVIII has been awarded to Dr. Arthur S. Risser, of Blackwell, Oklahoma, whose article appears below.

### PRIZE QUESTION NO. CXXXVIII.

#### THE TREATMENT OF INSOMNIA.

By ARTHUR S. RISSE, M. D.,  
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Insomnia is not a disease in itself. It is a concomitant of many diseases; hence its rational treatment must be based on its causative factors as well as on the condition of the patient. Inasmuch, however, as the exact cause may not be discoverable until after careful study of the patient—perhaps for some days—and as the patient usually expects at least temporary relief, it may be necessary to prescribe a hypnotic. In most instances equal parts of the bromides of sodium and potassium with chloral in proper dose will be found efficient. This combination makes possible the use of smaller doses of each of the drugs. Paraldehyde is safer in heart disease, and because of its somewhat unpleasant odor is less likely to prove habit forming. Chlorotone has stood me in good stead, as have sulphonal and trional. These drugs are to be used only temporarily, and under the watchful supervision of the physician.

Where pain is a factor in the insomnia, chloral and the bromides must be reinforced by the addition of some preparation of opium—in small doses unless larger ones are found necessary. Codeine hypodermically has served me well and is not so constipating as morphine. Hence it is my first choice.

Another preparation which has proved most useful is a combination of acetanilide, sodium bicarbonate, cannabis indica, and caffeine citrate, given

in capsule and in proper dose. Even the pain and insomnia of acute rheumatism, migraine, and severe neuralgias have yielded to it in my practice.

But none of these drugs are to be employed for any length of time. Since under the term insomnia are included all grades of loss of the normal amount of sleep, from simple and transient restlessness to total loss of sleep with tossing and delirium seen in many diseases, it is evident that no one remedy or dose will meet all requirements. Each patient must be individualized, and must be treated in accordance with his special and peculiar needs. The various factors entering into the cause of insomnia must be discovered and, if possible, removed.

The treatment of insomnia may be classified under four general heads: Hygienic, including hydrotherapy, dietetic, psychic, and medical. The successful treatment of any case may require any or all of these measures. Under hygienic are included such items as the maintenance of bowel regularity; the avoidance of coffee, tea, and tobacco if the insomnia depends on their use; providing a quiet bedroom with a moderate temperature and fresh air; horseback exercise or a walk or drive for those who are too much indoors and who have need of relaxation before bedtime; the use of hot and cold water as the case may require; massage and electricity. A careful study of each case will dictate the measures to be employed.

Aside from the insomnia of organic disease, a large number of our cases depend on a nervous instability or irritability on nervous exhaustion. These are the cases which above all others try the skill and the patience of the physician. It is evident folly to feed a hysteric or a neurasthenic with bromides, chloral, and morphine; but the cruel folly is committed daily.

My watchword is, "Avoid narcotics!" Place your reliance on rational general treatment, on hydrotherapy, on suggestive therapeutics. Many of these patients fail to sleep because of what may be termed an insomnophobia—the fear of sleeping—the mere overanxiety to get to sleep. Here it is necessary to gain the confidence of the patient, to explain the harmlessness of a moderate loss of sleep. Rid his mind of fears, obsessions, and phobias; give assurance and reassurance. A warm bath at bed time will often secure a restful night. If drugs are deemed necessary, their suggestive action must be made use of to enhance and to prolong their effect. But drugs are only palliative. They cannot cure. They should never be used for any length of time, and as it is especially difficult to prevent these patients from becoming drug habitués, it is usually wiser to dispense entirely with their use.

Often a warm bath at bed time, with brisk friction and perhaps a cold cloth on the head, will do what many drugs have failed to accomplish. The cold bath and hot or cold applications to the head or the back have their indications, as has judicious electrical treatment.

For those of sedentary habits who are troubled with cold feet, a hot foot bath will often induce sleep. It may be that a light and easily digested evening meal will make the difference between sleeplessness and refreshing slumber.

In those who are exhausted by mental concentration and business cares, we must secure thorough relaxation during the evening hours. Some diverting entertainment, music, a drive or horseback riding may prove valuable adjuncts. If these means and the employment of hydrotherapeutic measures fail after a fair trial, a vacation and a complete rest should be obtained. It is unwise to expect narcotic drugs to replace physical and mental energy and psychic power which are being exhausted more rapidly than the bodily economy can replace it.

If drugs are necessary, selection may be made of any of the simple hypnotics in proper doses to meet the individual requirements. The most useful to me have been the bromides, chloral, chlorotone, and paraldehyde. Sulphonal and trional are good, but are objectionable because of their bulk and the difficulty of swallowing them. Moreover, sulphonal is toxic in large and continued doses, somewhat cumulative in action, and may cause hematuria, pyuria. Combined small doses of veronal and codeine have afforded me good results. But rest, tonics, and a hygienic mode of life are more potent to improve the morale and the nervous and mental equilibrium of our nervous patients.

The insomnia of cardiac incompetency, due to passive hyperemia of the brain, is often associated with general nervous irritability and must be treated with consideration for the weakened heart muscle. The rational treatment consists in the judicious administration of cardiac tonics, digitalis, strophanthus, strychnine, etc., to overcome the cerebral hyperemia (or anemia). Chloral as a hypnotic is too depressant in these cases, in that it causes a paresis of the vasomotor centres and a congestion of the peripheral organs, including the brain itself—acting thus much like chloroform. This is true to some extent also of opium and its alkaloids in large doses; but a hypodermic injection of a small dose of morphine, perhaps given in conjunction with the proper heart stimulant, often acts like magic. The bromides are also useful. They quiet the sensibility of the whole nervous system, especially of the special senses and of the peripheral nerves, so that external influences cannot stimulate an over irritable brain. But potassium bromide must be employed with care in valvular lesions, as large doses weaken the heart and reduce the blood pressure. My preference is for the bromide of sodium, as it causes less general depression and less gastric irritation. It is best given in milk, in divided doses, say fifteen to twenty grains, three hours before, and just at, bed time. In women Fowler's solution should be combined with it to prevent acne. Paraldehyde and chloralamide are also efficacious. If the temperature is subnormal and the vital forces are low, hot applications to the head are often of service in securing sleep.

The insomnia of chronic parenchymatous nephritis is usually accompanied by headache, and depends on an uremic or other intoxication of the nervous system. It should, therefore, be attacked by eliminating the toxins. Stimulate the emunctories by using purgatives, diuretics, diaphoretics, hot packs, and by securing the ingestion of plenty of fluids. Of drugs, chloral hydrate has served me

well. Morphine, cautiously, and in small doses, may be given; nitroglycerin and erythrol tetranitrate are often helpful by acting to reduce the high blood pressure.

In severe typhoid fever, insomnia and restlessness may exhaust the vital forces by continued nervous and muscular activity. Hence it may be necessary to secure sleep in order to save the life of our patient. For this purpose the bath is a great blessing. The temperature of the water must be gauged by the body temperature. Valerian is a useful adjunct. In severe cases, however, where a night of refreshing sleep may turn the scales from death to life, we must often have recourse to opium or some of its congeners. If diarrhea is marked, powdered opium may be given. If constipation is present, I prefer codeine phosphate, heroin hydrochloride, or hyoscine by hypodermic injection—or morphine may be given, best with 1/100 grain of nitroglycerin to prevent secondary nausea and depression. In milder cases the bromides and chloral in small doses may be given, either by mouth, or per rectum with starch water.

The insomnia of cystitis dependent on frequent urination and tenesmus has yielded for me to full doses of hyoscyamus (or belladonna) together with codeine.

The insomnia of cerebral syphilis should be attacked by the prompt employment of efficient anti-syphilitic treatment—in other words, salvarsan or neosalvarsan. Temporarily, employment may be made of any of the hypnotics or narcotics, including morphine. The latter is frequently necessary because of the severe headache which often accompanies the insomnia.

The insomnia of rheumatism may require morphine in addition to the pure hypnotics, but the salicylates and colchicum are the ultimate cure.

The insomnia of such diseases as influenza, pleurisy, pneumonia, tuberculosis, asthma, and angina pectoris, which is dependent partly on pain and partly on fever, cough, digestive disturbances, or dyspnea must often be removed with the aid of opium or its alkaloids. Dover's powder in proper dose is my preference in the early stages. Later morphine is useful, but constipating, and I prefer codeine phosphate up to one grain hypodermically, or heroin hydrochloride, from 1/24 to 1/12 grain, repeated if needed. The latter has been especially helpful where pain and cough are both factors in the insomnia.

Inasmuch as pneumonia is such a fatal disease, the insomnia and restlessness which so often accompany it and exhaust the patient deserve a special word. Since the insomnia is dependent on the various and varying factors—pain, cough, cerebral hyperemia, and intoxication—these items must all be considered in its treatment. In the beginning, calomel, followed by a brisk saline cathartic or a stimulating enema, is indicated to aid in the elimination of the toxins and to lower the arterial tension. If the condition of the heart allows, chloral and the bromides may be used with care. Trional in ten grain doses may be given, and repeated after one or two hours if needed. Always the use of hot or cold application and baths is to be commended. If in spite of these measures

the restlessness and insomnia continue, it is my custom to administer codeine or heroin hypodermically. Morphine in small or ascending doses may be needed, accompanied by whatever heart stimulants are indicated. The rule must be always to conserve and increase the vital resistance, and unquestionably by the timely employment of the proper remedy we can often prevent exhaustion and save life. This must be the test of any means employed to combat insomnia.

To recapitulate: Treat the underlying disease, not the symptom insomnia. Beware of the narcotics in protracted acute and in chronic disease, for fear of chaining your patient to a soul destroying habit! In fatal illness, in cancer, and in the terminal stages of tuberculosis, give them if necessary to secure comfort and perhaps even to promote euthanasia.

*Dr. Edward H. Bedrossian, of Philadelphia, Pa., says:*

As insomnia is nothing but a symptom, rational treatment will consist in an attempt to remove the cause and establish conditions that are found in normal sleep.

The treatment of insomnia in all cases where the organs and tissues are intact and the cause lies in an accidental mental stimulation, nervous irritability, exhaustion, worry, overwork, etc., should be carried on with a view of inducing natural sleep, and in every case drugs should be saved until other measures have been tried and failed. The measures to be considered are:

Diet. This should be liberal and sufficient to keep up the bodily weight, but easily digestible and nourishing. Animal proteins should be reduced to a minimum and the heaviest meal should be taken at noon. Supper should consist of eggs and milk. A glass of hot milk at bedtime is often a good soporific. A strict milk diet is very desirable, as it does not give rise to large amounts of waste material in the system. Stimulants, tea, coffee, alcohol, and sweets must be forbidden. Tobacco may be allowed in moderation.

General hygienic measures. These should receive due attention. The bowels must be kept well open by a vegetable laxative. A well ventilated and quiet room, free of cumbersome furniture; a comfortable bed with dry, clean, and warm bed clothing; an hour in the fresh air before retiring; and a sufficient amount of rest, etc., should be considered necessary means to lessen nervous irritability and induce natural sleep.

Hydrotherapy. This is one of our most reliable and powerful measures. It relieves cerebral and visceral congestion, improves the peripheral circulation, and relaxes the nerves. It may be given as a lukewarm bath of half an hour's duration before retiring, and repeated if the patient awakens during the night. If this fails a shower bath, either hot or cold, for half a minute, the patient being then wrapped in a sheet wrung out of tepid water for one minute, will often succeed in inducing sleep. A cold, wet towel wrapped around the neck, the feet bathed for fifteen minutes in hot water, local packs around the legs or abdomen, a warm body bath with cold compresses to the head, and



many of the other hydrotherapeutic measures may be applied with gratifying results.

Massage and passive movements. These applied as such, or in conjunction with hydrotherapy, are a very valuable means to relieve fatigue, exhaustion, and congestive disturbances. Massage may be applied locally or generally by a skillful operator or by an ordinary electric hand motor made for the purpose, the use of which can easily be taught to one of the family or to an intelligent attendant.

Electricity. Applied for the treatment of insomnia, electricity has the same ends in view as massage and passive movements. It has not the same influence on the circulatory system as these agents, but in addition to the shock and stimulus to the nervous mechanism, it has such a strong suggestive action on the patient that in a number of cases it has proved a very suitable remedy. It may be used in the form of the galvanic, faradic, static, or high frequency current.

Psychotherapy. This is practised by every man consciously or unconsciously. A sincere and scientific mind will make use of it on a rational basis for cases of insomnia when the patient is suffering from a great calamity, misfortune, sorrow, persistent mental preoccupations and obsessions. The tactful and judicious physician will do a great deal by mental gymnastics and instruction to help the patient acquire full control over his thoughts, and overcome the distressing idea in his mind.

Medicotherapy. In the use of drugs for insomnia we should always guard against habit formation and against the untoward effects of the drugs used. Our choice will be better if confined to the few and harmless remedies to be found in the long list of sedatives, hypnotics, and narcotics. In sleeplessness from anxiety, sodium or potassium bromide given in ten grain doses, or combined with five grains of chloral hydrate or with five minims of the tincture of cannabis indica: cannabis tannate (unofficial), in five grain doses, is very valuable. The action of the bromides is due to the bromine ion, which reduces the irritability of the motor areas in the brain and retards the reflexes by interrupting the passage of impulses from the sensory to the motor cells of the cord. For continued use its cumulative action has to be remembered and any evidence of bromism promptly recognized.

In sleeplessness due to abnormal activity of the motor areas, and in the insanities, hyoscine hydrobromide is of great service. In doses of from 1/150 to 1/120 grain it acts as a depressant to the central nervous system, and produces light but refreshing sleep, similar to natural sleep.

In cases of nervous exhaustion, cannabis indica is probably the best drug to use. It is not very reliable, but in therapeutic doses it has no untoward effects, and it may be used when the other hypnotics are contraindicated.

In cases of excitement the chloral group of hypnotics are the best. These drugs produce sleep by dulling the perceptions, and are used quite extensively with success; but tolerance is soon established and the chlorine ion found in chloral hydrate and in some of its congeners contraindicates their use in cardiac diseases. Paraldehyde for its very unpleasant odor, and sulphonal for the resulting

hematoporphyrinuria in long continued use, fall short of being ideal drugs. Of chloralamide, amylene hydrate, urethane, trional, medinal, tetronal, etc., probably veronal is the best. It is not as strong as chloral or sulphonal, but it is devoid of any action except on the nervous system, and in five to ten grain doses given in hot milk it induces natural sleep without any subsequent depression.

In cases of sleeplessness due to pain not relieved by local or other palliative measures, morphine is indicated. Opium and its preparations have an analgesic action that is not shared by the methane series. When there is much excitement with pain, chloral and opium may be administered together in much smaller doses than when prescribed separately. Opium is an invaluable drug, and many occasions will arise in a number of diseases when it will be impossible to do without it; but it should be used with great caution on account of the appalling danger of habit formation. It may be administered in the form of powder, extract, tincture, pill, or one of the alkaloids by mouth: the suppository by the rectum; the alkaloids and some of the newer preparations by hypodermic injections.

In insomnia arising from any disease the primary treatment is that of the disease, accompanied by any of these measures, as indicated.

(To be continued.)

## Therapeutic Notes.

**Treatment of Gonococcal Vaginitis.**—H. Rouland, in *Semaine gynécologique* for February, 1913, states that in the acute period of this affection, absolute rest in bed for a few days should be advised. Vaginal irrigations three times daily with a decoction of poppy or marshmallow, at a maximal temperature of from 102.2° to 104° F. (39° to 40° C.), may be ordered. These may be alternated with a 0.5 per cent. solution of sodium bicarbonate. If the use of a glass cannula proves too painful, a soft rubber tube should be employed. As soon as the pain has been reduced by these irrigations, a one in 4,000 solution of potassium permanganate should be substituted. At night a simple glycerin suppository, or one medicated with ichthyol, may be left well up in the vagina.

To assuage the marked local pain and burning, the following suppository may be used:

- R Morphine hydrochloridi.....gr. 1 $\frac{1}{2}$  (0.01 gramme);  
Extracti belladonnæ 16 florum.gr. 1 $\frac{1}{2}$  (0.03 gramme);  
Olei theobromatis.....gr. xlv (3 grammes).  
Fiat suppositorium No. i.

An enema consisting of the following combination might also be ordered:

- R Antipyrine.....gr. xv (1 gramme);  
Tinctura opii.....gtt. xv;  
Aque bullite.....℥v (150 grammes).  
Misce.

Copious enemata of water, as well as laxatives, likewise afford considerable relief in these cases. The diet should be light, and fluids freely ingested.

Where the affection is of a subacute type, vaginal irrigations with a one in 2,000 solution of potassium

permanganate are alone indicated. In the intervals between injections the walls of the canal should be kept apart by means of a gauze tampon upon which some soothing yet stimulating ointment such as the following, advised by Doleris, should be spread:

R Petrolati, .....  
Zinci oxidii, .....  
Camphoræ, .....  
Resoreinolis, .....  
M. Ft. unguentum.

The amount of gauze should be just sufficient to keep the walls of the vagina apart, and not enough to produce pressure.

When the local redness and burning have distinctly lessened the mucous membrane, including all its folds, should be painted every three days, using a speculum, with a one in 50 or a five in 30 solution of silver nitrate. After this tampons of sterile cotton impregnated with a five per cent. suspension of iodoform in glycerin may be applied to the uterine cervix. If the silver nitrate gives rise to too much pain, a solution of one of the organic silver salts or a colloidal silver preparation may be used. The following preparation may also be employed:

R Acidi lactici, .....  
Glycerini, .....  
Fiat solutio.

When vaginitis becomes chronic it is localized at the cervix and vulva. Metritis and vulvitis are therefore the conditions requiring treatment. The vulva and vagina should be repeatedly washed with soap and water morning and evening. Applications of silver nitrate, colloidal silver, or concentrated permanganate solutions are indicated and will not fail to yield beneficial results.

**Treatment of Phenol Gangrene.**—H. Roziès, in *Monde médical* for June 15, 1913, writes concerning a patient whose finger, becoming the seat of a felon, had been treated, ten days previously, by incision and the application of an ointment containing phenol. Although healing had promptly followed, the finger had become grayish and insensitive, then acutely painful, and when first seen, its terminal phalanx and a portion of the second appeared shrunken and grayish blue. The nail was gone, sensation lost, and at the second phalanx there was an irregular tender zone, devoid of inflammatory reaction.

The treatment adopted consisted of salt baths and applications of hot air, the latter being supplied by an apparatus consisting of a blower heated by an alcohol lamp. A jet of hot air was directed daily upon the gangrenous tissues from a distance of five centimetres, then more diffusely, over the neighboring painful tissues, from a distance of ten centimetres. Promptly, after the first few sittings, the pain left and the affected area became more sharply limited. The normal color of the member returned and circulatory activity in it was increased. The dead portions of tissue separated, leaving an aseptic ulcerated surface over which, under continued hot air treatment, epithelial growth rapidly took place. The finger remained somewhat thinner than before. The treatment had, however, clearly prevented bacterial pullulation in the part, relieved pain, and

accelerated repair. The author suggests that in the small proportion of cases of phenol gangrene of the moist type this treatment would also prove serviceable.

#### Sodium Citrate in the Treatment of Merycism.

G. Variot, in *Bulletin et Mémoires de la Société médicale des Hôpitaux de Paris*, May 1, 1913, reports the case of a girl sixteen years old who, since the age of nine, had been troubled with regurgitation of food, generally about ten minutes after meals, though occasionally during them, or an hour later. Special dieting brought only temporary improvement, and bromides were without effect. Upon a trial of sodium citrate, however, in daily doses at first of four grammes (1 drachm), taken in divided amounts before meals, and later of six grammes (1½ drachms), brought about a marked improvement in the trouble, the regurgitated material being merely watery, and much less in amount. Temporary discontinuance of the drug was followed by a reappearance of the previous abundant regurgitations. Under continuous medication the patient gained in weight. It was found that the taking of a glass of water, to which the juice of half a lemon and a teaspoonful of sodium bicarbonate had been added, would exert the same sedative action on the stomach as the sodium citrate.

**Treatment of Otitis Externa.**—R. M. Nelson, in the *Journal of the American Medical Association* for March 8, 1913, states that he has found a mixture containing five per cent. each of phenol and ichthylol in glycerin remarkably efficacious in the treatment of otitis externa diffusa, myringitis, otitis externa circumscripta ("furuncle of the canal"), and, in connection with other treatment, as good as any ear drops in acute otitis media. The mixture proved especially effective in otitis externa caused by and complicating chronic suppurative otitis media, and in general, was particularly valuable where ordinary methods, after careful trial, had failed to give relief. It was applied on cotton tampons.

**Treatment of Pharyngitis.**—*Nouveaux Remèdes* for March 24, 1913, suggests the following oily solution, to be applied to the throat in pharyngitis:

R Phenylis salicylatis, .....  
Petrolati liquidi, .....  
Solve.

The following is for inhalation:

R Mentholis, .....  
Tincturæ benzoini compositæ, .....  
Tincturæ eucalypti, .....  
.....

M. Sig.: One teaspoonful to be added to a pint of boiling water and the vapor inhaled.

**Treatment of Pyrosis.**—Peter, in *Paris médical* for May 17, 1913, is credited with the following combination, to be administered to patients in whom a milk diet provokes acid regurgitations:

R Sodii bicarbonatis, .....  
Crete præparata, .....  
Extracti nucis vomice, .....  
Misce et divide in cachetas No. x.

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AUTOGENOUS VACCINE IN ACUTE  
ANKYLOSTOMIASIS.

Several facts relative to ankylostomiasis suggest that the hookworm itself is not always exclusively responsible for the symptoms observed in this form of parasitic invasion. Thus, it is known that in some cases fever continues long after specific treatment has eliminated the parasites. Again, different types of fever have been observed by Castellani in hookworm infection, suggesting that more than one pathogenic agent is operative. That Padua and others have found the intestinal putrefactive processes very marked in ankylostomiasis leads Captain R. G. Archibald, of the British Army (*Journal of Tropical Medicine and Hygiene*, September 1, 1913) to ascribe the clinical evidences of toxemia, unaccounted for by the hookworm, to the absorption of the poisonous products of certain intestinal bacteria. This view is confirmed by a case he reports, the patient suffering from continuous fever, anemia, headache, anorexia, vertigo, constipation, and evidences of severe toxemia, in which, after eucalyptus oil and chloroform in large doses had failed to bring relief, death being apparently imminent, the administration of an autogenous vaccine prepared from a coliform organism isolated from the stools caused immediate and striking improvement. The spleen and liver, previously en-

larged, diminished in size, weight was gained rapidly, and soon after the patient was discharged. In two other acute toxic cases vaccine therapy was likewise employed, with very gratifying results. While the number of cases is small, there seems to be no reason for denying their probative value, and one may look with favor upon the author's recommendation, in certain cases of severe and intractable ankylostomiasis, to employ autogenous vaccines of any suspicious intestinal organism in conjunction with or even before—to lessen the danger from toxic effects—the specific anthelmintic measures.

## TRAINING FOR OPHTHALMIC PRACTICE.

Many good ideas were brought out in the proceedings of the Conference of Teachers of Ophthalmology held last June in Minneapolis, as reported in the *Ophthalmic Record* for August, two of which seem to us to deserve particular mention. One, that some provision should be made for a place where a complete training in ophthalmology can be acquired; the other, that the relations of the eye to general medicine should be made so prominent in the teaching of the undergraduate student, that he will become a general practitioner with a clear understanding of these relations.

We believe that the first is in process of evolution. Doctor Jackson showed from the statements of 250 ophthalmologists in active practice in America that they had spent an average of three years, some of them five and seven years, in a more or less desultory preparation, while none of them had been able to secure a complete, well rounded education in the subject in that time. It is hard to believe that men are willing to sacrifice so much time as internes in hospitals, as assistants in private practice, and in attendance on clinics in various parts of the world, and yet would be unwilling to devote it to systematic study at some place where they could attain much better the aim they have in view. It would seem as though there were an opportunity for one of our best postgraduate schools to inaugurate a three years course of systematic instruction in ophthalmology under the direction of one competent head. One of the difficulties suggested is the demand for a short course on the part of men who desire an easy road to the emoluments of the specialist, and the doubt that many of them will voluntarily choose the long one. After a course of training lasting three months or so few of the students know any more about the eye than every general practitioner should, their skill is conspicuously absent, at least in the eyes of the expert, and their ability to fit glasses is scarcely superior to



that of the optometrist. It seems probable to us that when the general practitioner knows as much of the eye as he does of any other of the organs of the body there will be a lessened demand for short courses in special training from those who wish to qualify as specialists.

This brings us to the second idea, that the relations of the eye to general practice should be made clear to the undergraduate student. But the curriculum is already overloaded, the teachers of ophthalmology do their best in the few hours at their disposal, and these hours cannot be lengthened without increasing the length of the course of study. Very true, yet something might perhaps be accomplished. The student is taught in the classes on general medicine to observe the pupils in a case of suspected tabes, and is advised to have an ophthalmoscopic examination made in search of optic atrophy. The prognostic value of the findings of such an examination in cases of renal disease is also mentioned. Would not the intimate relation of the conditions in the eye to the general disease be made more real to him if his teacher in clinical medicine used and had him use the ophthalmoscope for diagnostic purposes in the examination of the many diseases in which intraocular symptoms coexist? These teachers now call attention to the iritis complicating syphilis and rheumatism; could they not at the same time point out the symptoms by which they recognize it to be an iritis, and not a conjunctivitis, or a glaucoma? Suppose this does trench on the domain of the ophthalmologist, he trenches quite as much on that of the gynecologist, and of other specialists. We need many, many more general practitioners who are able to make an intelligent examination of the eye, to recognize lesions within it, and to trace the connection between them and the other symptoms presented by the patient, who would think to use the ophthalmoscope in cases of unexplained persistent vomiting, of doubtful symptoms referable to the central nervous system—in short, in all obscure cases. It seems to us that much would be gained in every way if students were to see the ophthalmoscope frequently used by their teachers of clinical medicine as an instrument of diagnosis, without laying any additional burden on the curriculum.

#### THE HEART IN SYPHILIS.

Though as long ago as 1906 Buschke and Fisher demonstrated the presence of the spirochetes in the heart muscle in cases even in the early secondary stage, most recent writers appear to agree with the older authorities as to the infrequency of cardiac involvement in syphilis. The only reference which

von Zeissl makes to this is to state that callous inflammation and gummata develop in the heart in very rare instances; callous inflammations affecting one or all of the layers of the cardiac muscle, while gumma almost always attacks the myocardium. A prominent American authority, Otis, made no mention whatever of the heart in his *Clinical Lectures on the Physiological Pathology and Treatment of Syphilis*, published in 1881. After quoting the findings of Cornil and Ranvier, Huebner, and Edes, Otis says: "Thus it will be seen that the degeneration of arteries from syphilitic influences consists, according to recent eminent authorities, in an antecedent accumulation of cells and the growth of new fibrous tissues at the points of degeneration." Ziegler asserts that there is nothing specific in the histological process, though it may be said that in the ordinary arteritis of small vessels no such enormous accumulation of cellular infiltration occurs as in syphilitic inflammation. While syphilis of the heart itself has been considered so rare, Harlow Brooks (*American Journal of the Medical Sciences* for October, 1913) states that it has a specific affinity to attack the coronary arteries. He believes that the apparent rarity of cardiac involvement is probably due to the relative infrequency with which true gumma of the heart is found at necropsy.

Doctor Brooks's investigations have led him to conclude that luetic involvement of the heart is much more serious in its direct effects, as well as much more frequent, than has generally been supposed. He finds that in his post mortem series death occurs in no less than sixty-six per cent. of his syphilitic cases as a result of or with serious circulatory disease apparently of specific origin. The myocardium was found diseased to a serious extent in forty-four of the fifty cases, but true cardiac gumma was present in only five instances. One patient died before the secondary rash had fully appeared, due to a minute perforation of the wall of the aorta. A pronounced acute arteritis and periarteritis was found throughout the myocardium, particularly involving the vasa vasorum of the aorta. In twenty-eight cases opacities composed of mingled fibrous and endothelial hyperplasia were found in the visceral pericardium, and in thirty-five, disease of the coronary arteries was present to a greater relative degree than the general arteritis. For some time past Doctor Brooks's clinical studies have been largely directed toward an attempt to answer the questions, When do these lesions occur? Do they produce effects which are clinically recognizable? Can they be prevented? Can they be cured? As to the time of occurrence, if, as he believes he has demonstrated, these specific

inflammatory changes develop first in and about the arterioles of the heart muscle, it is plain that their onset should occur among the earliest of all visceral disease in this infection. While in both early and late cases irregularity of heart action is the most characteristic and frequent clinical manifestation, in general the signs and symptoms are those of cardiac disorder; the history, general aspects, and the Wassermann reaction may indicate the true etiology. Good results—cures in many instances—will follow appropriate antisyphilitic therapy. Patients in the active and progressive periods of the secondary stage who have been promptly and thoroughly treated by modern methods have thus far shown no recognizable cardiac complications.

### OPERATIONS AND METASTASIS IN CARCINOMA.

For many years there has been a feeling among surgeons that mechanical disturbances of malignant tumors are dangerous, on account of the increased liability to metastases, or secondary growths, incident thereto. This view has been based, in the past, on purely clinical observations; recent labors along experimental lines with mouse cancer have tended to strengthen it.

From the surgeon's standpoint this is an exceedingly important matter. What he wishes to know is, whether the growth of secondary masses, in patients in whom metastasis has already occurred, will be accelerated by the removal of the primary tumor, whether life will be shortened or prolonged, and whether the procedures followed in the course of physical examinations or surgical operations increase or diminish the frequency of, or liability to, metastases.

Clunet found that of one hundred and forty-five mice which succumbed to implants of a certain strain of tumor, none showed metastases visible to the naked eye. On the other hand, of eleven mice which were operated on for the removal of nodules of this tumor, five showed metastases. Another series of experiments gave very similar results and Clunet thus concluded that metastases were more frequent in those mice which showed recurrent tumors for a considerable period following operation.

More recently Tyzzer in this country reports experiments on cancer mice along these same lines. He comes to two interesting conclusions. He finds that operations, incomplete but involving the incision of implanted tumors, do not increase the incidence of metastases. The secondary tumors that are present, however, grow more rapidly. This is due either to an increase in the amount of food material made available by the removal of a large

mass of tumor tissue elsewhere, or to the elimination of the element of cachexia, and improvement of the physical condition which almost invariably occurs. It was also noted that metastases may be produced artificially by the manipulation and massage of the implanted tumor. This is accomplished as readily during the early development of the tumor, as in the period in which metastasis naturally occurs.

It is therefore evident that there should be as little mechanical disturbance as possible, before or during an operation.

### THE PHARMACOLOGY OF THE BODY TEMPERATURE.

In a brief paper, Henry G. Barbour records in the *British Medical Journal* some very interesting observations made on the direct influence of drugs and temperature changes upon the region of the brain in which the thermoregulatory centres are supposed to lie. Puncture of the corpus striatum, under aseptic precautions, was made with a double metal tube, closed at its distal end, which was fixed *in situ* so as to allow the animal to recover. By passage of water through this tube the influence of heat and cold could be determined. It was found that when the temperature in the brain at this point was raised to 42° C, there was an immediate fall of the rectal temperature of the animal. "Heat centrally applied acts, therefore, as an antipyretic; upon this fact undoubtedly depends the automaticity of the temperature centres; the overheated blood of the fever patient tending by its central depressing action to keep the body temperature from going still higher." Reduction of the local temperature to 33° C. has a diametrically opposite effect. Direct local application of solutions of a number of drugs to this area through a puncture was tried, and the results seem to confirm the central site of the action of these drugs in their influence on body temperature. Choral, antipyrine, quinine, and epinephrin reduce the temperature, as would be expected, while caffeine and betatetrahydronaphthylamine raise it. By decerebration, partial or complete, it was possible to prove that antipyrine actually causes an increased heat production, which, however, under normal conditions of heat control is overbalanced by heat dissipation.

### RECURRENCE AND REINFECTION AFTER SALVARSAN TREATMENT OF RECENT SYPHILIS.

Paul Ravaut, in the *Presse médicale* of September 13, 1913, cites cases and adduces arguments to show that in patients in the earliest period of syphilis treated with salvarsan, there may appear, a few months later, a recurrence absolutely identical in its manifestations with the original infection, viz., showing a chancre with spirochetes, followed by enlargement of the lymphatics and the usual phenomena of the secondary stage. In a case which he reports, the treatment had consisted of one intra-

venous injection of 0.6 gramme of salvarsan and four intravenous injections of mercury cyanide. In the five months' interval between this admittedly insufficient treatment and the appearance of the second chancre, induration at the site of the first chancre had in part persisted and the glands had remained tender. In nearly all cases reported as re-infections, only relatively small amounts of salvarsan had been given—amounts manifestly insufficient to eradicate syphilis. It is becoming increasingly apparent, moreover, that numerous injections of salvarsan must be given if permanent results are to be obtained. Cases of recurrence such as that already mentioned are believed by Ravaut to result from an excessive local reaction in the site of the initial lesion at the time of the first injections, whereby the spirochetes become shut off from access to the circulation and remain dormant until after treatment is discontinued, recurrence then taking place. While, therefore, in the presence of a chancre, energetic treatment should be given in the hope of sterilizing the organism, in the secondary stage the treatment should be milder, in order not to cause reactions at the various foci of distribution of the spirochetes. A series of six to ten ascending doses of neosalvarsan should be given, followed by a course of mercury, and this in turn, if necessary, by another series of neosalvarsan injections. The treatment should be continued as long as recognizable foci of disease persist, either by clinical examination or laboratory tests, including the Wassermann and those relating to the cerebrospinal fluid.

#### INCIDENCE OF INHERITED SYPHILIS IN CONGENITAL MENTAL DEFICIENCY.

J. Leslie Gordon's observations in the *Lancet* for September 20th were made upon 400 patients. The Wassermann reaction was the evidence most relied upon. Of the total number, sixty-six, or 16.5 per cent., gave a positive reaction. From three to ten years of age is the time when the greatest number of positive results is found, and the frequency seems to fall decidedly with advancing age. In only eleven of the sixty-six positive cases could stigmata of syphilis be discovered, while among the negative cases sixteen showed some stigmata usually deemed characteristic of syphilis.

#### News Items.

**Ohio Valley Medical Association.**—The fifteenth annual meeting of this association will be held in Evansville, Ind., on Wednesday and Thursday, November 5th and 6th. An excellent programme has been arranged and the meeting gives promise of being a great success. Dr. Benjamin L. W. Floyd, of Evansville, is secretary, and will be glad to furnish complete programmes upon request.

**Rat Plague at Seattle.**—Seven plague infected rats were found at Seattle, Wash., between September 30 and October 18, 1913. These rats were found along the water front. The municipal health department is actively engaged in the trapping and poisoning of rats and the rat proofing of buildings in the vicinity in which the infected rodents were found. Officers of the United States Public Health Service have charge of the inspection and disinfection of arriving and departing vessels to prevent the spread of the disease by ships.

**Operative Clinics at Fordham Hospital.**—Announcement is made by the house surgeon of Fordham Hospital, New York, that during the months of October, November, and December, Dr. Alexander Nicoll, attending surgeon at the institution, will hold operative clinics every Saturday afternoon beginning at 2:15 o'clock. Other operating days are Tuesdays and Thursdays, beginning at 2:15 p. m. The medical profession is invited to attend these clinics.

**New Department Opened at Jefferson Hospital.**—The trustees of the Jefferson Medical College, Philadelphia, announce that the new department for diseases of the chest is ready for occupancy. This new department was made possible by the purchase of the buildings formerly occupied by the Phipps Institute in Pine Street, which have been completely renovated and modernized and every facility afforded for the efficient care of patients suffering from diseases of the chest.

**Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.**—Monday, November 3d, Philadelphia Clinical Association and the Academy of Surgery; Tuesday, November 4th, Wills Hospital Ophthalmic Society and the Medical Examiners' Association; Wednesday, November 5th, Physicians' Motor Club, directors, and the College of Physicians; Thursday, November 6th, Obstetrical Society; Friday, November 7th, Kensington Branch of the County Society and the South-east Branch of the County Society.

**New Dispensary of the Hospital for Deformities and Joint Diseases.**—The board of directors of the Hospital for Deformities and Joint Diseases, New York, have issued invitations to the laying of the cornerstone of the new dispensary at 41 and 43 East One Hundred and Twenty-third Street, on Tuesday, November 4, 1913, at 3 o'clock p. m. Addresses will be made by Emanuel M. Gattie, president, Dr. Abraham Jacobi, Adolph Lewishohn, Judge Julius M. Mayer, Dr. Reginald H. Sayre, Felix M. Warburg, and the Rev. Stephen S. Wise.

**Red Cross Seals in Great Demand.**—The State Charities Aid Association, which is agent for the sale of the Red Cross seals in New York State outside of New York city, states that present indications point to one of the most successful campaigns yet conducted. Hundreds of agents have been appointed, and it is expected that before December 1st an army of 15,000 workers will be pushing the sale of the Red Cross seals. It is the aim of the association to raise \$100,000 by the sale of seals between Thanksgiving Day and Christmas Day.

**Smallpox in Connecticut.**—Acting Assistant Surgeon Stanton, of the United States Public Health Service, reported on October 16th that smallpox had broken out in Montville, and at the time the report was submitted eight cases were under observation in that town. According to press dispatches the disease exists in a number of mill towns in the eastern part of the State, the situation being most serious in Danielson, where there are about fifty cases. There have been no deaths from the disease so far. The most rigid quarantine has been established, and as the disease is of a mild type, it is expected that the outbreak will soon be under control.

**Four Million Dollar Gift to Cornell University Medical College.**—A gift of approximately \$4,000,000 to the Cornell University Medical College in this city was announced at Ithaca, N. Y., on Thursday, October 23d, on behalf of the board of trustees. It is understood that this gift, the largest in the history of the university, was presented by Colonel Oliver H. Payne, of New York, who, prior to that, gave a large sum for the establishment of the branch of the Cornell Medical College in New York city. The interest from the gift will give the medical college an annual income of \$200,000.

**Fortieth Anniversary of the New York Laryngological Society.**—The New York Laryngological Society, which was founded in 1873, will celebrate the fortieth anniversary of its organization during the latter part of the month. The event is especially interesting, from the fact that this society was the first of its kind to be established, the earliest to follow its example, either in Great Britain or on the European Continent, coming more than ten years later. Twenty-five years ago the society was merged into the Academy of Medicine, becoming the Section in Laryngology and Rhinology. A formal meeting at the Academy of Medicine has been arranged at which addresses will be delivered and a bronze tablet and other memorials commemorating the occasion will be presented.



**Admission of Tuberculosis Patients to Sea View Hospital.**—On or about November 1, 1913, tuberculosis patients will be admitted to the Sea View Hospital of the Department of Public Charities. Fifty men and fifty women can be cared for at that time, and those patients are desired who have been found to be unsuitable for Ray Brook or Otisville, but for whom favorable results may be expected, with proper treatment. As soon as possible it is desirable that a waiting list from which those patients may be drawn should be available. All the tuberculosis clinics of the department will be notified to recommend patients for admission. Recommendations will be made to, and admission cards issued by, the Hospital Admission Bureau, 426 First Avenue, Manhattan, in the same manner as for admission of patients to other city hospitals.

**Philadelphia Medical Club.**—At a regular meeting of the Medical Club, held on Friday evening, October 17th, the following nominations for officers were made: For president, Dr. Francis X. Dercum, Dr. Samuel D. Risley, and Dr. Wilmer Krusen; for first vice-president, Dr. McCluny Radcliffe; for second vice-president, Dr. John W. West; for secretary, Dr. William S. Wray; for treasurer, Dr. Lewis H. Adler, Jr.; for governor, Dr. L. Webster Fox and Dr. Clarence P. Franklin; for directors, Dr. Elwood R. Kirby, Dr. William E. Hughes, Dr. Swithin Chandler, Dr. F. Hurst Maier, Dr. Rae S. Dorsett, Dr. Paul J. Sartain, Dr. Henry H. Freund, Dr. Alexander MacAlister, Dr. Edward Horgan, Dr. Matthew Woods, Dr. Harry H. Whitman, Dr. Herbert B. Carpenter, and Dr. Benjamin F. Devitt. The address of the evening was delivered by President Hibben, of Princeton University, who dwelt on the nonprofessional factors which are essential to the successful physician.

**A Society for the Conservation of Vision Organized in Philadelphia.**—Acting under the auspices of the commission appointed by the Medical Society of the State of Pennsylvania, laymen and doctors have formed the Pennsylvania Society for the Conservation of Vision. Aroused by learning that this country has 100,000 blind people, an active campaign is under way against ophthalmia neonatorum, needless eye injuries in the trades, trachoma, wood alcohol, wrong lighting of buildings, and like causes. In addition to a large number of distinguished laymen, acting as advisory members, the Commission on Conservation of Vision includes Dr. William Campbell Posey, Wills Eye Hospital, Philadelphia, chairman; Dr. William W. Blair, University of Pittsburgh; Dr. Clarence P. Franklin, of Philadelphia; Dr. C. M. Harris, of Johnstown; Dr. Edward B. Heckel, of Pittsburgh; Dr. T. B. Holloway, University Hospital, Philadelphia, secretary; Dr. Wendell Reber, Temple University, Philadelphia; Dr. Edward Stieren, of Pittsburgh; Dr. Lewis H. Taylor, of Wilkes-Barre; Dr. William Zentmayer, Wills Eye Hospital, Philadelphia; Dr. Samuel G. Dixon, Commissioner of Health of the State of Pennsylvania, Harrisburg, honorary chairman.

**Medical Faculty of the University and Bellevue Hospital Medical College.**—The following new appointments and promotions in the medical faculty of this institution have been announced: Dr. William B. Trimble, professor of dermatology and syphilology; Dr. Lewis K. Neff, clinical professor of medicine; Dr. William H. Luckett, clinical professor of surgery; Dr. George H. Kirby, assistant professor of mental diseases; Dr. Ephraim M. Ewing, assistant professor of physiology; Dr. Charles Krumwiede, lecturer on bacteriology; Dr. Edward S. McSweeney, lecturer on the management of tuberculosis institutions; Dr. Arthur G. Keane, clinical lecturer on surgery; Dr. Robert P. Wadhams, instructor in surgery; Dr. John F. Nelson, instructor in surgery; Dr. Walter W. Griffin, instructor in surgery; Dr. George A. Koenig, instructor in surgery; Dr. John H. Carroll, instructor in medicine; Dr. John H. Wycoff, Jr., instructor in medicine; Dr. Mills G. Sturtevant, instructor in medicine; Dr. Emanuel D. Friedman, instructor in medicine; Dr. William H. Boese, instructor in medicine; Dr. Frederick W. Rice, instructor in obstetrics; Dr. William E. Bailey, instructor in genitourinary surgery; Dr. Filip J. Wettervik, instructor in orthopedic surgery; Dr. Richard T. Atkins, instructor in otology; Dr. Alfred Kahn, instructor in otology; Dr. John J. Rothwell, instructor in dermatology; Dr. Clement J. Hailperin, instructor in dermatology. Dr. Egbert Le Fevre is dean of the faculty and Dr. S. A. Brown is secretary.

**Johns Hopkins Medical School Receives a Gift of \$1,500,000.**—Announcement is made that the Johns Hopkins Medical School, Baltimore, has received from the General Education Board of the Rockefeller Institute for Medical Research the sum of \$1,500,000. This money is to be used for the purpose of reorganizing the departments of medicine, surgery, and pediatrics, in such a way that the professors and their associates in these departments can withdraw from private practice and devote their entire time to teaching. The board makes the condition that the teaching staff benefiting by the endowment may attend patients outside of the Johns Hopkins Hospital, and even hold clinics outside of the school, but they may receive no pay for such services. In giving Johns Hopkins Medical School the first appropriation the General Education Board recognized this institution as one of the greatest medical schools in the country, and in doing so paid a great honor to Dr. William H. Welch, its active head, and the man who is responsible for its high standing in the medical world. In view of Doctor Welch's great service to the cause of medical education in America the fund set aside for the benefit of the Johns Hopkins Medical School will be called the William H. Welch Endowment for Clinical Education and Research.

**Personal.**—Dr. Theobald Smith, professor of comparative pathology at Harvard University, has been appointed a member of the international committee to award in 1914 the first Emil Chr. Hansen Prize for researches in medical microbiology.

Dr. J. H. Hewitt has been appointed resident pathologist of Cleveland City Hospital.

Dr. Edwin W. Mitchell has been appointed by the trustees of the University of Cincinnati to succeed the late Dr. Frederick Forchheimer as professor of medicine. Doctor Mitchell has been on the medical staff of the City Hospital for nearly a quarter of a century.

Dr. J. T. Rugh, associate professor of orthopedic surgery at the Jefferson Medical College, Philadelphia, has been appointed a member of the staff of orthopedic surgeons of the Philadelphia General Hospital, succeeding Dr. H. Augustus Wilson, who resigned recently.

Medical Director Lucien G. Henneberger, United States Navy, who was surgeon of the battleship *Maine* when it was blown up in Havana Harbor on February 25, 1898, has reached the naval retiring age of sixty-two years, and consequently has been placed on the retired list.

Dr. Sparrell S. Gale, of Roanoke, Va., has been elected president of the Association of Surgeons of the Norfolk and Western Railway, to succeed Dr. Joseph Hall, of Cincinnati. Dr. T. D. Armistead, also of Roanoke, was elected vice-president.

**Gifts and Bequests to Hospitals.**—Under the terms of the will of Benjamin Altman, who died in New York on October 7th, Mount Sinai Hospital will receive \$100,000, and St. Luke's Hospital, the German Hospital, Lincoln Hospital, and the New York Eye and Ear Infirmary will each receive \$25,000.

The will of the late Miss Anna Blanchard, of Philadelphia, contains a bequest of \$50,000 to the University of Pennsylvania.

By the terms of the will of Samuel J. Silberman, who died in New York on September 2d, the Beth Israel Hospital will receive \$5,000, Mount Sinai Hospital, \$3,000, the Lebanon Hospital and the Montefiore Home, \$1,500 each, and the Hospital for Deformities and Joint Diseases, \$1,000.

Public bequests amounting to \$325,000 are contained in the will of Miss Harriet C. Cruft, who died in Boston on August 31st. According to the terms of the will the Massachusetts General Hospital will receive \$30,000 and the Boston Children's Hospital, \$25,000.

By the will of Miss Julia Garrett, late of Philadelphia, the Orthopedic Hospital will receive \$50,000, and the Bryn Mawr Hospital will receive \$10,000.

Under the terms of the will of the Rev. Dr. William Hutton, late of Philadelphia, the Oncologic and the Presbyterian Hospitals, of Philadelphia, will each receive \$2,000.

Mrs. George J. Gould has presented an automobile ambulance to the Paul Kenall Memorial Hospital, at Lakewood, N. J., as a memorial to her mother, Mrs. Kingdon. Last year Mr. Gould presented to the institution its entire equipment of surgical instruments.

## Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

**Sources of Error in the Phenolsulphone-phthalein Test for Kidney Function.**—M. Roth finds that the reagent made by different chemical firms is not uniform and therefore gives altogether varying results. The excretion percentage with German preparations is eighteen to twenty per cent. less than with the American products. The application of the drug must be carefully made, and care should be taken that none of the substance is lost during injection. None of the urine must be lost when measuring the amounts excreted. The injection is made into the muscles of the lumbar region. Intragluteal injections have shown subnormal values. In women, disease of the genitals and pregnancy are contraindications for the test.

**Intravenous Injection of Toxynon, a New Mercurial Preparation, in Syphilitics and Non-syphilitics.**—C. Gutman's articles in this and the previous number say that this new preparation, forty-eight per cent. of which is acetaminomeric benzoic sodium, causes a rise in temperature after its first intravenous injection in syphilitics and non-syphilitics which is much more pronounced in the former than in the latter. This leads to the conclusion that it possesses, besides a toxic effect, also a specific spirillocidal one. It is remarkable that the organism soon accustoms itself to the remedy, and the second injection is taken better than the first; most of the patients do not show a febrile reaction after later injections. Another striking fact is that all patients, with one exception, treated with toxynon did not have a febrile reaction after subsequent injections of salvarsan. This fact supports the supposition that toxynon has a specific action upon the spirochete and lessens or prevents the toxic action of salvarsan.

**Dose and Methods of Application of Radio-active Substances in Internal Diseases and the Results Obtained.**—Gudzent has shown by comparative experiments with varying doses of radium emanations that from three to five M. E. pro litre air inhalations in fifty-nine per cent. of the cases yielded therapeutic results, and that no more is accomplished with concentrations four to seven times as strong. The nervous anemic patients do not seem to bear the larger doses as well as the small ones. Of all diseases, gout and chronic articular rheumatism were most influenced by the radium treatment and the advantage of inhalation as against the drink cures was plainly marked in these diseases. Sciatica, diabetic neuralgias, and Basedow's disease are very much improved by this method of treatment. The results from thorium emanations and from these of thorium x were decidedly less favorable than those from radium.

September 5, 1932

**Local Amyloidosis.**—G. Herxheimer and A. Reinhart report a case of local amyloid formation in the mucous membrane of the urethra in a healthy man, twenty-seven years old. The amyloid particles were so massively imbedded in the otherwise intact and slightly reacting inflammatory mucous

membrane that they gave the impression of a tumorlike formation. The cause remains unknown, since there is no history of a chronic inflammation or mechanical trauma.

**Pathogenesis of Biliary Peritonitis without Perforation of the Gallducts.**—M. Askanazy reports another case of biliary peritonitis without perforation of the gallducts. In this case, too, there was present a progressing infection of a complicated gallstone disease. The cause of the peritonitis lay in a so called Luschka's sinus duct which ran from the surface of the mucous membrane deep into the tunica fibrosa, i. e., into the subserosa, and contained incipient gallstone concretions. The inclination of necrotic tissue to absorb bile substances, and the exudation directed against the surface of the peritoneum, explain in a measure the possibility of the formation of a biliary peritonitis without perforation.

**Serumtherapy in Toxicoses of Pregnancy.**—F. Wolff injected ten c. c. of the nonactivated serum of a healthy woman in the puerperium (fourteen days) into the gluteal region of a gravid woman suffering with severe urticaria; prompt healing resulted. This proves that a few weeks after delivery there is present in the circulating blood protective ferments against placentalchorionic proteid.

**Psychoses of Pregnancy.**—C. A. Passow relates the case of a para V, with hereditary taint, who went through her first four pregnancies without any disturbance whatsoever, but suffered from a severe melancholia during her fifth pregnancy. A peculiar discoloration of the skin and a protrusion of the eyeballs pointed to a somatic disturbance (Basedow's disease). The pregnancy was artificially interrupted because of progressive mental and bodily weakness. Recovery followed.

September 12, 1932

**Tendon and Muscle Reflexes and the Signs of Their Diminution and Increase.**—E. Trömmel states that all tendon, joint, bone, periosteal, and fascial reflexes are nothing more than true muscle reflexes. Every true muscle possesses the physiological property of reflex irritability. But normally there are great differences in the degree of irritability. With very few exceptions reflex contractions can be produced in the triceps, biceps, supinator longus, quadriceps, adductor, gastrocnemius, and the flexors of the knee. Absence of a number of these reflexes, the proper technic being applied, should excite the suspicion of an organic cause. The pathological superreflex is characterized by a series of phenomena: Increase in the sphere of irritability, contrairritability of muscles, lively percussion muscle irritability, clonic reaction, and reflex crossings.

**Kidney Function in Inflammation of the Kidney Due to Sublimate.**—M. Ghirow observed the excretory relations of harmless coloring substances and poisonous substances (sublimate) in the kidney of rats by means of a specially constructed illuminating apparatus which permitted the observance of the function of the kidney epithelium together with the circulation and the way by which coloring matters leave the organism during their excretion. Anilin blue solution is rapidly excreted in large quantities from the glomeruli.

partly absorbed in the tubules, and slowly, step by step, excreted. A similar process is observed after sublimate injections; but in the second case because of the action of the poison there are structural and functional changes, dilatation of the blood capillaries, slowing of the blood stream, diminished transparency of the cell protoplasm, and a slower excretion of secondarily injected colored particles. By artificial increase of the blood pressure it is possible in the first stage of acute nephritis to hasten the excretion of the coloring matter.

September 22, 1913.

**A Simple Instrument for Determining the Number of Bacteria.**—E. Rosenthal describes minutely a new instrument and a simple, reliable method for estimating the number of bacteria. This method will find application in the most diverse branches of bacteriological and clinical investigations.

September 26, 1913.

**Treatment of Disturbances of the Internal Secretion of the Ovaries by Glanduovin (Extractum Ovariale).**—J. Hirsch recommends the injection of this extract in climacteric disorders of the normal menopause, in climacterium præcox, and in dysmenorrhea due to subfunction. It was found useless in one case of intermenstrual pain. It was used in sixteen cases of scanty menstruation and amenorrhea; fifteen women were cured. One of two cases of the dermatoses of pregnancy was favorably influenced. In pruritus vulvæ one of two cases in pregnant women showed a good result. In nineteen cases of hyperemesis of pregnancy, nine cases were favorably influenced.

#### CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE.

September 13, 1913.

**Distilled Water in Medical Practice.**—A. Barlaeadean questions whether distilled water is the best means for the administration of salvarsan. He credits Wechselmann with being the first to call attention to the idea that certain toxic effects depended on the bacteria contained in the distilled water, rather than on the salvarsan, and brings together the observations of other writers together with his own on this subject. He found that ordinary distilled water contained many bacteria, and that although these were killed by boiling, their dead bodies caused trouble when the water was injected into the veins. Mueller, he says, examined sixteen specimens of distilled water obtained from different pharmacies, and found only two in which the germ content was less than 100,000 to the c. c. One contained 6,050,000 to the c. c., and two over 700,000. Distilled water is generally kept in bottles that cannot be thoroughly cleansed, and alkali from the glass and metals from the retort add to the impurities of the water. He insists that these impurities may even modify the effect of drugs taken by the mouth, and maintains that the chemical test of distilled water should be supplemented by biological and bacteriological tests, as well as by that of its electric conductivity.

September 2, and 28, 1913.

**Pulmonary Tuberculosis in Great Altitudes.**—H. Philippi writes on the treatment, F. Egger on the indications for and against great altitudes in

pulmonary tuberculosis. According to the latter it would seem to be only early or incipient cases that are fitted for mountain air, while his contraindications include advanced cases and those with serious complications.

#### PARIS MÉDICAL.

September 27, 1913.

**Antitetanic Serum in Wounds of the Eye.**—Vinsonneau reports a case of slight abrasion of the conjunctiva in which enucleation became necessary because of panophthalmitis, and cephalic tetanus appeared two days after, soon proving fatal. No foreign body could be found in the eyeball or orbit. Antitetanic serum should be always given in wounds of the eye in which the vulnerable body has been in contact with the soil, and should be used as frequently as possible even where this has not been the case. Where tetanus actually develops, injections of serum should be made in the sphenoidal fissure and optic foramen. This will be facilitated by the previous laying open of the wound, if it involves the orbit, or by enucleation, if the eyeball has been injured.

**Mushroom Poisoning.**—R. Le Roy states that in one month of the year 1912 there occurred in France, to his knowledge, 271 cases of mushroom poisoning, with ninety-six deaths. The number of cases of this kind has been rapidly increasing in recent years. Le Roy insists that there is no empirical means of distinguishing good mushrooms from the harmful ones; accurate knowledge of the botanical characteristics of each variety is alone to be depended upon. He shows the fallacy of a large number of popular rule of thumb methods of mushroom selection, and points out the inefficiency of various supposedly detoxicating procedures, such as drying the mushrooms, removing their pigmented top layer, boiling them with salt or vinegar, macerating in cold water for twenty-four hours, and the ingestion of vegetable or animal charcoal.

#### PRESSE MÉDICALE.

October 1, 1913.

**Pulmonary Sporotrichosis Simulating Tuberculosis.**—C. Laurent reports having seen eight cases of sporotrichosis in a year and a half. Most of these were of the commoner varieties, presenting cold abscesses, ulcer on the forearm, tibial osteitis, etc. In one case, however, there were combined with a subcutaneous abscess and discharging lesions of the right ulna, right first metatarsal and left cuneiform bones, typical signs of tuberculosis in both apices. Cultures from the sinuses yielded the specific *Sporotrichum Beurmannii*, but the sputum, which was scanty, showed neither this organism nor the tubercle bacillus. The temperature was practically normal. A complete cure was effected in a month by the administration of four grammes of potassium iodide daily.

#### SEMAINE MÉDICALE.

September 24, 1913.

**Renal Factor in Glycosuria.**—R. Lépine, having observed that in phloridzin glycosuria the blood of the renal vein contained more free sugar and less combined sugar than that of the renal artery, embodies this fact in a new theory of the cause of



this form of glycosuria. He looks upon phloridzin glycosuria as being due, not as Pavy and others have supposed, to a new formation of sugar in the renal cells, but to excessive transudation through the walls of the renal capillaries of sugar liberated from the combined form through the effect of the phloridzin. The phloridzin also acts, according to his theory, by creating in its elimination pores or interstices in the renal vascular endothelium through which the glucose set free can readily pass, i. e., it increases renal permeability to the glucose. Lépine would substitute for "renal" diabetes the term "diabetes without hyperglycemia" as being more definite and exclusive. Such a condition is met with clinically, especially in women in the later months of pregnancy, glycosuria appearing after the ingestion of sugars or starches in amounts which would not produce it in the normal individual and in spite of the fact that examination of the blood shows no hyperglycemia. In view of the fact that certain organs are overactive during pregnancy, this form of "renal" glycosuria may perhaps be analogous to that which follows the injection of organ extracts. As for the cases of diabetes without hyperglycemia recently reported by a number of authors, they are far from constituting a homogeneous or uniform group.

#### REVUE MÉDICALE DE LA SUISSE ROMANDE.

August, 1913.

**Emotional Reactions as a Factor in the Production of Psychopathic Disorders.**—Dubois points out that, if emotional reactions, e. g., fear, be accepted as the basis of human conduct, it should not be overlooked that such emotional reactions are always preceded by a rapidly executed mental estimation of the value or significance of the influences to which the individual is subjected at the time. In many instances this estimation is faulty, and it should be one of the aims in psychotherapy to correct the wrong conceptions of environmental events upon which the patient's fears depend.

**Hemorrhagic Myeloid Leucemia.**—H. Ter-Barseguian, concluding an article begun in the preceding number, states that myeloid leucemia is frequently accompanied by cutaneous, mucous, or visceral hemorrhages. In certain cases these hemorrhages are so abundant or numerous that an actual hemorrhagic form of myeloid leucemia can be spoken of; the author reports six cases of this kind. The hemorrhagic manifestations may either continue in a chronic manner from the beginning of the disease or appear in pronounced form only in the terminal stage of the disease. Among the causes of the hemorrhages are a change in the condition of the blood, exaggerated diapedesis, alterations in the vascular walls, slowing of the blood stream, etc. The prognosis in this form of leucemia is even less favorable than in the cases not complicated with hemorrhage. In the treatment, which coincides with that of leucemia in general, special caution should be exercised to avoid surgical traumatism and even subcutaneous injections.

**Moriz Weisz Reaction for Urochromogen.**—E. Cottin reports the results obtained with this reaction in nearly 300 cases, about one half of which were tuberculous. In most instances parallel tests with Ehr-

lich's diazo reaction were made. The Moriz Weisz reaction possesses the same clinical significance as the diazo test, but has advantages over it in being simpler, giving an immediate result, and being of a greater degree of sensitiveness. It is carried out by filling a tube one third full of fresh urine, adding twice this amount of water, pouring one half of the resulting mixture in another tube as control, adding to one tube three drops of a freshly prepared one in 1000 solution of potassium permanganate in distilled water, and mixing. In a negative reaction the color of the urine remains the same or is rendered slightly brownish, while if urochromogen is present the preexisting color of the urine is accentuated to a golden yellow. Where there is doubt as to the result, the test should be repeated, using less water or more of the permanganate solution added; to dark urines—with urobilin, bilirubin, etc.—finely powdered ammonium sulphate should first be added to the urine, which is then to be filtered fifteen minutes later. From the series of cases studied Cottin concludes that a persistently positive Weisz reaction in the urine of tuberculous patients is of unfavorable prognostic significance, even in patients whose general clinical condition appears to warrant the hope of improvement. The reaction proved positive in the terminal stages of various other affections—pneumonia, erysipelas, nephritis, heart disease with pulmonary embolism, empyema, hemiplegia, and grave essential anemia. In all these cases there could already have been no doubt of an early fatal ending.

**Warmed Ether in Anesthesia.**—C. Julliard reports laboratory experiments and comparative observations in 203 clinical anesthetics, conducted in order to prove or disprove the advisability of using ether previously heated to boiling in anesthesia. The author is led absolutely to deny that by heating ether either the temperature or tension of the anesthetic vapor in the mask can be altered, except for a very short time. Ether heated to 33° C. seems at first more pleasant to the patient than ether at air temperature, say 23° C.; this appears to be due to the early increase of vapor tension due to the heating. As soon as the ether at 33° C. volatilizes, however, it becomes cooler, the temperature of the vapor drops, and very soon conditions are exactly the same as though the ether had not been heated at all. Heating the ether has no effect on the rapidity of onset of anesthesia or the amount of ether required, for heated ether volatilizes quickly, cools rapidly (reaching the freezing point in four minutes), and therefore promptly loses the initial increment of vapor tension. Use of the inhaler devised by G. Julliard is advised, as the temperature of the mixture of ether vapor and expired air in it is from 23° to 24° C., which is about 20° higher than with Sudeck's inhaler. The temperature is practically the same whether the ether has previously been or not been heated. Inhalers of large capacity are to be preferred to small ones, as the more remote the seat of the volatilization of ether in the inhaler is from the patient's mouth, the higher the temperature of the mixture of gases in the inhaler. Pneumonia and other complications following ether anesthesia are not due, however, to low temperature of ether vapor.

## ROUSSKY VRATCH.

**Treatment with Radium Emanations.**—S. A. Brushtein employed a radium emanatorium, containing two or three Maché units per litre of air, in thirty-one cases of various affections. In nine cases of polyarthritis there was improvement in eight, and no change in one. In twelve cases of uric acid diathesis there was improvement in five, aggravation in two, and no change in five. In five cases of chronic rheumatic polyarthritis there was improvement in two, and no change in three. In one case of arthritis deformans, after two months' treatment there was some improvement in the mobility of the joints and the pain. In two cases of tabes dorsalis, after prolonged treatment (twenty and thirty sittings) the darting pains in the legs disappeared. There was no effect on the other symptoms. There were two cases of neuralgia. In one, trifacial neuralgia, no effect was observed after thirty treatments; in the other, sciatica, the pain markedly diminished. Other effects of radium were noticed. The respirations were increased in twenty-six per cent., diminished in 38.5 per cent., and did not change in 34.6 per cent. The pulse rate was increased in 12.1 per cent., diminished in 23.3 per cent., and did not change in 64.5 per cent. The blood pressure was increased in 5.2 per cent., diminished in 34.2 per cent., and not changed in 60.6 per cent. The question, whether radium is an important therapeutic agent the author answers in the affirmative, although he cautions against undue enthusiasm.

July 12, 1902

**The Effect of a Lack of Oxygen on the Growth and Development of Chick Embryos.**—N. W. Weselkin reports in a preliminary communication the results of some experiments he performed by incubating eggs in an atmosphere with a diminished amount of oxygen. He found that oxygen starvation either destroys growth, inhibits development, or causes malformations, depending on the varying oxygen contents of the atmosphere.

**Healing of Wounds of the Liver, Spleen, and Kidneys.**—G. A. Valjashko and A. A. Lebedeff, basing their conclusions on experimental data, suggest the free use of superficial and deep fascias in closing wounds of parenchymatous organs.

**A Case of Favorable Effect of the Local Application of Salicylic Acid in Gonorrheal Arthritis.**—A. S. Solovtsova reports favorable results from the local application of salicylic acid, employed according to the following formula:

R Acidii salicylici	.....	gr. lxxv	5.0;
Spiritus vini 90°	.....	3iss	45.0;
Olei vicini	.....	℥lxxv	5.0.
Misce. Fiat solutio.			

This was applied warm and the surface was then dusted with salicylic acid in fine powder. When the local reaction became too great the application was alternated with some soothing ointment.

July 29, 1903

**Contagiousness of Tertiary Syphilis and Its Significance in the Question of Syphilis and Marriage.**—W. I. Terebinsky argues that in view of the fact that the contagiousness of tertiary syph-

ilis has been definitely proved, the physician has no right to sanction the marriage of a syphilitic, even if he passed the secondary stage and had been properly treated. All he can do is to acquaint the patient with the facts in the case, pointing out the chances of infection, which in the majority of cases are not great.

## BRITISH MEDICAL JOURNAL.

October 11, 1903.

**The Action of Strophanthin upon Cardiac Tissue.**—A. J. Clark finds that, in perfusion experiments with the isolated heart of the frog, strophanthin is opposed in its systolic effect by the presence of acid, a hypodynamic condition of the muscle, and by an absence of calcium. In improving the force of the heart's contraction, as well as in causing systolic standstill, the action of strophanthin is very closely similar to that of certain alkalis. On the other hand, in its influence on the rate of conduction it shows no resemblance to the effects of alkalis. This action seems to be of an entirely different nature from its systolic action. It is interesting to find that the increase in the force of the ventricular contraction under the influence of the drug is much greater in the case of hypodynamic hearts than in that of normal ones. This suggests a possible parallel in the cases of the normal and diseased human hearts.

**Maximal and Minimal Blood Pressures.**—J. F. Halls Dally calls attention to the fact that the blood pressure for any individual is not a constant quantity, but is ever fluctuating, due to changes in the tonus of the vessel walls, variations in the peripheral resistance, alterations in the volume of the blood, and the rate of the heart beat. The maximal and minimal pressures between which the arterial pressure normally varies are the valuable criteria to be determined in every case. It is also fallacious to speak of "the systolic" blood pressure; we should speak of the brachial, the femoral, or other definite systolic pressure. It has been assumed, heretofore, that arterial elasticity is a fixed quantity for each artery, and that it does not vary during health. Nothing is farther from the truth, if the suggestion be confirmed that the arteries are capable of altering their rigidity or resilience under the influence of the vasomotor nervous mechanism, or from other causes. The blood pressures—systolic and diastolic—are of decided prognostic value, for instance, if, in a case of high pressures, both continue to rise in spite of treatment the outlook will be unfavorable. A caution is given in the reading of the two pressures; that they be taken at the same time and by the same method of recording. The author finds the Pachon oscillogometer a very satisfactory instrument for this purpose.

**On the Genesis of Cancer.**—Arthur Turnbull holds the only definite fact in the etiology of cancer so far established to be that irritation or chronic mechanical strain leads to cancer. He has undertaken to study the matter of the influence of strain upon tissues, for which purpose he has taken measurements upon the femora of some 700 human beings. From 25,000 measurements he believes that he has established "a principle of first magnitude in the cancer problem—namely: There exists a re-

lation between the stram to which a tissue is exposed and the extent to which that tissue varies." The principle offers a rational explanation of the transformation of normal into cancerous tissue without having to seek any external factor, such as parasites.

**Electrargol in Smallpox.**—R. Denman accidentally observed the abortion of a case of smallpox occurring simultaneously with plague, for the latter of which diseases electrargol was administered. Thinking that this drug might be accountable for the curative effect, he has tried it in a fair number of cases of confluent smallpox, or such as were even worse. His results have been very excellent, reducing the mortality from fifty to twenty per cent. He gives from ten to twenty cubic centimetres intravenously daily for three or four consecutive days. For the best results in ordinary confluent cases, and to be of any value at all in the severe hemorrhagic or septicemic cases, it must be given at the earliest possible moment.

**A Note on Cardiospasm.**—Alfred C. Jordan has observed the great constancy, in cases of cardiospasm, of the distended, "writhing" duodenum and of delay in the lower ileum and large intestine, both typical of chronic intestinal stasis. It is possible that in a certain number of cases of this condition the etiology of the spasm may lie in the intestinal stasis, it being a reflex, or toxic manifestation.

**Secondary Rays in Connection with Ionization.**—An interesting suggestion is made by John D. Harris, to the effect that the introduction of certain metallic ions into the deeper tissues by ionization may increase the action of x rays through the liberation of secondary x rays from the deposited metal. He has obtained good results from the use of the zinc ions in several cases of tuberculous or malignant ulceration. The use of potassium iodide in connection with x rays cured a moribund patient with actinomycosis who had resisted all other forms of treatment.

#### LANCET.

October 11, 1913.

**Hard versus Soft Water.**—Supplementing his previous report of 1910, John C. Thresh has compared the death rates of several communities for the period of five years from 1907 to 1911 with reference to the possible effects of the water supply. He also gives similar statistics for the year of 1912. The waters supplying the several communities varied from very soft and slightly alkaline to very hard, that is to 20° to 30° of hardness. Both urban and rural districts are included in the statistics. The comparison shows that there is no appreciable difference in mortality rate between the several differently supplied communities—the hard water areas give a rate from 0.1 to 0.2 per mill. higher than corresponding soft water regions. He shows, further, that filtered water from rivers polluted with sewage has no effect upon the death rate. The incidence of death from cancer, phthisis, and typhoid fever was also investigated with reference to the water supply, and it was found that the degree of hardness was without effect here as with the general mortality.

**Arteriovenous Anastomosis for Impending Gangrene.**—Charles Goodman calls attention to the varied results reported by different surgeons after performing this operation, and believes it is due to the difference in technic, and the lack of any uniform method of procedure. The author has performed fifteen of these operations on patients varying in age from twenty-eight to eighty-seven years. He had one death and seven other failures. One of these cases was due to the use of a side to side anastomosis, and three of the other patients should not have been operated upon. He has had six complete successes, all done by direct end to end union after the method of Carrel. Special caution must be exercised in the union not to injure the intima of either vessel in order to avoid clotting. In all the cases the cold foot became warm and pink, pain was relieved, filling and pulsation of the superficial veins was prompt, and there was a return to normal of the parts threatened with gangrene.

**Formation of an Artificial Vagina.**—Victor Bonney details a case in which it was necessary to perform this operation to restore the health of a girl of nineteen, who had become suicidal as the result of her knowledge of the total absence of a vagina. Bonney used Baldwin's method of transplanting a section of the ileum into the pelvis, leaving its mesenteric vascular attachment intact. The result was excellent. The method commends itself especially because it is the only one by which subsequent cicatricial contraction of the artificial vagina is avoided. There have been only eleven other similar cases reported in the literature, and the opportunity for the operation is very rare. Nevertheless, Bonney discusses the ethical aspects of the procedure. He believes that it is justifiable only in women after the appearance of puberty, because so many of the cases of absence of the vagina are associated with congenital absence of the ovaries also. If the woman has shown signs of normal sexual feelings and for other reasons the operation seems called for it is then justifiable, even though the woman can never bear children. It must be borne in mind that the operation is associated with considerable danger, and is therefore not to be undertaken except where the demand is pressing.

#### PRACTITIONER.

September, 1913.

**The Treatment of Anemia.**—W. H. Wilcox gives the following measures: The immediate treatment of acute anemia, due to severe hemorrhage, is directed, after the bleeding is checked, toward preventing death from collapse and shock. The foot of the bed should be raised, hot water bottles applied, the limbs and abdomen covered with warm cotton and bandaged. Absolute rest and quiet are essential. Warm saline solution should be given subcutaneously and by the rectum, or, in extreme cases, infused into a vein, two pints being used. Oxygen, or better oxygen bubbled through absolute alcohol, should be given, and in extreme collapse and shock, hypodermatic injections of pituitary extract of strychnine. These last should not be given when the bleeding is due to phthisis or



gastric ulcer and continuing, but morphine should be injected instead and repeated if necessary. In chlorosis the rest in bed should be for at least four weeks, and longer if the hemoglobin is still much below normal, and particularly if the heart is dilated with hemic bruits and a rapid pulse. Afterward the patient should have as much fresh air as possible without physical overexertion. The diet should be as liberal as the gastric condition of the patient will permit. Her taste may be complied with, provided that an ample allowance of foods rich in protein is taken. Iron is most important and should be given in a mixture determined by the condition of the stomach. Several prescriptions are given as examples, of which we will copy one for each condition. When there is no gastric irritation:

R Ferri sulphatis, ..... gr. iij;  
Magnesi sulphatis, ..... 3j;  
Acidi sulphurici diluti, ..... ℥v;  
Syrupi aurantii, ..... 3j;  
Aque chloroformi, q. s. ad. .... 3j.  
M. S.: To be taken three times a day after meals.

When there is slight irritability of the stomach:

R Ferri sulphatis exsiccatis, ..... gr. ij;  
Extracti aloë socotrina, ..... gr. ss;  
Extracti cascarię sagradę, ..... gr. j.  
Ft. one pill. Take three times a day after meals.

When irritability of stomach is marked:

R Ferri et ammonii citratis, ..... gr. viiij;  
Sodii bicarbonatis, ..... gr. x;  
Syrupi aromatici, ..... 3j;  
Aque chloroformi, q. s. ad. .... 3j.  
M. S.: To be taken three times a day after meals.

About twenty-four grains of powdered hemoglobin should also be taken *t. i. d.* In some cases the addition of small doses of arsenic is valuable. When the gastric irritation is very marked it may be necessary to give for a few days a mixture of bismuth and alkali, with a liquid diet. When the amount of hemoglobin has returned to normal treatment with Bland's pill, or some other good preparation of iron, must be maintained for some months. In pernicious anemia complete rest in bed is essential until all signs of cardiac dilatation have disappeared and until the pulse rate is below eighty. In carrying out other measures it must be remembered that the cause is often some intestinal toxemia, or possibly oral sepsis, and that in most cases the gastric secretion of hydrochloric acid and ferments is almost *nil*. For the details the reader is referred to the original article. In splenic anemia and leucocythemia the general lines of treatment are the same as for pernicious anemia. In addition the application of the x rays over the spleen, every ten days at first and at longer intervals afterward is often of service. The treatment of cases of secondary anemia resolves itself into the treatment of the condition causing the anemia, with the addition of the measures described under chlorosis.

**Some Pelvic Disorders in Relation to Neurasthenia.**—Carlton Oldfield says that pelvic disorders have no specific action in causing neurasthenia. Pelvic complaints, with the exception of disorders of menstruation, are as often as not unassociated with physical signs, and due to a general neurasthenia. Certain conditions, such as a slight exposure of the vaginal wall, cervical erosion, laceration, retroflexion of the uterus, prolapsed ovary, ovaritis, and cystic ovary, do not produce symp-

toms, and do not require treatment. Chronic pelvic inflammation, calling for operative treatment, sometimes exists apart from recognizable tumor formation. Greater care is necessary, before, during, and especially after operation, to prevent post-operative neurasthenia. Before operating upon neurasthenics with gross disease, and before operating in cases without demonstrable physical signs the surgeon should seek the advice of the physician.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

October 18, 1913.

**Radiographic Studies of the Gastrointestinal Tract in Infants**, by H. D. Chapin.—See this JOURNAL for July 5th, p. 40.

**A Study of the End Results of the Baldy-Webster Operation**, by J. O. Polak.—See this JOURNAL for June 28th, p. 1367.

**Is Membranous Dysmenorrhea Caused by Endometritis?** by K. I. Sanes.—See this JOURNAL for June 28th, p. 1366.

**Radium in Internal Medicine**, by L. G. Rowntree and W. A. Baetjer.—See this JOURNAL for July 5th, p. 50.

**Rupture of a Mediastinal Lymph Node into the Bronchus**, by A. L. Goodman.—See this JOURNAL for July 5th, p. 40.

**Roseola Infantum**, by J. Jahorsky.—See this JOURNAL for July 5th, p. 41.

**Disarticulation of the Knee Joint.**—F. J. Gaenslen says that in conditions requiring amputation through or near the knee joint the surgeon is influenced in his choice of an operative method in the first place by the pathological condition present which determines how much of the limb must be sacrificed, and secondly by the desire to leave the patient as useful a stump as possible. Referring incidentally to the Carden and Gritti methods, the author describes a method of procedure which he devised for the purpose of securing a broad weight bearing surface utilizing the patella in addition to the condyles, in contrast to other methods. The principal points in the technique are the preservation of the patella and the extensor apparatus by division of the patellar ligament close to the tibial tubercle; lengthening of the quadriceps tendon to allow the patella to be brought down into apposition with the lower surface of the femur; and the performing of an arthrodesis between the patella and femur in the intercondyloid space at such a point that the pressure bearing surface of the patella will lie on a level with the condyles.

**Joint Disease Due to Infection from Other Parts of the Body.**—J. W. Cokenower finds that the frequency of joint disease and its often uncertain etiology constitute a problem which has largely contributed to the unsatisfactory differential diagnosis of the various kinds of joint ailments. On account of the paucity of references to this subject in the literature of the last four years, he wrote a number of orthopedic and general surgeons for clinical reports, and as the result of this investigation he concludes that the differential diagnosis of arthritis frequently depends, not on the examination of the local condition, but on the presence or absence of preceding or associated le-

sions in other parts of the body. Another condition of the joints which he says must not be overlooked in the diagnosis, because it is often taken for inflammation when in fact it is not, is edema due to effusion.

**The Injection Treatment of Tuberculous Joints.**—L. W. Ely states that the employment of this practice goes back for over thirty years. In 1881 von Mikulicz used iodoform, and since then many other substances have been employed, among them bone charcoal, iodine, phenol, arsenic trioxide and corrosive sublimate, acidulated solution of calcium sulphate, zinc chloride, balsam of Peru, naphthol camphor, and formaldehyde solution. Iodoform has been advocated most strongly and persistently, but if we examine carefully the evidence for this agent after thirty-two years of trial we find that it consists almost exclusively of unsupported clinical opinion. This does not necessarily condemn it, but when an approximately equal weight of unfavorable clinical opinion is produced on the other side, we are justified in demanding some tangible proof of its usefulness. Failing this, we should adopt a form of treatment the efficacy of which rests on something else than contradictory clinical experience. Having stated that the other substances mentioned rest their claims on much the same basis as iodoform, the author expresses the opinion that it is as rational to attempt to cure a tuberculous joint by injection of the synovial cavity as to cure a tuberculous lung by injection of the pleural cavity.

#### MEDICAL RECORD

October 18, 1913.

**The Cure through Genitourinary Surgery of Arthritis Deformans and Allied Varieties of Chronic Rheumatism.**—Eugene Fuller states that his experience with and knowledge of these affections came as a sequel to preceding work in connection with gonorrheal rheumatism, so called, and that in previous communications he had expressed the positive opinion that in its more chronic forms a toxemia independent of the gonococcus systematically absorbed from infected seminal vesicals was responsible for the trouble. In former articles he had shown that various groups of subjective symptoms had been found to be curable as a result of the removal of lesions connected with the seminal vesicles through a resort to seminal vesiculotomy. The present paper dealt with one group of cases representative of a very chronic and advanced form of rheumatism which he had found to be likewise curable. In certain of these old chronic cases a marked seminal vesiculitis and characteristic rheumatism would be found, although all questions as to the previous existence of a gonorrhea would receive negative answers. In such cases it was observed that the rheumatism would disappear with the postoperative disappearance of the seminal vesiculitis, just as in the cases in which there was a preceding history of gonorrhea. In a series of sixty-nine cases in which the operation was undertaken for the relief of rheumatism there was one death, the patient being an alcoholic with granular kidneys. Between twenty and twenty-five represented extremely chronic or most advanced conditions of rheumatism, and in a number of these

sufficient time has not yet elapsed for the end result to be attained. The more acute cases, aside from the one in which death occurred (and that patient stated a week after his operation that all his rheumatic symptoms had disappeared) were all discharged from hospital in a very satisfactory condition. After remarks on the character of some of the lesions observed in his cases and on certain features of the operative procedure, the author presents nine case reports.

#### **The Scope of Radiographic Methods, from a Clinical Viewpoint, with Some Illustrative Cases.**

—L. A. Wing holds that the x ray is almost indispensable in the following types of cases: Fractures, types of arthritis, diseases of bone in general, foreign bodies in the tissues, calculi in the kidney, ureter, and bladder, aneurysm and dilatation of the arch of the aorta, lesions of the esophagus, conditions involving the colon, and gastric cases. His conclusions are: The x ray should not be regarded as something apart from other methods of physical examination, but as a supplemental method, and often a very valuable one. It should be employed more frequently, and clinicians in general should be more familiar with its scope of usefulness, as well as its limitations. It is very desirable that the radiographer and the clinician be in close relation in the matter of radiographic interpretation, so that the entire evidence in a given case can be weighed in a consistent manner.

**Syringomyelia; with Pathological Findings.**—E. P. Bernstein and S. Horwitt first present some remarks on the present status of syringomyelia, or cavitation of the spinal cord, stating that the cavity may be so small as to give rise to but few symptoms, but by extension may compress or destroy the posterior columns, posterior gray horns, and even the crossed pyramidal tracts. Then, again, it may be of various shapes, with irregular extension in various directions, thus giving rise to most irregular symptom complexes. Clinically the disease may present an immense variety of symptoms, and these, for convenience, are arranged in a number of groups. With regard to the association of the cavities with gliosis, some are inclined to consider the latter a secondary process, but the view accepted by most observers of to-day is that the gliosis is primary and the cavitation a result of degeneration occurring in the glia neoplasm. The authors give an elaborate analysis of the pathological findings in the case of a female patient who died in less than a month after admission to hospital. For nine years she had suffered from attacks of pain over the sacrum and in the left lower extremity, which gradually became more frequent and involved the right leg also. On admission both extremities were helpless (flaccid paralysis), with anesthesia, areas of dissociated sensation, and extensive bedsores with deep ulcers over both buttocks.

#### AMERICAN JOURNAL OF TROPICAL DISEASES AND PREVENTIVE MEDICINE.

August, 1913.

**Experiences with Beri Beri.**—V. G. Heiser reports that the beri beri which formerly prevailed at the Culion leper colony in the Philippine Islands was arrested by the use of unpolished rice, that is, a rice containing at least 0.4 per cent. of phosphorus

pentoxide, and reappeared when unpolished rice was for a time unavailable, the use of polished rice, that is, a rice containing only 0.2 per cent. of phosphorus pentoxide, being resumed. The quantity of phosphorus is believed to be of importance only as an index as to the amount of the outer layer or pericarp of the rice grain that has been removed, the identity of the substance in the polishings, lack of which causes beri beri, not having as yet been determined.

**Polyneuritis Gallinarum Caused by Different Foodstuffs.**—Creighton Wellman and C. C. Bass describe experiments which led them to conclude that glucose and talc, used commercially to impart to milled rice a polished appearance, play no part in the production of polyneuritis gallinarum, a disease of birds and fowls which is believed identical with beri beri in man, and which results from an exclusive diet of "polished" rice. Legislation or regulations against the sale of "polished" rice, based upon the fact that polyneuritis gallinarum results from feeding it as an exclusive diet, are not warranted. It was found that corn grits, boiled sweet potatoes, boiled Irish potatoes, sago, macaroni, puffed rice, cream of wheat, and ordinary wheat flour, fed to chickens or pigeons as an exclusive diet, produced the disease as certainly, and in a few instances even more rapidly, than did rice.

**Peripheral Neuritis in the Amazon Valley.**—Carl Lovelace states that among 963 cases of peripheral neuritis clinically and anatomically indistinguishable from beri beri, treated in a railway hospital in North Brazil, there were many in which the factors of defective diet and of a rice diet could be positively excluded. Since it has nevertheless been conclusively shown by Fraser and Stanton and others that the beri beri symptom complex may be induced by a diet of polished rice, and considering the number and diverse characters of the agents known to cause multiple neuritis—lead, arsenic, alcohol, diphtheria, typhoid fever, syphilis, etc.—it is highly probable that the term "beri beri" has been used to cover not a single disease, but a group of diseases, more or less indistinguishable clinically.

**Sprue in Porto Rico.**—B. K. Ashford calls attention to a condition apparently genuine sprue, as a very common and fatal disease in Porto Rico. At least four cardinal signs are essential to a positive diagnosis: 1. The typical sprue tongue, sometimes glazed and shiny, but at other times, during an exacerbation of the stomatitis, red at the tip and edges, with little vesicles surrounded by a red areola, or completely raw; 2, the small liver; 3, the pasty or frothy stools, large, evil smelling, and light in color; 4, constant and distressing gas production in the intestine. Of the eighty-six cases met with by the author, most were in the well to do class. The mouth symptoms showed a marked tendency to alternate with those of the bowel. Hypochlorhydria was constant, carbohydrate digestion very defective, and absorption of fats greatly reduced. The terminal stage of sprue is one of marasmic toxemia, with intense anemia. The disease cannot be successfully treated unless starches, sugars, and fats are wellnigh eliminated from the diet. The author reports eight cases treated with a diet exclusively of milk, taken warm through a straw every hour and a half, together with a full dose of castor oil

twice a week at bedtime, and on three successive days in each week one gramme of yellowed santolin, divided into three doses daily, and given mixed with olive oil. In some instances, the dose of santolin was reduced to 0.325 gramme a day. While marked improvement or recovery followed in each of these patients, eight other patients placed upon a milk diet alone, without drugs, all made a good recovery, and remained well from one to three years after.

#### ANNALS OF OTOTOLOGY, RHINOLOGY, AND LARYNGOLOGY.

MARCH, 1913.

**Otosclerosis.**—A. Denker states that investigations have shown that pathologicoanatomical foundation of otosclerosis has revealed the loss of movement of the stapes as the result of bony ankylosis in its framework or in the niche of the oval window and a progressive spongification of the bony capsule of the labyrinth, to which must be added, as shown by the histological examination in a large number of cases, an atrophic degenerative process in the nerve endings in the membranous labyrinth. The majority of investigators concur in the opinion that the condition is a primary bone disease of the labyrinth capsule and not an extension of inflammation from the middle ear. Various reasons have been advanced for the occurrence of the changes demonstrated. Heredity seems to be the most important etiological factor, although there is a possibility that the predisposition and not the disease is inherited. The coincidence of pregnancy with the beginning of the otosclerosis suggests a causal relationship between the function of the hypophysis cerebri and the ear disease. Alexander believes the cause may be of congenital origin. The variability of the lesions produced and the resulting symptom complex cause the disease to be divided into, 1, those cases in which the changes are located exclusively at the vestibular window and its vicinity, and have led to a bony fixation of the footplate; 2, those cases in which the appearance of multiple spongifying foci in the labyrinth capsule, with atrophic degeneration of the membranous labyrinth without stapes ankylosis; and, 3, those cases with bony fixation of the stapes plate, combined with other foci in the labyrinth capsule and with atrophy of the membranous labyrinth. The treatment so far has been unsatisfactory, but from the author's experience good results may sometimes be obtained by the internal administration of phosphorus.

JUNE, 1913.

#### Removal of Adenoids by Direct Inspection.

Joseph C. Beck advocates the insertion of a small rubber catheter through the nostrils, bringing the ends out through the mouth, for the control of hemorrhage after the removal of the faucial tonsils and for direct inspection by traction on the ends of the catheter by an assistant at the time of the removal of the adenoid. This method seems especially efficacious when the adenoid vegetation is situated around the orifice of the Eustachian tube, and in the application of artery forceps to the posterior wall of the nasopharynx in cases of excessive hemorrhage after the removal of the adenoid.

**Atrophic Rhinitis with Ozena.**—F. P. Emerson believes that ozena is the sequel of a focal infection. The presence of a septal deviation causes a com-



pensatory hypertrophy of the middle turbinate, which is followed by a chronic catarrhal ethmoiditis interfering with drainage to such an extent that a subsequent active infection results in a sinusitis. The fetor and crusting are probably due to the direct action of a specific pus producing organism on the tissues, without any preceding true atrophic process.

**Mastoid Operation.**—W. Sohler Bryant advises the mastoid operation when a mastoid abscess is present; when the mastoiditis is due to *Streptococcus mucosæ*; in the presence of intracranial or hemic complications of middle ear infection; when the bone is of the solid variety, whether in acute or chronic mastoiditis.

#### ANNAIS OF SURGERY.

August, 1913.

**Laryngectomy for Cancer.**—G. W. Crile says that surgical experience has demonstrated that intrinsic cancer cannot invade hyaline cartilage; that it tardily, if at all, metastasizes; that it frequently follows in the wake of benign tumors and of syphilitic ulceration; that the immediate mortality is now well controlled; that the disability and deformity of the laryngectomized patient should have no weight in deciding for or against the operation; that special training and experience are required to thoroughly master the technic, and that if recognized early, and removed completely, intrinsic laryngeal cancer is perhaps the most curable cancer of the body. In view of the results obtained, there is no longer any justification for the pessimism which still disheartens the victim of laryngeal cancer and prevents him from utilizing his one chance of life.

**The Preliminary Ligation of the Thyroid Arteries and of the Inferior in Preference to the Superior Artery.**—William S. Halstead says that for the past two years or more he has tied the inferior in preference to the superior arteries and for the following reasons: The cosmetic effect is better; the wounds made for ligation of the inferior arteries are partly outside of the field of the lobectomy operations; as the inferior thyroid artery is usually larger than the superior, the effect of the ligation may be greater, and that the location of the inferior artery is less variable than that of the superior vessel, which is subject to great changes because of the inconstant position of the superior pole. He ligates the inferior thyroid artery as follows: A transverse incision from four to four and five tenths centimetres in length is made over the tendon of the omohyoid muscle precisely in the line of the Kocher collar incision as contemplated for the subsequent lobectomy. The fibres of the sternomastoid muscle are separated in line of the common carotid artery at the level of the omohyoid tendon. The thyroid lobe is exposed behind the posterior fibres of the sternothyroid muscle and drawn inward by a retractor designed for this purpose. The common carotid is retracted outward by a similar though by a somewhat shorter instrument, and the layers of the fascia covering the inferior thyroid artery are divided at the level of the omohyoid tendon. Dissection is then carried out solely with two long, delicate, blunt dissectors, for the artery is sometimes at a great depth (greatest when Graves's

disease has been engrafted on a colloid goitre), and the space is only large enough, as a rule, to admit one finger between the deeply concave retractors. A special aneurysm needle is used for carrying the fine silk ligatures around the artery. The wound is, of course, not drained.

**Acute Perforating Sigmoiditis in Children.**—J. Ransohoff reports two cases of leftsided lower quadrant intraabdominal suppuration and draws the following conclusions: 1. Although few cases of sigmoid diverticulation have been found in children, no cases of diverticulitis have been recorded in children. 2. To designate in a general way, as is the present tendency, all leftsided lower quadrant suppurations as of diverticular origin is not warranted by the facts. Unless a diverticulum is shown, the diagnosis must be problematical. This applies, of course, very much more to children than to adults in whom all the recorded cases have occurred. 3. Leftsided appendicitis cases have been described with and without visceral transposition. 4. It has not been the writer's object to underrate the importance of the sigmoid diverticulum as the cause of the leftsided abdominal suppurations, but to call attention to other conditions, notably of the mucosa producing them, and particularly in children.

#### MONTHLY CYCLOPEDIA AND MEDICAL BULLETIN.

August, 1913.

**Adalin.**—Paul Bartholow finds adalin a powerful nervous sedative. It is strongly hypnotic in doses of from fifteen to twenty grains. Such doses may accumulate; this is prevented by a daily saline purge. Large doses may also cause some heaviness of the head on the third day, which can be avoided by giving an effervescent draught containing a small dose of acetphenetidin. Doses of five grains three times a day suffice for sedative purposes in nervousness and do not produce habituation. The quantity of urine is slightly increased, probably owing to the urea contained in the drug.

#### SURGERY, GYNECOLOGY, AND OBSTETRICS

August, 1913.

**Prostatectomy.**—John B. Deaver says that where the prostate is without doubt malignant, tuberculous, or the seat of an incurable gonorrhea, and in cases of benign scirrhous enlargement successful prostatectomy can only be performed by the perineal route. He follows the technic of conservative prostatectomy devised by Young, not with the idea of saving the ejaculatory ducts, but because, by the fine exposure afforded by this method, it is possible to remove the greater portion of the diseased gland under guidance of the eye, and therefore with less danger to the contiguous structures. With the exceptions cited above, the suprapubic route is preferable because: 1. The approach to the prostate is simple and practically bloodless. 2. The enucleation of adenomatous growths is accomplished with ease. 3. The working field is large and under perfect control. 4. The prostate is accessible and can be made more so by digital pressure on its rectal surface and without the danger of injury to the bladder liable with the use of the tractors necessary in the perineal operations. 5. The muscular control

of the bladder neck is not disturbed since the internal vesical sphincter lies outside the line of cleavage, and incontinence is therefore less liable following this technic. 6. Permanent fistulae are less frequent after the suprapubic operation. 7. Sepsis occurs less than half as often as with the perineal operation. 8. Drainage is more nearly perfect. 9. Stones can be more easily removed. 10. Uremia is a less frequent sequel. 11. The mortality, in properly selected cases, is no greater and the percentage of permanent cures much larger. 12. Immediate postoperative complications, especially hemorrhage, are less often noted. 13. Sexual potency is maintained as frequently after the suprapubic operation as after the perineal, and the question of sterility is rarely of any consequence.

**Regeneration of Bone from Periosteum.**—S. L. Haas from a series of animal experiments concludes that: 1. Periosteum, especially in the presence of blood clot, has the power to regenerate bone. 2. Regeneration of bone is not solely dependent upon the presence of preexisting bone. 3. Regeneration of bone was never found excepting when periosteum was present.

**An X Ray Study of the Mechanism of the Stomach after Gastroenterostomy.**—J. H. Outland, E. H. Skinner, and L. Clendening draw the following conclusions: 1. Gastroenterostomy, if properly done, is a drainage operation. 2. After gastroenterostomy, if the stoma is at the lowest part of the stomach in the erect position, the food leaves the stomach almost exclusively by the gastroenterostomy opening. 3. Under these conditions the stomach is emptied with great rapidity. 4. Gastroenterostomy should be done only in the presence of pyloric stenosis, or pyloric spasm due to duodenal or gastric ulcer. 5. The gastroenterostomy opening should be made large and placed as close as is permissible to the pyloric antrum. In cases where the gastroenterostomy opening does not quite drain the stomach, the food leaves by means of the stoma and the pylorus. Even in these cases, however, the stomach empties itself faster than normal. 7. The clinical failures after gastroenterostomy are probably due to the cases of faulty implantation of the stoma.

**Intussusception of the Stomach and Duodenum.**—Henry Wade reports a case and states that benign tumors of the stomach are of occasional occurrence. The majority of these ultimately come to project within the gastric chamber and become pedunculated, forming gastric polypi. These polypi when situated adjacent to the pyloric antrum, ultimately produce occlusion of the pylorus by a ball valve action. This is indicated by the signs and symptoms of acute pyloric obstruction. The obstruction is usually intermittent, and the patient has intervals of good health. The natural cure may result from a separation of the polypus by torsion or strangulation of its pedicle. A fatal issue may ensue from such complications as hemorrhage, perforating ulcer, or profound debility. A gastric polypus may produce a gastroduodenal intussusception reaching as low as the upper part of the jejunum. Where gastric polypi are diagnosed by their clinical indications or recognized by the gas-

troscope in the region of the pyloric antrum, their removal by operation is indicated.

**The Influence of the Thyroid Glands on Pregnancy and Lactation.**—William M. Thompson says that the thyroid gland, situated as it is in the neck, should have any sympathy with sexual functions if it was originally the gland concerned with digestion, is, to say the least of it, extremely unlikely, but on the contrary, likely enough if it originated from a glandular organ in connection with the sexual structures of the paleostrean ancestors. There is clinical and experimental evidence of a connection with the sexual system of man and higher mammals through its secretion, in that a lack of thyroid secretion influences sexual activity adversely, that sexual activity, whether it be physiological or pathological, causes an overactivity of the thyroid, and that this hyperthyroidism constitutes an index to the toxemia of pregnancy to counteract which the thyroids raise their antitoxic protective power. There is abundant clinical evidence in support of the theory that what is termed a physiological overactivity of the thyroid is a valuable safeguard against the toxemia of pregnancy.

## Proceedings of Societies.

### MEDICAL ASSOCIATION OF THE SOUTHWEST.

*Eighth Annual Meeting, Held at Kansas City,  
Missouri, October 7 and 8, 1913.*

The President, Dr. W. T. WOOTON, of Hot Springs, Arkansas, in the Chair.

*(Concluded from page 841.)*

**Hookworm in the Middle States.**—Dr. ESTILL D. HOLLAND, of Hot Springs, Arkansas, said the treatment of hookworm was not as simple, safe, or satisfactory as one might have been led to believe, but if one could start treating a patient who had had two hundred hookworms and even get half of them with each course of thymol, it would not be long before the patient would either be cured or have so few remaining that they would not cause him any inconvenience—providing he did not get a reinfection. Any physician who made more or less of a specialty of digestive troubles, as he did, or who treated digestive troubles along with a general practice, would find that the examination of the stools of his patients would explain a great many of his chronic cases. There was no way to diagnose a moderately severe case of hookworm except by examining the stool, and if a patient had the disease it would practically always show on such an examination.

**Prolapse of the Uterus and Bladder.**—Dr. J. T. AXTELL, of Newton, Kansas, stated that 1, the old cystocele operation should be discarded; 2, replacement of the uterus alone was not satisfactory; 3, hysterectomy alone was worse than useless; 4, the Watkins-Wertheim operation was good and satisfactory in most cases; 5, where there was great atrophy or disease of the uterus calling for its removal, or in most severe cases the Mayo or Mont-

gomy operation was better; 6, vaginectomy gave excellent results where it was not objectionable.

**The High Short Incision for Cesarean Section.**

—Dr. H. S. CROSSEN, of St. Louis, Missouri, said the high short incision in suitable cases had two distinct advantages. First there was less extensive handling of peritoneal surfaces, hence less peritoneal shock and less danger of infection from handling. Second, the incised uterus dropped away from the abdominal wall, thus preventing adhesion and firm fixation of the incised uterus to the abdominal wall, which had proved a serious matter in some cases operated in by the usual incision. The dropping away of the incised uterus from the abdominal wound was well shown in this case. The abdomen was everywhere resonant down to the pubic bone, showing that the uterus had entirely dropped away from the incision and that the intestines occupied all this region as in the normal condition. On deep palpation, the fundus uteri was felt in the pelvis.

Of course, the high incision was suitable only for clean cases, where it was permissible to open the uterus within the peritoneal cavity. When the uterus was infected, the long incision should be used so that the uterus might be turned out before being opened. Again, when there was a probability that the uterus would have to be removed, on account of a tumor or other complication, the low incision should be employed.

**A Study of Epilepsy Based on One Thousand Admissions to the Kansas State Hospital for Epileptics.**

—Dr. M. L. PERRY, of Parsons, Kansas, said to be effective systematic treatment should be begun early in the course of the disease and must be long continued. There were few cases in which individual treatment was so important. Every case of epilepsy presented distinctive features which had a bearing on its proper and scientific handling. A very large number of patients would show temporary improvement under a change of treatment. In all head injuries a careful examination should be made for fractures of the skull and for evidence of depressed bone or meningeal hemorrhage. Any of these conditions called for immediate operation as a prophylactic measure. All cases of Jacksonian epilepsy should be operated in if seen early. In long standing cases due to cortical irritation, and in chronic epilepsy from other causes little might be expected from intracranial surgery. As a routine measure a search should be made for peripheral irritations to the nervous system and if any were found appropriate remedies either surgical or medical should be instituted for their relief. The attention should not be too strongly concentrated on merely checking the convulsive attacks, but it should be borne in mind that they were only symptoms of a general nervous disease. There was no drug which of itself would effect a cure. Of all the drugs used in the treatment of epilepsy the bromine preparations were the most effective. The bromide of sodium was the most satisfactory as a usual thing. There was no advantage to be gained by combining a number of bromides. Comparatively small doses of bromides usually yielded better results on the disease as a whole than did large ones. Bromides should

never be given except in proper doses determined for the individual case and where the patient was under the frequent observation of a physician. He was convinced that most of the disrepute into which the bromides had fallen in recent years was directly due to their indiscriminate and unscientific administration. Any form of medical treatment would be limited in its effectiveness unless reinforced by hygienic and dietetic regulations.

**The Surgery of Jackson's (Jonnesco's) Membrane, Naturally a Normal Ligament, Mechanically Considered.**

—Dr. JOHN E. SUMMERS, of Omaha, Nebraska, said that most of the cases he had observed where abdominal symptoms were dependent upon defective or excessive envelopment of the bowel in a so called Jackson membrane were in people over thirty years of age, and in several they had been between fifty and sixty years of age. The intestinal wall lost its tone just as the bladder might lose its tone from the various causes that produced it. Therefore two lines of procedure might be required for the relief of intestinal stasis and the accompanying symptoms—the one to release the bowel so as to permit of freer function, the other to support the bowel, thereby increasing its muscular tone. Further experience had convinced him that the so called “white line,” which he believed to be the line of fusion of the colonic peritoneum with the parietal peritoneum after the rotation of the colon had been completed, was always demonstrable whenever the pericolic membrane could be shown, and it was the line of attachment of the pericolic membrane to the parietal peritoneum. It was demonstrated by rotating the attached hollow viscus in a direction continuous with the course of the bloodvessels and fibres of the membrane. He had called this “white line” the ligamentary attachment of the pericolic membrane to the parietal peritoneum or to the peritoneal investment of a solid viscus. Usually, when it might be deemed best to release the intestine from the investment of his ligamentary support—the pericolic membrane—it should be divided along its loosest line of attachment; however, greater mobility might be obtained in some instances by dividing the membrane at its base—the “white line” when this line was short, as it frequently was in the hepatic region and in the sigmoid region, the raw space left by the division of the line in the direction with its course, could be closed by suturing at a right angle to the line of division. If the “white line” was a long one, as was sometimes the case in an extensive membrane enveloping the ascending colon, this was not practicable. When in addition to the presence of a Jackson membrane, there was a marked ptosis of the hollow viscera, particularly the cecum and transverse colon, the membrane should not be divided, but some of the methods advocated by Coffey and Connell were indicated. He had found, however, in women, that a properly fitted, front-laced, straight front corset would relieve many of the symptoms that depended upon these ptoses, provided proper habits of life were observed.

**Gastric and Duodenal Ulcer.**—Dr. FRED H. CLARK, of El Reno, Oklahoma, said gastric and duodenal ulcer might be roughly considered as a circumscribed loss of tissue on the inner wall of the



stomach or duodenum beginning with the mucous membrane and extending in depth through the various layers of the stomach wall. They might be roughly divided into two general classes, viz., acute and chronic. While other and more delicate classifications might be made, these would suffice for a brief paper. As to the causes bringing about this condition, much had been written by various authors, and the purpose of the writer would be to consider this subject rather as a clinical study than a theoretical one, so he would consider, first, the cause of an acute ulcer as some excessive toxicity or poisoning or some direct bruise, such as a fall, the patient striking with force over the region of the stomach, which might cause the sudden destruction of the tissues; and, secondly, as the cause of a chronic ulcer a lowered vitality of the tissues causing them to become weakened so that either they broke down or became so softened that they were digested by the ordinary processes of stomach digestion.

Mention had been made recently of the fact that this condition might be expected more frequently in the spring and fall than at any other time of the year. Probably more than ninety per cent. of patients suffering from gastric ulcer sought the physician for relief from what they termed indigestion. This was true, especially, in one of the cases he cited. This was caused by the fact that one of the earliest, if not the earliest, symptom of gastric ulcer was a sense of fullness in the stomach after eating. Another symptom often complained of was the desire to partake of food more frequently than usual and more or less of pain when the stomach was entirely empty. One writer had described this condition by saying that many of these patients when presenting themselves for examination would be found to have a cracker in their pocket, so they could have something to eat whenever they began to feel this discomfort which they described as a gnawing sensation in the stomach. The writer mentioned said that when that condition was met with one might always make a positive diagnosis of gastric ulcer without further examination. These were the early symptoms of what was usually termed a latent ulcer and which might go on for years or which might bring on at any time a crisis which would call for heroic treatment. Hyperchlorhydria was nearly always present in this condition also. The one symptom which should always be considered serious, especially in chronic ulcer, was the presence of blood, either in the vomitus, in the water, if lavage was practised, or in the stools; the latter could oftentimes be found only by careful microscopic examination.

With the positive diagnosis at hand, what should we say of the treatment? He quoted the opinion of the largest number of men, and with which he coincided, that the acute form of either gastric or duodenal ulcer called for medical treatment if we would avoid complications which might be briefly summarized as early hemorrhage so severe as to be fatal, adhesions which caused great discomfort and more or less danger; the complete closure of the pylorus from cicatrization, an abscess with a fistulous opening and cancer which seemed practically to always have, or at least in a very large majority

of instances to have, an ulcer for its starting point. Surgery, if done early, offered excellent results for this condition in the large majority of cases.

**Acute Nephritis in Children, with Special Reference to Etiology and Treatment.**—Dr. H. M. McCLANAHAN, of Omaha, Nebraska, stated that his personal observation was based upon twenty-one cases of nephritis in children ranging in age from two to twelve years, all except one having been treated in the home. All of these cases had been under his observation within the last five years. In all but three nephritis occurred as a complication of some acute infection. Five followed scarlet fever, five as a result of grippe, three an attack of tonsillitis, one within a week after diphtheria, one after chickenpox, one in the course of a severe enterocolitis, one after measles, and one occurred in a child recovering from general furunculosis. In the other three there was no history of any preceding acute infection. He was not able to secure in any of these any evidence of suppuration in any part of the body. Two of these came to his office because of the dropsy. The other one he saw at the home, the mother calling him because she noticed a peculiar shortness of the breath. In this case he suspected a preexisting scarlet, but found no clinical proof. It was a reasonable inference that acute nephritis was usually induced as a result of some general infection. It seemed probable, therefore, that some toxin circulating in the blood acted as the exciting cause. Of the twenty-one patients, three had died: eighteen recovered; two died with uremic symptoms, and the other one apparently from heart failure.

**Pseudomembranous Angina of the Nose and Throat.**—Dr. HUGH B. CAFFEY, of Pittsburgh, Kansas, stated that, 1, pseudomembranous angina or Vincent's angina affecting the nose and throat resulted from an infection with the fusiform bacillus, developed a membrane, and presented clinical symptoms resembling those of diphtheria which could be positively diagnosed only by the microscopical examination of a smear taken from the seat of the disease. 2. The ordinary cultural tests would always fail to show the fusiform bacilli, hence the necessity of examining the fresh smear taken from the patient's nose or throat. 3. The disease was not limited to the tonsils and mouth, but might affect the nose independently of any other infection.

**Amputation in Diabetic Gangrene.**—Dr. L. H. HUFFMAN, of Hobart, Oklahoma, reported a case of diabetic gangrene and stated that high amputations had the advantage in lessening the possibility for a return of the gangrene and a much greater chance for relieving the diabetes.

**The Use of Pig Skin in Extensive Grafts.**—Dr. C. S. VENABLE, of San Antonio, Texas, pointed out the value of pig skin for grafts where large surfaces were to be covered. A young pig of from two to six months old was selected, as at about that time the tissues were at their height of cell metabolism; and etherized. The site from which the grafts were to be taken, preferably the rump, was shaved and cleansed with soap and water, using friction with a rag, instead of a brush, as this did not contuse the epidermis. Strong antiseptics were to be avoided, as their use interfered with cell growth, and in their

stead he sponged the area with gasoline, and finally with fifty per cent. alcohol, or a one in 2,000 solution of bichloride of mercury; neither of these coagulated albumin, which was the reason for their selection. The field was now surrounded by sterile drapery, maintaining the same surgical cleanliness as though a laparotomy were to be done. To remove the graft the skin was put on the stretch with hooks or clamps in the direction in which it was to be slid, and with a thin bladed razor folded on its handle by a sawing movement, strips of epidermis were cut of the desired length and width after the manner of Thiersch. These strips were now carried on the blade to the area to be grafted and transferred by holding two fixed points with needles to the denuded area while gently withdrawing the blade, which left the graft evenly spread, when any irregularities were teased out with the needles, avoiding at all times touching the graft with the fingers or handling in any way. When sufficient grafts had been applied the rubber impregnated open mesh of Davis or a freshly prepared paraffin mesh was placed over them and held by adhesive strips beyond the edges and by multiple interrupted sutures throughout the area. This was covered with a simple dry gauze dressing, which was to be changed as often as soiled by excreted fluids. If this dressing was only from four to six thicknesses of gauze it would be found that the excretions were less and the area remained dry better than should a heavier dressing be applied which more effectually excluded free-access of air. About the third to the sixth day the sloughing superficial epidermis was to be gently clipped away and the area exposed to the sun for half an hour or so two or three times daily. The mesh splint was removed in ten or twelve days, and thereafter the site freely exposed for as much of the time as practical. The superficial layers of squamous epithelium were going to die and slough as in any graft, so one should not be discouraged at about the fifth or the eighth day when disappointment seemed certain, as in a few more days this would change to first a creamy white surface and then a healthy pink and it would be found that the grafts had taken. He would mention here, lest one be deterred through fear of the patient becoming part swine, that this was not a source of such acquirement; the pigment soon disappeared and no bristles were grown, as the grafts were cut above the hair follicles. However, should such an unforeseen catastrophe as the advent of bristles obtain, the prognosis even then was good, as the follicles would atrophy in a very short time. He had practised this method as one of election since 1905, and had found that he was able to attain from eighty-five to one hundred per cent. of takes as against from fifty to seventy-five per cent. of takes by using heterografts or other zoografts.

**The Preparation of Surgical Patients and Operating Room Technic.**—Dr. MERRILL K. LINDSAY, of Topeka, Kansas, stated that on the morning of operation tea or coffee or wine and water might be given not later than two hours prior to the anesthetic, unless the upper alimentary tract was the field of operation. Cathartics should be dispensed with two days before operation. The reason for this was that the bacterial content of the

bowel was increased in direct proportion to the fluid nature of the contents and the absorption was increased by removal of the protecting mucus. Lavage of the lower bowel with either warm water or soap suds, or if this was not sufficient, soap suds and glycerin or soap suds and turpentine (soap suds eight parts, turpentine two parts) would remove the contents. This could be given on the evening preceding and the morning of operation. Stirring in the white of an egg with the turpentine before mixing would prevent separation of the oil. Every patient should be thoroughly bathed with warm water and soap the night before and the skin in the region of the operation shaved. The ease of removing the hair with a depilatory was evident after using, and the following formula might be found useful:

℞ Calci caustici pulveris, ..... 10 parts;  
Sodii sulphidi, ..... 3 parts;  
Amyli, ..... 10 parts.

Mix and add water to make a thin paste and apply for five minutes. Wash off with water.

Adjacent mucous surfaces should be protected with oil before applying the paste. The skin should next be washed thoroughly with soap and water, the water and other fluids being poured, not dipped. The soap was then washed off with sterile water and the parts sponged with Stewart's and Harrington's solution.

The bladder should be empty in all cases before going to the operating room. The operating room should be gone over with warm water and soap, every piece of furniture washed, special care given to the removal of dirt from overhead fixtures, and the room tightly closed from dust. The operator and his assistants should appear in the wash room in freshly laundered garments and after preparing the hands and arms in one of the approved ways should present themselves to the nurse who supplied them with a fresh sterile towel and then with gown and gloves. The application of tincture of iodine over the site of operation was not interfered with by the preparation mentioned.

**Election of Officers.**—The following officers were elected for the ensuing year: President, Dr. S. S. Glasscock, of Kansas City, Kansas; vice-president from the State of Missouri, Dr. J. D. Griffith, of Kansas City; vice-president from the State of Texas, Dr. J. E. Dawson, of Vernon; vice-president from the State of Arkansas, Dr. L. R. Ellis, of Hot Springs; secretary-treasurer, Dr. F. H. Clark, of El Reno, Oklahoma.

Galveston, Texas, was selected as the place for holding the next meeting.

## Letters to the Editor.

### PODIATROS.

173 LEXINGTON AVENUE.  
New York, October 17, 1913.

To the Editor:

Colleagues honor me with inquiries about Greek terms, sometimes—overtaxing my facilities to understand them and to answer, in a minute, a difficult question—by telephone. By a telephone message I was asked for the Greek word for corn and the correct term for the corrupt and ridiculous name "chir-podist." The Romans, the inquest

telephoned, called corn clavus and physicians of the Middle Ages, cornu, from which latter the English derived corn. I interrupted him asking for an inquiry in writing. And then I received a very long historicophilological treatise with quotations from Galen, Asclepiades, Hikesios, Moschion, Dioscorides, and others who had called it helos. He said chiropodist was a corruption of chiropodurgos. In all his chiropod researches he had overlooked that the ancient Greeks employed the word tylos and tyloima, that helos (the nail) was not generally used. To make matters short, I informed him that what people call a corn doctor is in Greek tyliatros and that a chiropodist is podiatros. In vain would you look in any of the numerous medical lexicons for those two short and excellent names.

A. ROSE, M. D.

## THE CURE OF CHRONIC BRONCHITIS.

2914 SOUTH VERMONT AVENUE,  
LOS ANGELES, October 13, 1913.

### To the Editor:

In the December 14th and 21st issues of the NEW YORK MEDICAL JOURNAL, Dr. Charles H. Duncan published an article under the title of Autotherapy. In this article he stated he was able to cure acute and subacute bronchitis within a few days, and chronic bronchitis within two weeks. I determined to try it on myself first as a patient. My father had bronchitis for forty years, and I have had it for many years. I am now fifty-four years old. The chief symptom in my case is severe coughing spells almost every night. These usually last from a half hour to forty-five minutes. I mixed one part of sputum with five parts of water and allowed it to stand for twenty-four hours with occasional agitation, and then filtered it, using a Berkefeld filter. I then had Dr. Carl Johnson, of Los Angeles, give me an injection in the lumbar region. I coughed none the night following. The second night I coughed about five minutes. On the third day I had another injection. I have had four injections altogether, each three days apart. My bronchitis has been cured or aborted, for I now cough none. The only symptom I have at present, if it can be called a symptom, is that on rare occasions there is a slight effort at coughing, wholly unlike my previous cough. I can truly say that it has been magical. I do not know Doctor Duncan, and never heard of him before I read his article, but I write this merely that others who are similarly afflicted may know of this grand treatment. I shall try autotherapy out in all its various phases.

L. C. TONEY, M. D.

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*Practical Bacteriology, Blood Work, and Animal Parasitology.* Including Bacteriological Keys, Zoological Tables, and Explanatory Clinical Notes. By E. R. STRITT, A. B., Ph. G., M. D., Medical Inspector, United States Navy, Graduate of London School of Tropical Medicine, Head of Department of Tropical Medicine, United States Naval Medical School, etc. Third Edition, Revised and Enlarged, with Four Plates and 106 Other Illustrations Containing 513 Figures. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. xv-408. (Price, \$1.50.)

This present edition more than upholds the standard set by the previous ones and as a laboratory manual can be indeed highly recommended. It has been thoroughly revised and brought up to date and contains much valuable information clearly presented. The necessary details of technic, those which so often mean success or failure, are carefully given instead of the author taking it for granted that the reader is aware of them. Bacteriology occupies a large part of the book, but the chapter on animal parasites is particularly good. It includes the arachnoids, insects, mosquitoes, and poisonous snakes. The chapters dealing with the body fluids and organs are equally well presented, and in an appendix are given various methods

for the preparation of tissues and for chemical examinations. The numerous keys and classifications add materially to the usefulness of the book.

*Massage. Manual Treatment. Remedial Movements. History, Mode of Application, and Effects. Indications and Contraindications.* By DOUGLAS GRAHAM, M. D., Consultant and Instructor in Massage, Boston. With a Chapter on Massage of the Eye, by Dr. A. DARIER, Paris, Formerly President of the Ophthalmological Society of Paris. Fourth Edition, Revised and Enlarged. With Seventy-five Illustrations. Philadelphia and London: J. B. Lippincott Company, 1913. Pp. xiv-574.

Dr. Douglas Graham is the leader among experts in manotherapy in the United States by reason of precedence, vast personal experience, and conscientious research among all concomitant scientific data. He enjoys the confidence of his professional colleagues in his "home town," amply justified. Hence his book, now in its fourth edition (the first appeared in 1884), faithfully represents phases of scientific evolution. It affords a masterly presentation of the subject as taught and practised in the United States.

The profession is gradually but slowly becoming aware that its neglect of hand treatments has been unwise and is resulting unfortunately—for the profession. But the testimony and labors, the urgent appeals, of reputable physicians like Dr. Douglas Graham, must soon be heeded. Among the reasons for past neglect of this powerful and useful therapeutic agency is the fact that earlier exponents of massage set forth their views in so crude a form, so empirically and unconvincingly, so unsupported by good scientific evidence, that small impression was made on medical men unprepared to accept them. The student of medicine was not—and is now only rarely—taught any part of the subject by his "professors."

Medical journals are filled with glittering promises and descriptions of cures by drugs and surgical measures. Even those who, like orthopedists and neurologists, would secure largest good by the use of manotherapy, are rarely or never themselves expert in its actual application. They employ persons to do their work who may be as expert in their line as is the pharmacist in his. The clinician cannot expect masseur or druggist to exercise essential judgments in the application. He must know the principles and what can be expected from definitely determined indications.

Hence it is common to hear manotherapy condemned—all unjustly, because the human body responds to various forms of stimulation, extrinsic as well as intrinsic. The field of the extrinsic influences can be determined only by exercising the same critical, scientific, and practical attention as is accredited to the intrinsic.

The scope of thigmotropism, responsiveness to mechanical stimulation, may prove to be just as large as, possibly larger than, that of chemotropism.

Doctor Graham has made a most respectable contribution to this realm of human conservation. He speaks from the double authority of a trained physician and an experienced, practical worker in the field of manotherapy. Every conscientious clinician will do himself credit and add to his efficiency by familiarizing himself with the evidences and conclusions set forth in this excellent treatise.

*Textbook of Anatomy and Physiology for Nurses.* By AMY E. POPE, Author, with ANNA CAROLINE MAXWELL, of Practical Nursing, and Instructor in the School of Nursing of the Presbyterian Hospital, New York. With 135 Illustrations. New York and London: G. P. Putnam's Sons (Knickerbocker Press), 1913. Pp. vi-554.

The textbook before us very freely discusses the two medical branches which are mentioned on the title page. The name of the book could as well have been changed to a manual of anatomy and physiology for medical students or for teachers, etc. As the subject is thoroughly treated it contains much that is unnecessary for nurses to know and which will only overburden their already too elaborate curriculum. We do not wish to be understood to criticize the scientific knowledge contained in the book, as the book in itself is very good, but we do wish to assert that it goes into too much detail for the use of nurses. A glossary is added to the textbook. This fact seems to endorse our opinion. It looks to us as if the



author thought that certain medical terms used in the text needed explanation. If the nurse cannot read the book without looking up the glossary, either her preliminary education is deficient, or the subject matter of the book is too difficult for her to understand.

**Medical Electricity.** A Practical Handbook for Students and Practitioners. By H. LEWIS JONES, M.A., M.D., Fellow of the Royal College of Physicians of London, Consulting Medical Officer to the Electrical Department in St. Bartholomew's Hospital, etc. Sixth Edition, with Illustrations. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. xv+551. (Price, \$4.)

The extensive application of electricity in medical practice, the various modalities employed, and the complicated apparatus required to supply the different currents necessitate special preparation on the part of those who would use it intelligently and efficiently. The greatest value of the present volume lies in the first three hundred pages which deal with the physics of electricity and with descriptions of apparatus utilized to deliver the different types of current. In view of the general excellence of this section of the book one is rather surprised at the author's conception of an ideal static machine, viz., an eight plate Wimhurst, capable of generating sparks ten inches long! The chapters devoted to therapeutics are, for the most part, of a mediocre standard. No attempt has been made to present more than an elementary consideration of the subject of x rays.

**The Deaths of the Kings of England.** By JAMES RYE, M.A., M.D. London: Sherratt & Hughes, 1913. Pp. viii+152. (Price, 4s. 6d.)

This is a very interesting book which can be well recommended to our readers. The author has compiled, with great industry and carefulness, the death notices of the rulers of England up to William the Fourth, who died on June 20, 1837. We intentionally say the rulers as Richard Cromwell as well as his son are included in this book. We may mention here that Philip of Spain, husband of Mary I, and son of Charles I of Spain, not Charles V of Spain, as is stated on page 80 (Charles V of Germany was also King of Spain as Charles I), has also found a place in the book. We thus read that seven kings died by violence and three from senile decay. That the kings were not exempted from the ills of our race is well illustrated. Nearly every one of them was a high liver and a true representative of the period in which he lived, his humble subjects being unquestionably better men than their king.

**Innere Medizin. II. Teil.** Von Dr. GEORG ZUELZER. Leitfaden der praktischen Medizin. Herausgegeben von Professor Dr. Ph. Bockenheimer, Berlin, Band 7. Leipzig: Dr. Werner Klinkhardt, 1913. Pp. vii+367.

In our issue of May 6, 1911, we mentioned the first volume of internal medicine written by Doctor Zuelzer. The book before us is well written and, while not containing anything new, gives a good review of our present knowledge of medicine. The volume belongs to a series of manuals which when finished will form a valuable textbook of practical medicine, edited by Professor Bockenheimer.

## Meetings of Local Medical Societies.

**MONDAY, November 3d.**—Clinical Society of the New York Throat, Nose, and Lung Hospital; German Medical Society of the City of New York; Brooklyn Hospital Club; Utica Medical Library Association; Niagara Falls Academy of Medicine; Roswell Park Medical Club, Buffalo; Hornell Medical and Surgical Association; Practitioners' Club, Newark, N. J.; Hartford, Conn., Medical Society.

**TUESDAY, November 4th.**—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Clinical Society of the West Side German Dispensary and School for Clinical Medicine; Buffalo Academy of Medicine (Section in Surgery); Ogdensburg Medical Association; Oswego Academy of Medicine; Syracuse Academy of Medicine; Medical Association of Troy and Vicinity; Long Island Medical Society; Amsterdam City Medical Society;

Lockport Academy of Medicine; Society of Alumni of Lebanon Hospital, New York; Bridgeport, Conn., Medical Association; Hudson County, N. J., Medical Association (Jersey City).

**WEDNESDAY, November 5th.**—Brooklyn Society for Neurology; Society of Alumni of Bellevue Hospital; Harlem Medical Association; Bronx Medical Association; Elmira Academy of Medicine; Psychiatric Society of New York; Society of Alumni of St. John's Hospital, Brooklyn; Schenectady Academy of Medicine.

**THURSDAY, November 6th.**—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society; Dansville Medical Association; Practitioners' Club, Buffalo; Geneva Medical Society.

**FRIDAY, November 7th.**—New York Academy of Medicine (Section in Surgery); New York Microscopical Society; Gynecological Society, Brooklyn; Manhattan Dermatological Society; Practitioners' Society of New York; Corning Medical Association; Saratoga Springs Medical Society.

**SATURDAY, November 8th.**—Therapeutic Club, New York.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending October 22, 1913:*

**Hasseltine, H. E.**, Passed Assistant Surgeon. Granted one month's leave of absence from October 30, 1913.

**Hurley, J. R.**, Passed Assistant Surgeon. Upon the arrival of Assistant Surgeon L. O. Weldon, relieved from duty at the Marine Hospital, San Francisco, Cal., and directed to report to Surgeon J. D. Long for duty in connection with plague suppressive measures in California.

**Lanza, A. J.**, Passed Assistant Surgeon. Granted two months' leave of absence from November 11, 1913.

**Phelps, E. B.**, Professor. Directed to proceed from New York, N. Y., to Boston, Mass., and vicinity and return to New York upon completion of the duty, to advise with local health authorities regarding methods of investigating sanitary administration.

**Preble, Paul**, Passed Assistant Surgeon. Relieved from temporary duty in the bureau, and directed to proceed to Pittsburgh, Pa., for duty in connection with the investigations of the pollution of the Ohio River.

**Rucker, W. C.**, Assistant Surgeon General. Detailed to attend a meeting of the American Electrical Railway Association to be held in Atlantic City, N. J., October 13 to 17, 1913, and deliver an address on the subject of Regulations on Sanitation as Related to Public Carriers.

**Simpson, French**, Passed Assistant Surgeon. Directed to proceed immediately to Seattle, Wash., and report to Surgeon B. J. Lloyd for special temporary duty.

**Stiles, C. W.**, Professor. Detailed to represent the Service at the First Annual Conference of the State, County, and Municipal Health Officers to be held in Little Rock, Ark., October 28 and 29, 1913.

**Thompson, L. R.**, Assistant Surgeon. Directed to proceed to Portsmouth, Ohio, and vicinity, to establish and operate a branch laboratory in connection with the investigations of the pollution of the Ohio River now being conducted under Passed Assistant Surgeon W. H. Frost.

**Trask, J. W.**, Assistant Surgeon General. Detailed to represent the Service at the First Annual Conference of the State, County, and Municipal Health Officers, to be held in Little Rock, Ark., October 28 and 29, 1913; also to stop en route at Knoxville, Tenn., and address the Public Health Day Conference, to be held in connection with the National Conservation Exposition, October 25, 1913.

**Weldon, L. O.**, Assistant Surgeon. Relieved from duty at the Marine Hospital, Baltimore, Md., and directed to proceed immediately to San Francisco, Cal., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters.

**Wertenbaker, C. P.**, Surgeon. Detailed to represent the Service at the annual meeting of the State Medical Association of Virginia, to be held in Lynchburg, Va., October 21 to 24, 1913.

**Woodward, R. M.**, Surgeon.

Granted one month's leave of absence from October 4, 1913, on account of sickness.

### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending October 25, 1913:*

**Bell, C. R.**, First Lieutenant, Medical Corps. Ordered from Fort Bliss to Clint, Texas. **Carter, H. P.**, First Lieutenant, Medical Corps. Joined for duty with the Twenty-seventh Infantry from Twenty-second Infantry, Texas City, Texas. **Castlen, Charles R.**, First Lieutenant, Medical Corps. Relieved from duty at Fort Worden, Wash., and will proceed to Fort Columbia, Wash., relieving First Lieutenant Oswald F. Henning, Medical Reserve Corps, who, upon being thus relieved, will proceed to Presidio of Monterey, Cal., for duty. **Collins, C. C.**, Major, Medical Corps. Granted leave of absence for twenty days. **Connor, C. H.**, Captain, Medical Corps. Ordered to assume the duties of attending surgeon, New York city, in addition to present duties, during the absence of Major Russell on test ride. **Dailey, M. A.**, First Lieutenant, Medical Corps. Ordered to Fort Bliss upon relief from duty at Clint, Texas, by Lieutenant Bell. **Davis, A. D.**, Captain, Medical Corps. Leave of absence extended twenty-five days. **Dunbar, Lee R.**, Captain, Medical Corps. Granted leave of absence for two months about November 8th. **Harris, H. P.**, First Lieutenant, Medical Corps. Ordered to Fort Sam Houston, Texas, for medical treatment. **Kennedy, J. L.**, First Lieutenant, Medical Reserve Corps. Ordered to Fort Morgan, Ala., to accompany Ninety-ninth Company Coast Artillery Corps to San Francisco, Cal. **Maddux, Henry C.**, First Lieutenant, Medical Corps. Now on leave of absence at Fort Bayard, N. M., and will report in person to the commanding officer of the general hospital at that place for temporary duty. **Michie, H. C.**, First Lieutenant, Medical Corps. Reported at Texas City on October 17th; assigned to duty with Field Hospital No. 3. **Murtagh, John A.**, Major, Medical Corps. Will proceed to Hot Springs, Ark., and report at the Army and Navy General hospital for treatment. **Shockley, M. A. W.**, Major, Medical Corps. Granted four months' leave of absence, about December 1, 1913. **Snyder, Henry D.**, Lieutenant Colonel, Medical Corps. Will proceed to St. Louis, Mo., for the purpose of inspecting the medical supply depot in that city, and upon the completion of this duty will return to his proper station; the travel directed is necessary in the military service. **Stayer, M. C.**, Captain, Medical Corps. Granted eight days' leave of absence on completion of duty at Fort Porter. **Williams, Allie W.**, Major, Medical Corps. Relieved from further duty at Fort Leavenworth, Kansas, and will report to the commanding general, Second Division, Texas City, Texas, for assignment to command of Field Hospital No. 3, relieving Major M. C. Usher, Medical Corps, who, upon being thus relieved will report to the commanding general, Second Division, for assignment to duty.

### United States Navy Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the two weeks ending October 25, 1913:*

**Blackwood, N. J.**, Surgeon. Detached from the Asiatic Station, and ordered home to await orders. **Bogert, E. S.**, Medical Inspector. Detached from the Navy Yard, New York, and ordered to the Naval Medical School, Washington, D. C. **Crow, G. B.**, Passed Assistant Surgeon. Detached from duty at Asheville, N. C., and ordered to the Naval Medical Hospital, Washington, D. C. **Davidson, A. B.**, Assistant Surgeon. Ordered to the Naval Academy, Annapolis, Md. **Dykes, J. R.**, Surgeon. Detached from the *Pittsburgh* and ordered to Mare Island Hospital for treatment. **Grieve, C. S.**, Surgeon. Ordered to the Naval Hospital, Las Animas, Colorado. **Henneberger, L. G.**, Medical Director. Placed on the retired list, October 1, 1913. **Hidden, H. B.**, Assistant Surgeon, Medical Reserve Corps. Ordered to the Naval Medical School, Washington, D. C. **Higgins, M. E.**, Passed Assistant

Surgeon. Detached from the *Kansas* and ordered to the *Solace*. **Jenkins, H. E.**, Assistant Surgeon. Ordered to Disciplinary Barracks, Port Royal, S. C. **Lowndes, C. H. T.**, Medical Inspector. Detached as fleet surgeon of the Asiatic Station, and ordered home to await orders. **Moran, C. L.**, Passed Assistant Surgeon. Detached from duty at the Boston Hospital, and ordered to Mare Island Hospital. **Morris, L.**, Surgeon. Ordered from the marine recruiting station, New York, and ordered to duty as fleet surgeon of the Asiatic Fleet. **Pleadwell, F. L.**, Surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered to Naval Dispensary, Washington, D. C. **Porter, F. R.**, Passed Assistant Surgeon. Detached from the Port Royal Disciplinary Barracks, and ordered to the Asiatic Station. **Raison, T. W.**, Passed Assistant Surgeon. Detached from the *Solace* and ordered to the *Kansas*. **Smith, H. W.**, Passed Assistant Surgeon. Detached from the *Montgomery* and ordered home. **Sutton, D. G.**, Passed Assistant Surgeon. Detached from the Naval Academy, Annapolis, Md., and ordered to the *Montgomery*. **Weston, A. T.**, Assistant Surgeon, Medical Reserve Corps. Ordered to the marine recruiting station, New York.

### Births, Marriages, and Deaths.

#### Married.

**Boffin—Phelps.**—In Philadelphia, on Tuesday, October 14th, Dr. James A. Boffin and Miss Edith Phelps. **Kernan—McGinnis.**—In Syracuse, N. Y., on Wednesday, October 15th, Dr. Francis X. Kernan, of Freehold, Pa., and Miss Catherine L. McGinnis. **Luhr—Wall.**—In Pittsburgh, Pa., on Wednesday, October 15th, Dr. Augustine C. Luhr, of St. Mary's, and Miss Gertrude May Wall. **McKinley—Robinson.**—In Moscow, Vermont, on Wednesday, October 15th, Dr. Leslie Edward McKinley, of Newbury, and Miss Martha Cornelia Robinson. **Meyers—Spaulding.**—In Upland, N. Y., on Friday, October 17th, Dr. Harry Ahrend Meyers, of Brooklyn, and Miss Helen Spaulding. **Quigley—Moore.**—In Rutland, Vt., on Wednesday, October 15th, Dr. Francis E. Quigley and Miss Mary E. Moore.

#### Died.

**Archambault.**—In Montreal, Canada, on Thursday, October 16th, Dr. J. L. Archambault, of Cohoes, N. Y., aged sixty-six years. **Brundage.**—In Goshen, N. Y., on Tuesday, October 22d, Dr. John D. Brundage, of Westhampton, aged seventy-nine years. **Downs.**—In Portland, Maine, on Monday, October 13th, Dr. Arthur A. Downs, of Fairfield, aged thirty-nine years. **Drury.**—In Brooklyn, N. Y., on Monday, October 20th, Dr. George Drury, aged fifty-six years. **Goldsborough.**—In Hunterstown, Pa., on Monday, October 20th, Dr. Charles E. Goldsborough. **Henry.**—In New Orleans, La., on Saturday, October 11th, Dr. Stewart L. Henry, aged seventy-nine years. **Hill.**—In Weston, Ohio, on Friday, October 17th, Dr. William W. Hill, aged sixty-eight years. **Hopkins.**—In Princeton, Ind., on Tuesday, October 7th, Dr. Joseph Neely Hopkins, of Burnt Prairie, Ill., aged fifty-nine years. **Keisker.**—In Philadelphia, on Friday, October 24th, Dr. Edith E. Keisker. **Lanius.**—In Hannibal, Mo., on Wednesday, October 15th, Dr. John Lanius, of Palmyra, aged seventy years. **Lucas-Championnière.**—In Paris, France, on Wednesday, October 23d, Dr. Just Lucas-Championnière, aged seventy years. **Marks.**—In Toledo, Ohio, on Saturday, October 18th, Dr. Arthur Marks, aged thirty years. **Miller.**—In Leominster, Mass., on Friday, October 17th, Dr. E. Roscoe Miller, aged fifty-four years. **Niedermeier.**—In Trenton, N. J., on Thursday, October 23d, Dr. Arthur F. Niedermeier, aged thirty-seven years. **Spence.**—In Atlanta, Ga., on Sunday, October 12th, Dr. John M. Spence. **Stites.**—In Springfield, N. J., on Thursday, October 23d, Dr. Joseph Augustus Stites, aged sixty-one years. **Wadsworth.**—In Rochester, N. Y., on Friday, October 17th, Dr. Robert Wadsworth, aged sixty-three years. **Warren.**—In Attica, N. Y., on Friday, October 17th, Dr. Stephen G. Warren, aged seventy-three years.

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### Original Communications.

#### THE DANGERS AND DISADVANTAGES OF SPINAL ANESTHESIA.

By W. WAYNE BABCOCK, M.D.,  
Philadelphia.

Professor of Surgery in the Medical Department of Temple University, Surgeon to the Samaritan and Garretson Hospitals.

The innocuousness or safety of an anesthetic is a relative matter, first as dependent upon the experience and skill of the user, and second as compared to other anesthetics. No form of anesthesia has been discovered that is free from dangers or unpleasant consequences, but we may consider ether, from its almost universal employment as the standard general anesthetic, and the safety or undesirability of any other anesthetic may properly be expressed in equivalents derived from experiences with ether. At once the question arises as to the safety and morbidity of etherization. It is said that Agnew considered that one death occurred in about 28,000 etherizations; Ormsby, one in 23,204; and Juilland, one in 14,987. Gurlt, studying German statistics from 1871 to 1897, found one death in 5,000 administrations, and Bevan, of Chicago, has accepted this figure. Our own experience with ether as administered by internes in hospitals suggests a mortality of about one in 500, and recently a surgeon in an emergency hospital in the coal regions of Pennsylvania startled us by saying that he has found the mortality from ether, as administered in his community, to be over one per cent. The first impression might be that ether is much more dangerous as an anesthetic to-day than in Agnew's time, and that the dangers are progressively increasing. Those familiar with the advances made in teaching and in the administration of anesthetics will not, I believe, agree that the technic of anesthesia has been universally deteriorated, and the record of 60,000 etherizations at the Mayo Clinic, without mortality, is perhaps unparalleled. We may well inquire how such divergent statistics are compiled; but without impugning their accuracy or discussing the technic employed, the important question is as to our personal and neighboring mortality from ether. From my personal guidance, statistics derived from anesthetics as they are administered for me are far more important than the results reported from Germany and France. We may admire the results obtained under special conditions by the use of ether, chloroform, or nitrous oxide, but the results appeal to us only when con-

ditions at our command enable us to reproduce them.

I dare say that most of you can recall deaths from anesthesia. How many of these have been statistically reported? As to my own experience, I recall as a student one sudden death from chloroform anesthesia in a child brought before the clinic for a simple examination of the eyes; a second death from chloroform occurred in the office of an acquaintance as he was about to pass a urethral sound. In a college where I later taught, one death suddenly occurred under ether as an ovarian cyst was evacuated. In my present service there was one death under ether during an operation upon an adynamic patient for perforation in typhoid. Doubtless this patient would have died despite any form of treatment, but ether precipitated the fatality. Three deaths, attributable to the anesthesia, occurred a few hours after operations for cleft palate and hare lip in infants. A fifth patient, also a child, with a cleft palate, developed pneumonia apparently from the forced pharyngeal insufflation of ether and died a week or more after operation. One old soldier, drenched with ether during a herniotomy by an untrained anesthetist also promptly developed a fatal pneumonia. A third case of fatal ether pneumonia was manifested by a severe chill shortly after etherization for a simple hysterorrhaphy. Through an error this patient was etherized while she had a slight cold. One patient, after multiple operations including tonsillectomy, died of pulmonary edema. She became cyanosed on the operating table and died not long after being placed in bed. These do not include cases not directly attributable to the anesthetic, and represent types we have not seen after local or spinal anesthesia. As far as I know, none of these cases has been reported. Eight of these fatalities occurred in a series of about two thousand anesthetizations.

Very recently a demonstration of a new apparatus for nitrous oxide oxygen anesthesia was made in our clinic by an "expert." Of six patients anesthetized, one awoke with a hemiplegia, a second with a cortical palsy of the hand and forearm, a third with a circumflex palsy; while a fourth patient, a woman in apparent excellent condition, died from the action of the anesthetic. Nitrous oxide in any efficient combination is an exceedingly dangerous anesthetic for prolonged operations.

For comparison I have collected the experiences of several of my associates and assistants.

Doctor A., in a service in a single hospital devoted largely to abdominal surgery, had four deaths



on the operating table which he attributes to ether and one under an assistant from ethyl chloride. A sixth patient, a robust and somewhat obese young woman, a day or so after a very simple abdominal operation a moderate fever developed, was given a cold sponge, and almost instantly became cyanotic and died within a few moments, the post mortem examination showing no lesion except an acute pulmonary edema. The cases of ether pneumonia and other complications, of which there were a number, are not recalled. This experience is embraced in a series approximating 2,500 administrations.

Doctor B. reports that he has given anesthesia by inhalation approximately 600 times. He has had one sudden death upon the operating table from pulmonary edema. The patient suffered from an advanced peritonitis following a perforation of the rectum. In a second patient an alarming edema of the larynx, lasting six hours, occurred during the performance of a minor operation. At least one fatal ether pneumonia occurred with death a few hours after etherization. He says it is probable that there were other ether pneumonias that he does not at present recall. While a medical student he saw one death from etherization; the patient, an obese woman, died suddenly while in the Trendelenburg posture. An extrauterine pregnancy had been diagnosed, but the abdominal exploration was negative. In fifty estimated chloroform cases, one death he attributes to delayed chloroform poisoning, which was observed in a newborn infant. While associated for several years with a general hospital, during which time there were no more than 6,000 anesthetics, he recalls at least four additional deaths directly attributable to the anesthetic. Two occurred during the performance of circumcisions under ether at the hands of resident physicians; one during the administration of nitrous oxide oxygen by an expert who had been imported from another city especially for the purpose, and in one collapse occurred during a herniotomy, the patient dying about two hours later. In the last case the patient had been admitted in good condition, although an acute and unsuspected strangulation was found.

Doctor C., in a hospital series of 500 anesthetics, recalls one sudden death from ether during an operation for uterine fibroid. That recalls the report of a New York anesthetist, at the last meeting of the American Medical Association, of two ether deaths in a single week during operations for fibroid of the uterus. Later, in an experience of less than 500 ether anesthetics, Doctor C. has lost two patients from ether pneumonia.

Doctor D. and his associates, from their service of the past year covering less than 300 anesthetics, report two deaths from ether. The first was a woman of thirty-six, subjected to a forceps delivery for placenta prævia. The patient was in good condition, and although the operation was not rapid, there was only moderate hemorrhage during the delivery. At the beginning a few whiffs of chloroform had been employed; but this was soon discontinued on account of the fear of the anesthetist. About twenty-five ounces of ether were used, and at the completion of the delivery there was evidence of cardiac failure, and although there were some

signs of life for three quarters of an hour, measures at resuscitation failed.

In the second case, an apparently robust colored woman, of thirty years, was curetted for an incomplete abortion. The patient did not take the ether well, and went under the anesthesia slowly. The duration of the operation was about fifteen minutes, the anesthetic being given by a supervised student.<sup>1</sup> At the completion of the operation the patient was found to be practically dead, and did not respond to the restorative measures used.

A third case of death under ether was observed in a man of seventy-eight who had been sent to another hospital for a cystoscopic examination. Open gauze was employed, the patient struggled and then collapsed, apparently from respiratory failure, about five minutes after the anesthetic had been started.

Doctor E. recalls three anesthetic deaths, not, however, under his personal care; the first a fat woman about to be subjected to a gynecological operation died under ether before being brought into the operating room; the second was a death under chloroform during amputation of the leg; and the third was a death under ethyl chloride administered for a pelvic examination.

While it is difficult to express precisely the mortality from ether, and while it must vary in those hospitals receiving only selected cases, and employing only expert anesthetists, from the average use of the drug, as it often must be used by the inexperienced and imperfectly trained, in sudden emergencies, under conditions that prevent the use of many safeguards, upon patients poorly prepared as well as those well prepared, the average mortality is, we believe, often not less than one in 500 administrations.

Mortality of Spinal Anesthesia.—From the use of spinal anesthesia it is probably easier to compute a mortality statistic, although an accurate comparison with ether cannot easily be made, for spinal anesthesia is often employed where other methods are inadvisable or not permissible. Adding the cases of my assistants and associates, we have had about 5,000 intradural injections. In four of our patients attempts at etherization had been made in other clinics. In each case the operation had to be abandoned as the patient collapsed and it was evident that complete etherization would be fatal. One was a patient with heart disease and a large uterine fibroid; the second, a patient with pelvic disease and a weak heart who was revived from the effects of the ether only after a number of hours' work; the third patient had an advanced tuberculosis of the hip and side of the pelvis; while the fourth patient had a carcinoma of the rectum. In each of these patients, without any special pre-operative treatment, the operation was successfully completed under spinal anesthesia and the patients recovered. Several patients had also been refused operation at other clinics on account of advanced sepsis, old age, or other cause, yet the operation was successfully completed under intradural anesthesia. Other patients, however, while properly considered as inoperable, were subjected to the

<sup>1</sup>Each medical student is required to have given general anesthesia under supervision six times before graduation.

anesthetic and succumbed on the operating table.

The first patient, a man of about sixty years, the driver of an ash cart, and a human derelict, had gangrene of the leg and thigh following a crush from rolling off his cart while in a drunken stupor. Although nearly moribund, alypin was injected. The patient developed respiratory difficulty and died about fifteen minutes later. No operation was done.

The second patient, a man of twenty-nine, had an avulsion of the arm at the shoulder, and although shocked and pulseless, was given a high injection of stovaine. He soon developed respiratory failure, was revived; but on attempting to trim the mangled fragments, respiratory failure again developed, the patient living for six hours under continuous artificial respiration, then succumbing.

The third patient, a debilitated man of about sixty-five years, moribund from typhoid perforation and generalized peritonitis of at least twenty-four hours' standing, was injected with tropacocaine when nearly pulseless and when the extremities were cold and cyanotic. He died during the operation.

The fourth patient, an infant of twenty-one months, with advanced generalized miliary tuberculosis, tuberculous peritonitis, and a tuberculous abscess of the lung, was given a high injection of 0.015 gramme of stovaine and suddenly stopped breathing during the separation of the lobes of the lung in the search for the intrapulmonary abscess cavity.

The fifth case, an obese man of about fifty-five, with extensive intestinal gangrene and advanced diffuse purulent peritonitis associated with an enormous scrotal hernia, died during the operation.

These five patients were in a hopeless condition under any form of treatment, and four were operated upon during the period of enthusiasm that comes with the use of a new method. Three other patients died during or after operations for large empyemas.

The first patient, a man of forty-three, had an enormous empyema with extensive subcutaneous phlegmon of the chest wall. Cessation of heart action followed the rapid evacuation of the pus.

A second, a man of middle age, also suffered sudden heart failure associated with sudden escape of a large quantity of pus from the thoracic cavity. Under epinephrin and cardiac massage the heart action was resumed, but the pulmonary involvement prevented the efficient use of measures for artificial respiration. In the third patient, Miss L. E., age thirty-two, a rib was resected, and three pints of pus evacuated. The patient died the same day. With these patients artificial respiration was impracticable on account of the pulmonary lesion.

Two patients have died under operations for gallbladder disease associated with peritonitis. Both of these patients had morphine and scopolamine as well as spinal anesthesia. The first, Mrs. K. L., age sixty, was apparently drowned by profuse, regurgitant vomiting, as the operation including a removal of the gallbladder was being completed under stovaine. There had been a previous cholecystostomy apparently followed by a more recent rupture in the peritoneal cavity. The patient had a

weak heart, was obese, and had an extensive septic peritonitis of the upper abdomen. The heart action was restored under cardiac massage and epinephrin, but the Meltzer method of artificial respiration seemed absolutely inefficient, if not harmful.

The second patient had an operation upon the gallbladder performed by an assistant under 0.10 gramme of novocaine and developed respiratory failure, the early symptoms of which were probably overlooked by the resident. This patient was an obese man of about fifty years with a serious valvular lesion, and had a marked peritonitis of the upper abdomen.

Several patients have had respiratory or cardiac failure under spinal anesthesia, but have been revived. One patient, an obese colored woman, with a fibroid tumor, died undoubtedly as a result of the circulatory arrest about two days after the operation.

From upward of 5,000 injections we have had, therefore, ten deaths on the operating table, and one death after operation, in which the anesthetic was a factor.

One of the patients only, the patient with the fibroid tumor, was even in a fair condition at the time of operation. Contrasting our personal experience with ether and spinal anesthesia, both have proved to be dangerous, but spinal anesthesia no more than ether. With our present knowledge and with skilled anesthetists, many of the deaths from ether could have been avoided, and likewise most of the deaths under spinal anesthesia.

Morbidity.—This, for purposes of comparison, we have contrasted with ether. In this I am indebted to Dr. Wilmer Krusen, who kindly permitted us to study a series of his ether cases and add them to our own, and Dr. J. O. Bower, who has carefully compiled the statistics.

Nausea and Vomiting.—Apart from the frequent nausea and vomiting associated with the induction, we have found that about eighty-two per cent. of patients have nausea and vomiting from etherization after their return from the operating room. Seventy-five per cent. of the patients we have studied showed persistent nausea after the first twenty-four hours; sixty-one per cent. showed late vomiting occurring from the second to the fourth day.

As for spinal anesthesia, during the operation, eighteen per cent. had slight nausea and thirteen per cent. vomited. This was probably due to cerebral anemia, the anesthetic involving the upper dorsal nerve roots. Twenty-four per cent. had slight nausea and vomiting after being returned to their beds. This was either associated with an intraabdominal condition that would produce nausea or was secondary to the use of morphine or other narcotic drug. In no instance was secondary nausea or vomiting clearly attributable to the anesthetic observed. We may say that spinal anesthesia does not produce postoperative vomiting unless meningeal irritation occurs.

Albuminuria.—Despite a number of urinalyses, we have found no evidence that the intradural injection irritates the kidneys. As this is secondary to the reports of certain foreign observers, urines have been studied from time to time for several

years past. After etherization, albuminuria is not infrequent. The tolerance of patients to repeated or extensive operations upon kidneys, despite serious renal disorder, corroborates the innocuousness of intradural anesthetic as to these organs.

**Backache and Postoperative Pain.**—In the recent series of patients subjected to ether anesthesia, sixty-one per cent. had severe postoperative backache; while sixteen per cent. after spinal anesthesia complained of this symptom. As to the duration of postoperative pain, the average duration of incisional pain after ether was forty-eight hours as compared with twenty-nine hours after spinal anesthesia. The greater prolongation of the pain after ether is probably to be attributable to the toxemia and straining and greater disturbance from ether sickness as well as the lowered nerve resistance following the anesthesia.

**The Duration of the Anesthetic Influence.**—The average time required to put a patient under ether was found to be fifteen minutes; the average time required for operation forty minutes; and the average time the patient remained unconscious after leaving the operating room, one hour and fifteen minutes. The average time, therefore, that the patient is markedly under the influence of the ether was found to be two hours and ten minutes.

In spinal anesthesia the time required to produce analgesia is usually less than two minutes. The duration of the anesthetic influence is from forty-five to ninety minutes, the duration being longer when morphine and hyoscine are coincidentally employed. The brevity of the analgesia, while of advantage for the average operation, is disadvantageous in very prolonged operations, when the additional employment of ether and other anesthetics may be necessary. The emergence from the intradural analgesia is not associated with nausea, delirium, or distress as may occur from ether.

**Postoperative Headache.**—We have long believed postoperative headache to be the most frequent undesirable sequel of spinal anesthesia. In the recent statistical study, however, we found twenty-one per cent. of the patients after spinal anesthesia had a mild headache; while fifty per cent. of the patients after etherization complained of this symptom; the headaches, as a rule, being more severe after the ether. While we have recently seen no severe headaches after spinal anesthesia, it occurs at times in very severe form when deteriorated or imperfect solutions are employed, and indicates that the solution should be discarded.

**Ocular Palsy.**—In June, 1910, my colleague, Dr. Wendell Reber, reported five ocular palsies following spinal anesthesia. These had occurred in a series of 2,000 injections, 1,500 of which I had personally given. Three of the patients were under my care. All occurred within a period of time of two years, and four occurred during a single year; an additional case occurring about one year later. The palsy followed the use of stovaine and tropacocaine. One of the patients was a neurotic, and as there was full ocular movement with diplopia there was some question as to whether a true palsy existed. Ocular palsy has also been reported after the use of novocaine, cocaine, and other drugs.

In a second patient the conditions disappeared

within twenty-four hours. These untoward effects occurred during a time when the anesthesia was producing frequent and oftentimes severe headache and pain in the back of the neck, and it is believed that the solutions were imperfect or that the anesthetic had deteriorated. Strangely enough, although about 2,000 injections have been made since this time, no other case of ocular palsy has been observed. The condition is peculiar in developing in from seven to twelve days after the injection. Usually a single abducens is involved, although at times the condition is unusual. Recovery usually follows in from a few days to several months. The period of incubation always present, and the fact that when solutions giving little evidence of meningeal irritation are employed, the palsies rarely or never occur, suggest an irritative agent exclusive of the drug, probably a microorganism.<sup>2</sup> One of the cases occurred from the use by another department of ampoules we had discarded on account of the postoperative headaches that had followed their use.

**Other Palsies.**—One obese patient, suffering from a strangulated and gangrenous umbilical hernia, was given an injection while writhing upon the table. It was observed that the needle deviated to the side, and upon puncturing the dura evidence of root injury in an electriclike shock down the left leg occurred. The injection was, however, slowly given with the belief that the patient's desperate condition did not warrant a second attempt at the introduction of the needle. The gangrenous intestine was resected and there followed a violent neuritis involving the distribution of the left sciatic nerve. The condition gradually cleared so that the patient was able to walk, but had a residual foot-drop some months later. No other organic palsy due to the injection has been observed, although in a number of instances patients have attributed secondary symptoms to the anesthetic. These cases are important and often are incited by mental suggestions made by physicians or others. They frequently occur after ether, but are not attributed to the anesthetic. We have had four groups of these cases:

**First Group:** Cases with Symptoms Attributable to Spinal Anesthesia in Which No Intradural Injection Had Been Made.—This was exemplified in a patient referred by Doctor Keech for the incision of a mammary abscess. The patient had a severe postoperative backache and headache, which, both she and her physician at first attributed to spinal anesthesia. The patient, however, had been anesthetized by nitrous oxide and had mistaken the hypodermic injection of a narcotic for the intradural injection.

A second patient, referred by Doctor Leedom, developed meningoencephalitis two years after an appendectomy. At first spinal anesthesia was mentioned, but investigation proved that the patient had only received ether and that the condition was due to the tubercle bacillus.

**Second Group:** Cases in Which Functional Were Mistaken for Organic Lesions after Spinal Anesthesia.—A number of these conditions have been

<sup>2</sup>In two lots of imported ampoules of solutions for spinal anesthesia we found marked microorganismal contamination.



noted, the most striking being that of a very neurotic man, referred by Doctor Robin, of Warrington, for the fixation of a loose kidney. After the operation this patient complained of extreme pain in the spine, a sore place in the throat, dullness and pressure in the back of the head, and other symptoms. The patient had marked insomnia, and many nervous symptoms, and finally was sent West for nervous prostration. In Spokane, the diagnosis of embolism of the spine due to stovaine was made and the diagnosis is said to have been corroborated by several physicians and the case reported before the State society. The patient kindly submitted an x ray picture which had been taken and which was said to show a "congested condition and blood clot in the spine." At the area indicated we found only a large shadow from the heart. The patient was placed upon iodide of potassium and gold with an explanation that it would absorb the large blood clot. Later the patient returned to Philadelphia, and came under the care of Dr. S. Weir Mitchell and Dr. John K. Mitchell. They reported that the patient had not, and never had had, an organic lesion of the spine.

A second patient, some weeks after a herniotomy, developed paresis of one leg. He limped with difficulty into the hospital, where he was studied by the hospital neurologist, Dr. S. D. Ingham. The condition was found to be entirely functional and disappeared in two days. In a number of instances reports have been made by physicians and others of organic cord changes due to spinal anesthesia, but I know of no instance in which a clear relationship has been proved by an expert neurologist or by a scientific study of the patient.

The researches of Spielmeier, Spiller, and others as to organic changes following the intradural injection of stovaine into dogs are misleading when applied to spinal anesthesia as used in human beings. The dog has about seven cubic centimetres of cerebrospinal fluid as compared with the 150 or more cubic centimetres that may be evacuated from the body of an adult man. In dogs it is very difficult to make the injection into the cavity of the arachnoid. A veterinarian who made a series of injections for me found it extremely difficult to obtain any cerebrospinal fluid from dogs and hemiplegia usually followed the injection. Anatomical differences between the cerebrospinal canals of dogs and of men, and the differences in the action of diluted and concentrated solutions of stovaine are such as to render conclusions based upon animal experimentation of no value.

Coincident Organic Disease, Independent of the Spinal Anesthesia.—An example of this is a case of carcinoma of the prostate, operated in by Doctor Steel. The patient afterward drifted to the Philadelphia Hospital, where a true progressive paraplegia at first attributed to the intradural injection was found. At autopsy, however, the cause of the paraplegia was found to be a secondary carcinoma of the spine. A second patient was brought to the operating room prepared for appendectomy. The child had been admitted to the hospital as an emergency case of acute appendicitis. I first saw the patient in the anesthetizing room, but as the symptoms were not indubitable, had him returned to the

ward for further study without making the injection.

Weakness of the legs, backache, headache, and various pains are frequent after abdominal and especially after pelvic operations. We observe many instances after etherization. If the patient be neurotic, and especially if she be influenced by prejudiced persons after spinal anesthesia has been administered, she will often attribute these symptoms to the drug employed. This constitutes an important objection to the use of spinal anesthesia in the neurotic, for these patients are forever searching for a hook upon which they may hang their symptoms, and spinal anesthesia often serves them well for this purpose. Simple puncture of the cord by the needle does not produce symptoms. Circumflex palsy from faulty position of the arms will not occur unless the patient be unconscious.

Technical Difficulties. Meningeal Infection.—I have seen one instance in which tuberculous meningitis developed several weeks after the resection of a tuberculous knee joint under stovaine. I know of one instance in the hands of another physician in which, after the use of a tablet of stovaine that had not been sterilized after it had left the manufacturer, the patient developed a fatal illness with symptoms suggestive of meningitis. The operation was a simple curettement of the uterus done in a private house. After the development of symptoms some cerebrospinal fluid was withdrawn which was macroscopically clear, but a microscopical examination, unfortunately, was not made. I know of no other instance of meningitis following the injection, but it is evident that the injection should only be made after the most rigid aseptic precautions have been taken.

Selection of the Patient.—The patient selected for spinal anesthesia should be in a condition to withstand a decided decrease in blood pressure and suitable for the administration of artificial respiration. Patients with marked limitation in breathing capacity or great displacement of the thoracic viscera, as from large pleural effusions, intrathoracic growths, or very advanced pulmonary disease, and those with great obesity and fatty hearts, are not safe subjects for spinal anesthesia. This does not apply to the average case of pulmonary tuberculosis. Spinal anesthesia is also dangerous in a patient whose central nervous system is greatly depressed through traumatic shock, hemorrhage, or advanced sepsis or toxemia. Patients of these types are often selected by the novice, while spinal anesthesia, if used at all, should be given only with the greatest care and by an expert. By fixing a cannula into a vein previous to operation and by the graduated intravenous use of epinephrinized saline, the depressing influence of the analgesic may be combated. In this way we have found it possible to tide a pulseless and apparently moribund patient through a serious operation. Spinal anesthesia should not be used in these advanced cases when local anesthesia or a few whiffs of ether will suffice for the operative procedure. For thoracic and gall-bladder operations upon the desperately ill patient, local anesthesia should, as a rule, be selected. While physicians are never more forcibly taught the sin of procrastination than by an operation upon

their nearly moribund patients from generalized peritonitis, we shall not contend against those who prefer to have these unfortunate patients die under the Ochsner treatment.

**Position of the Patient.**—In rare instances a patient is unable to breathe in a recumbent position. For such a patient one should only use a solution of high specific gravity, or better, substitute local anesthesia. One surgeon has reported to me a case of tuberculous peritonitis with such enormous effusion that the patient could not lie down. Eight centigrammes of low specific gravity were injected. The patient was left in the sitting posture, the solution ascended, and, as would be expected, respiratory failure and death promptly followed. In such a case we would probably select local anesthesia, or give, not to exceed, 4.5 centigrammes of stovaine in a solution of high specific gravity. As a rule, the patient should not be raised to a sitting posture until one half hour has elapsed after the introduction of the anesthetic. In several instances we have observed temporary syncope from too early elevation of the patient.

**Movement of the Patient.**—Care also is necessary in moving and in carrying the patient immediately after the injection for fear of a dangerous upward diffusion of the drug. Without constant watchfulness the orderly or resident will lift or carry the patient with the head and shoulders raised, as the patient is being transferred to the operating room on a different floor in a hospital by means of an elevator. Immediately after the transference the patient, a very weak and debilitated man, suddenly collapsed and died. Although in this case there is evidence that death resulted from other causes, it is our opinion that if the injection cannot be made upon the operating table, and if the patient cannot be kept reasonably quiet and under expert supervision for at least thirty minutes after the injection, the use of spinal anesthesia is unjustifiable. It is likewise of great importance that the patient's pulse, respiration, and general condition be constantly watched during the first thirty minutes of the analgesia. Respiratory and cardiac failure are to be feared when a debilitated patient is being watched by an inattentive assistant so careless as to not observe the premonitory signs of danger, or to institute the proper anticipatory treatment.

**Influence of Repeated Injections.**—Many of our patients have had spinal anesthesia induced a number of times. One patient at present in the hospital has had spinal anesthesia eleven times, over a period of several years. A number of patients have had several injections for one operation or with a few days interval. In none of these patients has any secondary evidence of cord injury been apparent, and in none of these patients has any secondary organic lesion attributable to the injection been observed.

**Breaking of the Needle.**—Several years ago Littauer (*Centralblatt für Gynäkologie*) reported two cases in which the cannula had been fractured in the patient's back. In one instance three centimetres of the distal end of the tube was left in the patient's spine, yet no symptoms had followed at the end of two years. In the second, the cannula was immediately removed without ill effects. In

one case I had the same mishap while using a very delicate highly tempered steel needle in a young child; the child suddenly straightened the back as the needle was introduced, the vertebral laminae came together, breaking the needle. I at once cut down through the tract of the needle puncture and found the end in the interspinous ligament. It was withdrawn and the operation of herniotomy completed without secondary symptoms. Some months ago I was handed a communication from a physician in a western State against whom legal action had been brought for a fracture of a cannula during a lumbar puncture in a child with spinal meningitis. No untoward symptoms had followed the accident. These mishaps emphasize the importance of employing gold or platinum needles. Several times have I had patients bend needles by movements during the introduction, but I know of no instance in which a platinum needle has broken beneath the skin.

**Consciousness of the Patient.**—The conscious state during the progress of the operation is, with certain patients, very objectionable. With spinal anesthesia this may be obviated by administering sufficient morphine, scopolamine, or other narcotic previous to the operation to produce unconsciousness. The use of these drugs undoubtedly increases the danger of respiratory and cardiac failure, particularly in patients who are already adynamic and toxic. In children narcotism is not as satisfactory, but in them consciousness is usually less objectionable than in adults.

**Morale of the Operating Room.**—Ether has the advantage of rendering the patient completely oblivious to all that transpires in the operating room. The conversation of those present is unheard, the behavior of the operator and the assistants under the stress of the operation is not perceived by the patient, and the lack of a systematic routine is not observed. Under nitrous oxide anesthesia or nitrous oxide oxygen anesthesia the patient may hear things that are said and thus acquire a fixed prejudice against the operator; and likewise, under spinal anesthesia, if the patient be not thoroughly narcotized, the method has decided disadvantages to the surgeon or his assistants who lack proper poise in the meeting of emergencies.

**Inability to Properly Introduce the Solution.**—In over 3,000 injections, I once failed in a kyphotic dwarf to enter the spinal canal. In the first patient upon whom I tried spinal anesthesia I likewise failed to introduce the needle, but on a later occasion was successful. In two instances, although the needle entered the spinal canal, no fluid was obtained and anesthesia was not produced. In one other case, cerebrospinal fluid was obtained, but despite repeated injections no anesthesia resulted, probably because the fluid was extradural. Perhaps in five per cent. of the patients the injection must either be repeated, another injection given, or another anesthetic employed. This may be due to the imperfect introduction of the needle through the dura, the leakage of fluid, an insufficient dose, or a defect in the solution.

**Dose.**—Unfortunately, most of the substances used for spinal anesthesia are under proprietary control and have not been rigidly standardized. Ap-

parently, different samples show variations in activity amounting even to thirty per cent. As a ten per cent. increase in the dose may be dangerous, these variations necessitate great care in the employment of every new lot of the anesthetic. For example, at times we find 0.04 gramme a proper dose of stovaine, again 0.06 gramme. The dose must be accurate, for once given it cannot be recalled. In one instance in Philadelphia, an inexperienced operator gave 0.4 gramme of stovaine—or eight times the normal dose. The patient promptly died.

This case was reported in the literature, but not the dose employed.

#### CONCLUSIONS.

In our personal experience ether and spinal anesthesia have been about equally dangerous, ether from exigencies compelling a profound narcosis or an imperfectly trained anesthetist; spinal anesthesia from an unwise selection of patients and an imperfect knowledge as to the physiological action of the drug. With careless or unskilled use, spinal anesthesia is doubtless much more dangerous than ether.

The morbidity of spinal anesthesia as expressed by nausea, vomiting, headache, backache, postoperative pain, and albuminuria is less than that from ether.

Ocular palsy may result from spinal anesthesia where contaminated or deteriorated solutions are used. A lateral deviation of the needle with injury to a nerve root may be followed by severe neuritis and secondary palsy.

Secondary degeneration of the spinal cord from the chemical action of stovaine, properly introduced in human beings, for purposes of spinal anesthesia is doubted.

Functional or neurotic symptoms occur after spinal anesthesia as they do after etherization, and may, to the annoyance of the surgeon, be attributed by the patient to the injection. If a steel needle be used it may be broken under the skin during the injection.

Danger symptoms may follow if the patient be moved immediately after the injection or if the proper posture to prevent the anesthetic from reaching the upper nerve roots be not maintained for at least one half hour after the injection.

Repeated intradural injections seem to be harmless.

Spinal anesthesia is dangerous in circulatory sub-tension, conditions greatly depressing the respiratory centres, and shock, collapse, advanced myocardial disease, and large intrathoracic effusions. It is more dangerous for operations upon the upper abdomen than those upon the lower. It does not obviate the danger of sudden cardiac arrest in operations for large uterine fibroids.

The newer methods of anesthesia, including spinal anesthesia, nitrous oxide oxygen, intravenous anesthesia should have their use restricted to selected patients by those who have properly qualified themselves.

If the patient cannot be properly watched for one hour after the injection, if the operator does not understand the dose and mode of diffusion of the

drug, or if he is unprepared to meet emergencies, then spinal anesthesia should not be employed.

For general indiscriminate use ether remains the standard anesthetic despite its many drawbacks.

2033 WALNUT STREET.

## PREVENTIVE MEDICINE AND THE FAMILY DOCTOR.\*

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We are told that the general practitioner has disappeared, and that this is the period of specialists. While we may think that the first part of this statement is not correct, we have to acknowledge that a process of evolution is taking place with respect to the specialist and the family doctor. The growing importance of specialism is so generally recognized that the needs of the general practitioner are now being overlooked in certain quarters. Surely we should not ignore the fact that over ninety per cent. of the doctors in North America and Great Britain are general practitioners. This ratio is likely to continue for many years to come, probably forever.

Many of us think therefore that the family doctor in the near future will become as important a member of the profession as the most scientific specialist. We believe, however, that the general practitioner and the specialist will work together, and thus accomplish the greatest possible good in the interests of suffering humanity. Let us consider the family doctor from the standpoint of preventive medicine.

In speaking of preventive measures in routine, general practice, it seems suitable to commence with the subject of obstetrics; because, in that department, preventive measures, so far as I know, were first generally observed. For many years obstetricians, including the majority of general practitioners, have realized the importance of keeping women under very careful observation during the whole or the greater part of pregnancy. Our object is, to put the matter very plainly, to prevent our patients from getting sick. We desire especially to prevent toxemia and its results, such as pernicious vomiting, acute yellow atrophy, and eclampsia. This is of course only a small part of the story, but it seems sufficient to illustrate our point.

Let us now consider preventive treatment in connection with the young babe. It is unnecessary to name the many dangers to which it is exposed. The doctor of the past has been altogether too indifferent about the proper care of the baby. When he is informed that the little one has been fretful, he too often makes no examination, and simply advises a dose of castor oil, or something of that sort. The doctor should realize that the care of a baby is really a serious problem. With this in his mind, he should supervise. Proper supervision requires no great brain power, but there is a supreme necessity for

\*Read at the meeting of the Canadian Public Health Association, held at Regina, September 19, 1913.



looking after details. Among these details are cleanliness, suitable dressing, care during the day, care during the night, proper feeding, care of the mouth during teething, and many other details which need not be mentioned now. These recommendations mean frequent visits, careful inspection at each visit, and minute instructions, preferably written in the majority of cases. Our object should be to prevent disease. Mothers more than fathers are now realizing the value of preventive measures, and they are endeavoring to educate their husbands. We believe that even now a large portion of the public would prefer to pay the doctors for keeping their children well, instead of waiting until they get sick before asking for professional treatment.

We do not know that there is any age at which the family doctor should cease to exercise a careful supervision over children. We may, however, refer to one very important matter. It is generally understood that the period when a girl is growing into womanhood is one of the most critical in her life. The family doctor knows this; but too frequently does not take the active interest in her that he should. Unfortunately, many mothers think that slight disturbances, or small variations from perfect health are usual and that the girl will "grow out of them" before, or as she becomes a woman. In certain schools, well conducted in a general way, a girl is sometimes allowed to get seriously ill before her mother or the doctor is notified. No girl should be allowed to get sick, in the ordinary sense of the word, before she is looked after. Our aim should be to prevent the illness. In such a case we should consider clothing, food, regulation of the bowels, ventilation, exercise, and schooling. To prevent serious illness it is sometimes advisable to remove the girl from school for a term. The mother is anxious to have her daughter get a good education, and frequently objects to any "break" in her studies. The father is generally worse and is inclined to despise a "doctor's fads." He will wait until his daughter gets nervous prostration; and then, with his eyes properly filled with tears, will send her to a sanatorium for six or twelve months. However, in such a case before serious damage is done, the physician may explain the matter to the mother, and show her that good health is the all important thing for her child; and, if he convinces her, he can generally accomplish his object. Perhaps you remember what Brown said to his friend: "See here, Jones, why don't you brace up and show your wife who is running your house." "It is quite unnecessary," replied Jones, "she knows." If you get the mother on your side, you can usually carry your point.

Let us refer to another time in a woman's life, the consideration of which will help to illustrate the trend of this paper. It is well known that the menopause is a critical period. It is thought by some that both doctors and patients are inclined to get too "fussy" on this subject. That may be true to a certain extent, but we believe that every doubtful case should be carefully investigated. In many cases we can, by simple preventive treatment and judicious advice, accomplish great good without giving much medicine. In such cases we should,

of course, always consider the possibility of malignant disease. When in doubt one should get the help of a specialist, as soon as possible.

This leads up to the consideration of diagnosis, which is exceedingly important in connection with preventive treatment. Let us go back to the patient we were treating during pregnancy. There may be doubt as to the condition. If there is ectopic gestation, it is exceedingly important that the family doctor should be able to make a diagnosis. His ability to do so is quite as important, if not more so, than similar ability in the specialist. In extrauterine pregnancy he should recognize the condition before rupture takes place. Some of the saddest tragedies I have known have resulted from a nonrecognition of this condition in time to prevent disaster. Without giving any other examples we have only to say that the family doctor should be an allround good diagnostician.

Let us glance at the great field of abdominal diseases. How much can we accomplish as to them by preventive measures? No detailed attempt will now be made to answer this question. But let us think of certain possibilities. Supposing our general practitioners took charge of all the children in Canada aged six, and they and their successors looked after them continuously until they reached the age of twenty-six (or more if you like)—taught them how to eat, how to drink, how to sleep, how to dress, how to work, how to rest, how to play—in short, how to live—what would be the result? We don't know, but we have an idea they would to a wonderful extent curtail the work of all kinds of specialists and, in fact, put a vast number of them "out of business."

In the meantime we must recognize the fact that specialism is at present a necessity, and that the specialists of to-day are doing the grandest work, in various departments, that the world has ever known. We acknowledge this, although we have to note, with regret, that some of our latest specialists, who have been rapidly manufactured without any knowledge of general practice, are rather narrow and often unsafe in some respects. Most of our specialists in Canada were general practitioners first, and specialists second, and, on the whole, are a body of men we admire very much, even though it be our main object to limit their work as much as possible.

We are justly proud of our advances in matters pertaining to public health; but we want the family doctor to go far beyond the science of hygiene as it is generally understood. It is not enough to learn how to milk a cow according to Doctor Hastings's most improved methods, to chlorinate dirty water, to open windows, to dig ditches, to construct sewers, to burn refuse, to select the proper kind of fish, flesh, fowl, etc. We recognize the vast importance of all these things, but we know pure milk kills many babies; we know that pure food kills many children and adults. We find, for instance, that a robust vigorous young athlete who is a "good feeder" frequently dies young, while the poor dyspeptic, who has a capacity for eating about equal to that of a canary bird, never dies—or takes such a long time to die, that we are apt to lose interest in his existence and scarcely notice his final de-

parture. The important lesson to learn is, that the overeater dies sooner than the under-eater, and that the overfed baby dies sooner than the under-fed. We wish it to be understood, however, that we do not approve of either overfeeding or under-feeding.

Let us now consider the financial side. We may be told that people do not want a doctor to make unnecessary visits. That has been true to a large extent in the past. Some people preferred to run a little risk rather than pay for what they considered extra visits. But many of these people now hold views different from those of ten years ago. A physician who purposely makes unnecessary visits and charges for them is simply one of the meanest sort of thieves—and I think there are not many such in our profession. If our patients have not confidence in our integrity, they will not learn quickly the value of preventive supervision.

Let us acknowledge that we cannot always tell how many visits are necessary. In many cases, especially during the last twenty years, I have been unable to decide how many visits were necessary. My custom has been to act somewhat as follows: After a certain amount of attendance I am in doubt as to the necessity for further visits, and I express such doubt candidly—"Mrs. Jones, I believe this child is well. I don't believe a visit to-morrow will be necessary, but I think I should like to come." The answer has almost invariably been "Yes, come to-morrow and as often as you like (or as often as you can) until all your doubts are gone."

In looking after a young babe, in the majority of cases (it will be in all cases in the future), I make no pretence of waiting for sickness. I see it as often as I think advisable. When a young girl reaches the age of puberty, I tell the mother I wish to watch her child very carefully for a time (not less than two or three years), and explain why. I speak of these things in the first person because I wish to indicate, in as few words as possible, that I have had no great difficulty (sometimes none at all) in demonstrating to women, and especially mothers, the meaning and value of the prevention of sickness. I cannot say the same about the other sex, because I have found that the stupidity of men concerning health and sickness is so overpowering, that I have now neither the courage nor the time to tackle them. However, it seems fairly probable that their business instincts will before long lead them to the discovery, that it is cheaper to be kept well than to be allowed to get sick, or, in other words, "Doctor Ounce of Prevention Street" is superior to "Doctor Pound of Cure Lane."

And now we come to a very important question—Where and how will the family doctor get his training? During the process of evolution before referred to, great changes have been made in the medical curriculum by teaching bodies. The advance, especially in medicine and the pure sciences, has been so tremendous in recent years that changes were inevitable, and whether they were made in a judicious manner is a matter which we don't wish to discuss now. It will probably be generally admitted, however, that specialism has been exalted at the expense of general practice. What we now understand as commonplace, every day,

preventive treatment of disease is scarcely touched upon by our teaching bodies. The secret of health is not properly discussed or taught. The tendency in our medical colleges is to teach the final students only what can be learned in laboratories and hospitals; and yet, our family doctor will be expected in the future to prevent the necessity for hospital treatment. Hospital training cannot cover half the ground required for the ordinary doctor. Would it not be well for this great association to consider very carefully the tremendously important question of medical education?

30 GERRARD STREET, EAST.

## SURGICAL EXPERIENCES DURING THE LAST SERBIAN-BULGARIAN WAR.

By RICHARD J. BEHAN, M. D.,

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It was on the afternoon of July 7, 1913, in Berlin, that I received a telegram (two days on the way) from Mr. Sommers, the American Consul at Belgrade. In this he asked if I and two others vouched for as capable surgeons could immediately leave for Servia. At twelve o'clock the same evening, in company with Doctor Rosenkranz, of Los Angeles (who had also received a similar telegram) and Doctor McKinney, of Chicago, I was on the way. Owing to the distance from Berlin, we did not arrive till ten o'clock on Wednesday. While in Budapest the previous evening, in the company of Mr. Mallet the acting American Consul there, we heard that the Bulgars were advancing into Servia in all directions and that as the *Neue Freie Presse* stated, the struggle would shortly be over. This, of course, was not welcome news to us, because even then we felt somewhat partisan to, and sympathetic with, the people whom we were going to serve. However, we found later that much of what we had heard was nothing but the purest fiction.

Shortly after arriving in Belgrade, we called on Mr. Sommers and went with him to interview Colonel Sondermeyer, the bureaucratic head of the Servian medical department. We were kindly received by him, and made our arrangements with a major adjutant. We were given the choice of either remaining in Belgrade, where we would receive a hospital, or of going to the front. It was asked of us as a great favor that we go to the front, as there the need for physicians was most urgent.

We immediately consented and were assigned to Nish, a town about 200 kilometres (160 miles) from Belgrade, fifty kilometres (forty miles) from Pirot, where at this time fighting was quite severe. We were promised and later received a salary of 400 francs monthly, our traveling expenses (to and return), which amounted to about 200 francs, and our board and lodging during the time of our active service.

The next morning we started for our station. The train left at 7:50 a. m., and although Nish is only about 160 miles distant from Belgrade, we

were on the journey till one o'clock the following morning, at least seventeen hours. The reason for our slow progress was that everywhere along the route soldiers were either embarking or detraining. Every station was thronged with soldiers and

The third or central building had accommodation for about 500, so that the entire hospital accommodation was about 1,060 patients. However, there was a lack of beds, bed accommodation being present for only about 800 patients. The remainder



FIG. 1.—American surgeons stationed at the Fourth Reserve Hospital at Nish, Servia. 1, Doctor McKinney; 2, Doctor Rosenkranz; 3, Doctor Behan.

people all eager for war news. The man with the newspaper was at a premium and was always the centre of a group. In many cases we saw wounded soldiers, returning from the front, the centre of a crowd who were listening with open mouths and glistening eyes to the tales recited by these soldier heroes. At Stalitz (Stolac) we were compelled to change to a military train, as the passenger trains did not run beyond this point. We arrived here at 2.30 p. m. and waited four hours till the next military train going to Nish arrived. During this time several train loads of wounded passed us on the way to Belgrade on to Krajevac.

On our way we also made the acquaintance of several correspondents who were also going to the front. On this journey we were treated by the Servians with the greatest courtesy. All the way we occupied first class compartments. On our arrival at Nish we were met by Doctor Jablons, an American surgeon, of Brooklyn, N. Y., who had been engaged as bacteriologist at Nish since the beginning of April. We were safely in our hotel at 1.30 a. m., and thus ended the first stage of our journey.

The next morning we were given the choice of hospitals and selected the Fourth Reserve, which formerly had been a cavalry barracks. It consisted of three large buildings. Two of the buildings had accommodations for about 280 patients apiece.



FIG. 3.—Bulgarian prisoners, wounded and living in the Fourth Reserve Hospital at Nish, Servia.

had no beds, but slept on straw mattresses on the floor. However, it was only the Bulgarian patients who were forced to this extreme. Every Servian had a bed of his own. This discrimination against the Bulgars began, however, only after the atrocities committed by their fellow Bulgars at Knajewacs had become known.

Doctor Rosenkranz and I were assigned to the first pavilion with about 270 patients. Doctor McKinney remained with the Servian medical officer who had charge of the middle pavilion for a few days, when he was assigned to the third pavilion. The fourth pavilion was later under the nominal charge of Dr. Richard Bier, of Berlin, who, however, never entirely resigned his position at the country hospital where he was in charge. After a short time he voluntarily gave up the fourth pavilion to the care of the surgeons who were there in charge. The work was severe. It meant labor from 8 a. m. until 1 p. m., then a pause till 3 p. m., and again work till 8 p. m. There was such a lack of instruments that the simplest operation could not be performed, all our dressing room (at this time we had no operating room) afforded was a table, plenty of sterile bandages, a few forceps, a knife, a pair of scissors, and solutions of alcohol and benzine, with appropriate trays.

At first our assistants were untrained soldiers, but with remarkable rapidity they picked up the



FIG. 2.—Servian soldiers in the Fourth Reserve Hospital at Nish, Servia.



FIG. 4.—Bake ovens outside of the Fourth Reserve Hospital at Nish, Servia. In these ovens 11,000,000 loaves of bread were baked in three months.



rudiments of surgical nursing, so that in a week they became very proficient. The proficiency is indicated by the fact that of the hundreds of cases dressed by them not one case of secondary infection occurred. This is a record surely to be proud of even by a well equipped hospital with a trained hospital staff.

Discouraged by the lack of all the necessary essentials for proper care of the wounded, I telephoned to Mr. Sommers, the American Consul at Belgrade, and inquired if it were at all possible to collect any money or in any other way to acquire operating room equipment. He sent telegrams to the American Consuls at Paris, Berlin, and Baden-Baden, also to the *New York Herald*. Inside of twenty-four hours he had word from Mr. Pool, the assistant consul at Berlin, that he had collected \$400, most of it coming from the treasury of the American Women's Club of Berlin.

This money was expended for instruments, which were conveyed to us by the kindness of Frau von Oettingen, the wife of one of the German surgeons employed in Nish. An operating room was now erected in the fourth pavilion, and it was no longer necessary for us to send our operative cases to



FIG. 5.—Wounded detaining and on the way to the Fourth Reserve Hospital, Nish, Servia.

other hospitals. However, even with the great number of patients (over 2,000) who passed through our hands in the six weeks we were there, the necessity for major operations came relatively seldom.

The wounded were of all types. Of 177 cases selected at random, we had five scalp wounds—of these one was a very severe laceration; two skull injuries with fracture; eight face injuries, one with destruction of the eye, three with fracture of the lower jaw, one with persisting parotid fistula; five neck wounds; seventeen with chest wounds, in whom empyema developed in five with subsequent operation; six with abdominal wounds, all recovered without operation; sixteen upper arm wounds with four fractures of the humerus and one of the clavicle; twenty-one wounds of the forearm with two fractures of both radius and ulna and one fracture of the radius; twenty-two wounds of the hands; twenty-seven wounds of the thigh with two fractures of the femur; twenty-four wounds of the leg with four fractures of the tibia; and twenty-four wounds of the foot. Most of the cases except the fractures and infected cases were dis-

charged in about a week or ten days. Of the 177 soldiers, fourteen had been wounded in two or more places, and twenty-four were more or less severely infected. The mildly infected cases, in which the wounds were superficial, were not counted.

Of the 154 soldiers of whom we have records, fifty-six were wounded by shrapnel, ninety-four by bullets, two by grenades, and two by bayonet. We also ran across evidences of the cruelty of the Bulgars, in that we had in our hospital the only four survivors of a body of thirty men of the Fourth Reserve, whom the Bulgars after capturing grouped into a solid mass, then forming a ring about them with fixed bayonets, they danced around the cowering mass in the centre, advancing and retreating from them. Each time that they approached they prodded them one or more times with their bayonets. After the dance was over the writhing human mound in the centre was left to its own anguish and distress, for from out of that bleeding mound how, thought the Bulgars, was it possible for one poor mangled soul to emerge alive. So they left it. But that night the Servians, eager to avenge the insults to their women and their manhood, returned, captured the village, and received the heritage of the mangled companions. Of the thirty only four were found alive. Then woe to the Bulgar who fell into the hands of the enraged troops, who got beyond control of the officers and gave no quarter to those whose ill luck it was to fall into their hands. The four survivors of the massacre were sent to us. Of the four, three had been castrated. One of these died the same night. Of the three others, one who had a bayonet wound of the back penetrating into the rectum and the pelvis died in two days. The other two recovered. It was after this occurrence that the Servian soldiers developed their great antipathy to the Bulgars.

After the peace was concluded we remained about a week. In this time we sent home all who could possibly go, and as at the end of this period there were only eighty patients in our hospital, it was decided to close it and to transfer the patients to the military hospital at Chela Kula.

Throughout the entire time of our stay in Nish we were the constant recipients of favors from the American Consul, Mr. Sommers, who even saw to it that we were plentifully supplied with American newspapers. We were also visited by him and Senator Young, of Iowa. Especially must we thank those good Americans who so cheerfully gave of their money in order that we might be enabled properly to carry on our work.

## A CASE OF FRACTURE OF PELVIS IN A CHILD AGED SEVEN.

By P. G. SKILLERN, JR., M. D.,  
Philadelphia.

Packard (*International Encyclopedia of Surgery*, 1834, IV, p. 91) says: "Fracture of the pelvis is almost unknown in children. The youngest patient I remember to have treated for such an injury was sixteen years old. Bryant, however, mentions two

cases seen by him in children, and a few others are upon record." The following patient was brought to me for examination by Dr. T. W. Buschmann in the Surgical Outpatient Clinic of the University Hospital, service of Dr. B. A. Thomas, October 16, 1913:

E. A., male, white, aged seven years, while at play the day previously, was struck by an empty limebox over the pubic region. Examination revealed ecchymosis between the anterior superior iliac spines and the symphysis pubis and "wincing" tenderness over the ossa pubes. There were no signs of injury to the bladder. The child could walk without difficulty, and complained of nothing except tenderness on palpation. Bimanual rectoabdominal palpation, in which the pubic arch was sandwiched between the fingers of the examining hands, again elicited "wincing" tenderness but no unevenness on the surfaces of the bones and no crepitus, no preternatural mobility. There was a small hematoma in the space of Retzius. Skiagram (Fig. 1), taken by Dr. H. K. Pancoast, showed bilateral symmetrical oblique lines involving bodies of pubic bones, each starting at upper part of symphysis and extending downward and outward to reach margin of thyroid foramen 1.5 centimetres below the pubic crest. On the right side this fracture line passed across the lower part of the thyroid foramen to involve the body of the ischium just above its junction with the tuberosity. On the left side



FIG. 1.—Fracture of os innominatum. Note bilateral oblique lines involving bodies of pubes, that on right side continuing so as to involve body of the ischium.

the ischium was uninvolved. The patient was admitted to the surgical ward and placed at rest on a fracture bed.

These lines of fracture are in keeping with the following description by Packard: "When a crushing force is brought to bear upon the whole pelvis, the bone may give way at *two or more different points*. One or the other side may be specially acted upon. In any case, however, the pubis would seem to yield first, in its horizontal ramus, when there must be a fracture also somewhere between the symphysis pubis and the tuber ischii."

Fracture of the pelvis in childhood is rare because of the smallness and elasticity of the bones and because of the suppleness afforded by the symphyseal and epiphyseal buffers.<sup>1</sup> The vulnerating force in this case was sufficient to overcome the resistance offered by these factors, but stopped short of crushing and displacing the bones. The absence of subjective symptoms is attributable to the subperiosteal nature of the lines of fracture, there even being insufficient displacement to involve the bladder (which may have escaped because it is chiefly an abdominal

organ in childhood) or stretch the triangular ligament and rupture the urethra. Had not the clews of ecchymosis and "wincing" tenderness aroused suspicion of fracture sufficiently to resort to the x rays, the fractures doubtless would have been overlooked and treated as a contusion.

241 SOUTH THIRTEENTH STREET.

## INFANTILE PARALYSIS

### *Affecting the Lower Extremities: Its Surgical Treatment and Possibilities of Cure.\**

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#### INTRODUCTION.

The attention of the entire medical world has of late years been directed to the problem of infantile paralysis. And little wonder for, rickets excepted, it is the most prolific source of deformity. The clinical picture of an onset so mild, quickly followed by a paralysis so complete, is simply appalling. The important work of Heine, Charcot, Strümpel, Meelin, the terrible Swedish epidemic of 1890, followed by those in Germany, France, Italy, and the United States, have held the interest of the profession unabated, while the Swedish epidemic of 1895 inspired the exhaustive studies of Wickman, who demonstrated beyond peradventure the contagious character of the malady. In 1909, Landsteiner and Popper first-produced the condition experimentally in monkeys, which experiment was shortly after repeated by Flexner and Lewis. In the same year, almost at the same time, New York, Paris, Vienna—through Flexner and Lewis, Landsteiner and Levaditi, Leiner and von Wiesner, respectively—contended for the honor of having transferred the condition from one monkey to another. Finally, Flexner and Noguchi only a few weeks ago, recovered pure cultures of the organism producing the disease. While the isolation of this organism is of great value, the crippled condition of the patient is the paramount issue of the attack, and to this aspect of the subject it is the purpose of this paper to invite your attention.

#### ETIOLOGY AND PATHOLOGY.

It is now definitely determined that anterior poliomyelitis is due to the "globular or globoid bodies averaging in young cultures 0.15 to 0.3 micron in size." While it is claimed that the bite of the stable fly directly transmits the disease, it is more frequently acquired through the nares. The upper nasal cavities communicate directly with the meninges along the lymphatic tracts which pass outward with the filaments of the olfactory nerves. Thus the organisms enter the body through the perivascular lymph spaces of the bloodvessels of the leptomeninges. This lymph is in communication with the cerebrospinal fluid. The first change observed in the nervous system is the hyperemia and collection of mononuclear cells, in the lymph spaces surrounding the vessels. This

<sup>1</sup>Comparison of this skiagram with that of a normal pelvis of same age proved the lines of fracture were not epiphyseal lines.

\*Read before the Medical Society of the District of Columbia, April 23, 1913.

obstructs the circulation, causing hemorrhage and edema; hence, these three elements, cellular exudate, hemorrhage, and edema, constitute the nervous system's primary reaction to the invading organism. The blood supply of the spinal cord is greatest at the cervical and lumbar enlargements, and here the nervous lesions are most conspicuous, and for the same reason the anterior horns of the gray matter are more directly affected than the posterior horns. It is true that the cells may be affected by a direct toxic action of the products of the organism, and that anemia following constriction of the vessels may play a prominent part, so that any one or all five of the factors—exudate, hemorrhage, edema, toxemia, and anemia—may affect the cells themselves, and by pressure or anemia cause the cells to degenerate. If the hemorrhage and exudate are early absorbed, the cells recover and function is renewed. Their long persistence on the other hand, may result in complete necrosis of the nerve cells. While its effects are more or less general, upon the nervous system, the toxine has a predilection, causing paralysis or death through destruction of the respiratory nerve cells.

#### THE PARALYSES.

At necropsy the extent of involvement of the gray matter of the cord may be out of all proportion to that represented by the muscular paralysis. The white matter may likewise be involved without any apparent symptom. Fortunately the nerve fibres supplying most of the muscles spring from different levels of the cord, hence the functional activity of the muscles is safeguarded. The extreme irregularity of distribution of the paralysis effecting here individuals, there groups, and again skipping muscles altogether, is due to the lesion being within the cord as distinct from that within the periphery.

A certain number of paralyses are of transient character, lasting for a few days or a few weeks. The nerve cells have not been destroyed, but have suffered temporary, yet profound toxemia, with a resultant disturbance of function, or as the result of pressure from hemorrhage, edema, or exudate. A certain number are completely and permanently paralyzed, in which there is an actual destruction of all the nerve cells from which the fibres supplying the affected muscles arise. A third group of cases represents a condition of weakness with no actual paralysis. The exudate or edema or hemorrhage through pressure has interfered with the nerve cell function without actual destruction of cells or, at most, with destruction of but few. Bing<sup>1</sup> is authority for the statement, "Anterior group lesions . . . unless very extensive, merely weaken and do not completely paralyze the muscles, owing to the fact that as a rule, the muscle is innervated from several roots."

In Wickman's 868 cases, eighty-five per cent. were affected in one or both legs. The paralysis is limited to the legs alone in nearly one half of all cases. The lesion found is in the lumbar enlargement of the cord, particularly that segment which lies between the first lumbar and second sacral vertebrae. We

may find one leg, both legs, or a particular muscle or group of muscles, involved. The muscles in the leg most frequently affected are the anterior group, the peronei, the flexors of the foot, and the extensors of the toes. Of the muscles of the thigh, the quadriceps extensor femoris is the most frequent victim. There is a marked difference of temperature between the normal and paralyzed limbs, the latter being quite cool to the touch. The proximal group of muscles is more liable to paralysis than the distal; the latter group recovers more quickly, too, after paralysis.

In the process of repair the surviving nerve cells may assume new functions, and surviving muscles



FIG. 1.—Showing head of bones partially without the acetabulum, and apparent lengthening of femur of affected limb. Radiograph taken before operation by Dr. T. A. Groover.

may assume in part the action of those which have been injured. Recovery in the chronic conditions is very slow, and treatment should be carefully and conscientiously carried out. Mechanical supports should not be resorted to too early at the expense of undeveloped by developing muscles. Delay on the other hand of the surgical treatment may result in deformities of much greater difficulty for correction. Cooperation between internist and surgeon is the solution to this question.

#### CASE.

In the case to be presented, I am under great obligations to Mr. Jones, of Liverpool, for the suggestions of his splendid work, which I had the pleasure to observe while there about eighteen months ago, especially as regards tendon transplantation

<sup>1</sup>Compendium of Regional Diagnosis in Affections of the Brain and Spinal Cord.





FIG. 2.—Showing apparently flaccid paralysis and pointed toe of affected limb. Note difference in size and position of the two limbs. (Taken just before operation.)

and the open air treatment of his cases. Many of his views are herewith incorporated. I must differ with him, however, as regards the value of long delay for an arthrodesis, when one can use the time-saving, equally effective, and far simpler method of double fixation. My case follows:

CASE. L. J., male, aged three years, of Prince George's County, Md. Family history, negative. Father and mother, two sisters, and a brother, alive and enjoying good health. None of these had experienced any illness similar to that of the patient, though there were other cases, I am told, occurring at the same time in that neighborhood. There are no evidences whatever of syphilis in the parents. Previous history: The child was breast fed, enjoyed excellent health, was quite strong and active till nearly six months of age. Present illness: When nearly six months of age, he was taken suddenly ill, with restlessness, fever, and great irritability. He apparently desired to be let alone. Any motion in the attempt to lift him would cause him to cry out with pain. In a few days the mother noticed that he was quite unable to move his right leg, which lay limp and lifeless. After some weeks the child appeared normal again, except that its right lower extremity seemed completely paralyzed and remained so for two years. In May last, the child was referred to me. Physical examination: The child was fairly well nourished and normal in appearance except as regards the entire right lower extremity, which was in a state of apparently complete flaccid paralysis. The thigh hung limp from the hip joint, with slight flexion at the knee. There was marked difference in the measurements of the two thighs, legs, and feet. The pointed toe of the right foot was typical. The reflexes were normal in the left lower ex-

trinity, while on the right, knee jerk, Achillis, Babinski, and Kernig's signs were all absent. With the exception of the slight tonicity of the biceps, loss of power seemed complete. If the child was made to stand upon the sound leg, there was marked external rotation of the right thigh, eversion and abduction of the leg and foot. The capsule of the hip joint was quite relaxed, and the head of the femur rotated freely, partially without the acetabulum. The arc of rotation described by the trochanter was very much exaggerated as compared with that of the sound side. The flaccid condition having then existed for a little over two years, the only sign presenting encouragement lay in the biceps for transplantation, together with fixation of the ankle joint, but this chance seemed remote. The mother, however, desired any steps taken which might offer the slightest prospect of betterment, rather than to have the child helpless for life, and unable to earn his living, and operation was decided upon. This was performed June 5th last. The technic pursued consisted of the transplantation of the biceps tendon into the patella, and a double fixation at the ankle joint. With the foot in the corrected position at right angles to the leg, one screw was passed through the external malleolus, astragalus, and calcaneus, another through the internal malleolus almost at right angles to the first, while a third screw was passed through the scaphoid and cuboid, fixing the key of the arch of the foot. The head of the femur was returned to the acetabulum and a plaster of Paris cast snugly applied from the foot to the costal margins, and allowed to remain on for six weeks. The wounds healed by first intention. Passive motion and massage were then instituted, and the weight of the body gradually applied to the foot, now firmly fixed at the ankle joint. Minute instructions were given to the mother as to the training of the child to walk, and as an aid to this end a simple device of the footbridge effect, with hand rails, was built out of doors close beside the house for daily exercise. The child held to the rails while his feet were in the beginning picked up and carried forward in the earliest attempts to walk. Two perfectly straight strings were laid upon the ground between the rails, upon which the child's feet were placed, so that he might be taught, as far as possible, to walk straight from the beginning, and intended primarily to aid in overcoming the external rotation of the thigh, eversion, and abducted foot effect. The power of the biceps soon manifested itself, changing its action from flexion to a very slight extension of the leg. The foot held firmly in the right angled position.

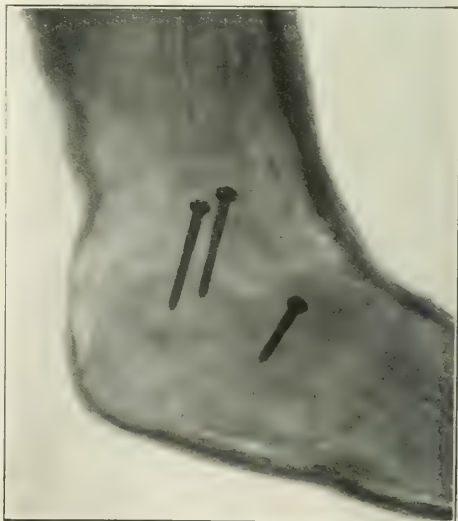


FIG. 3.—Showing fixation at ankle joint and scaphoid and cuboid bones. (Lateral view.) Radiographed by Dr. T. A. Groover.

Improvement at first was very slow, and at times very discouraging, but progress has continued steadily and without retrogression to date. The gain in strength to the leg, the increase in size of practically all the muscles, the marked growth of the child and the improvement of his mental and physical condition have been most gratifying. He could walk short distances, fifty or sixty feet, without any assistance whatever.<sup>2</sup> He could stand the weight of his body upon the affected leg without its buckling beneath him. He enjoyed his exercise in the open air and sunshine on his little foot path with rails, and was quite delighted with the idea that he had been taught to believe, viz., that he would soon be able to walk and play like other little boys. The external rotation of the thigh, with its eversion and abduction effect upon the leg and foot, still persisted, but I had as yet made no attempt to correct this, further than by the use of a little adhesive plaster running from the thigh above the knee on one side across to that of the other, which served very well indeed for a temporary correction of the deformity. It gave him the wider pedestal upon which to walk and stand. This was deliberate. In the earlier stages of the treatment I believe that "suits of armour bristling with screws and ratchets," where it is possible to do without them, are a decided disadvantage. They are an absolute hindrance to the freedom of growth and development and the early acquisition of strength to the affected limb, and of all considerations these are paramount. Once safely secured, resort to mechanical devices is in order. Up to the present time, the first plaster cast excepted, no splints whatever have been utilized.

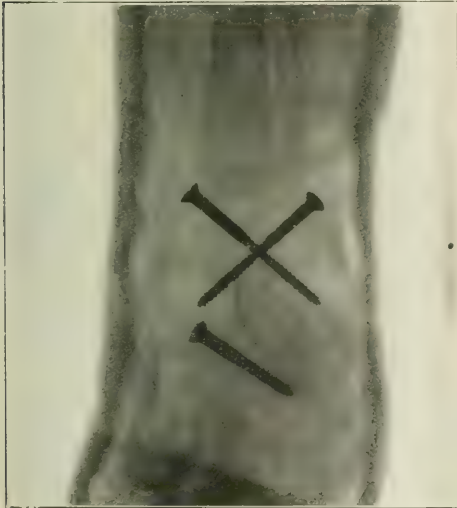


FIG. 4. Showing fixation at ankle joint and scaphoid and cuboid bones. (Anteroposterior view.) Radiographed by Dr. T. A. Groover.

#### TENDON TRANSPLANTATION.

It is undoubtedly true that a muscle that is stretched over a long period of time ceases to act, likewise that if the strain on an overstretched muscle is relieved its power of contraction is regained. The muscle whose function is lost because of overstretching is one thing; the muscle that is paralyzed because of the destruction of its motor cells is another. Functional restoration of an overextended muscle is more common by posture than by the action of a transplanted tendon. Reactions of degeneration are quite untrustworthy, especially



FIG. 5. Patient taking his exercise. Note strings parallel with bars.

in the earlier stages of paralysis. Hoffa and Lange, Koch and König, have all shown that muscles recover by posture after the reactions of degeneration have pronounced them hopeless. Koch's histological studies led to the conviction that even in useless muscles it is possible to regenerate muscle fibre, and he quotes instances of muscles microscopically showing complete degeneration which later recovered.

The double purpose of tendon transplantation is, of course, to correct deformity and to restore function. Properly done, total failure is rare. This justifies the operation. Its indications are as follows: To strengthen a weak muscle or group; to replace a paralyzed muscle or group. Essentials to success are: Adequate preliminary correction of the deformity; prevention of adhesions of the tendon; ample freeing of the tendon; prevention of angular deflection of the tendon; adequate tension of the reinforcing muscle; absence of overstrain upon the transplant; the sheath should be preserved intact and accompany the tendon, since its blood supply is from the sheath as well as from its bone insertion; accurate and smooth suture fixation of tendon; massage, passive and active motion of the tendon, free from body weight, should always precede the heavier strain of body weight; power when once manifest, should be continually increased, otherwise somebody is to blame, the surgeon or the patient. The vitality of a muscle may be judged by its appearance: If healthy it is dark and red; otherwise, it is pale pink, or fatty, in color. It may be necessary to remove skin flaps to secure

<sup>2</sup>Since this paper was written the patient's progress has been very satisfactory. He can now walk fifty yards without the slightest aid.



FIG. 6.—Patient standing, with weight of body on affected limbs.

an over correction; tunneling should be done in one plane; careful, patient, painstaking nursing of the tendon and education of the patient are most valuable; likewise, a bloodless field of operation through the tourniquet; and a faultless aseptic technique as a matter of course.

#### POSSIBILITIES OF CURE.

The operation to be successful must be followed by long and careful aftertreatment, anticipating the sequence of events. Any lack of faith on the part of the surgeon is only too soon transmitted to patient and friends and hope is early abandoned. Rest is a tremendous factor in restoring power to overstretched muscle power, and postural prophylaxis is of immense importance. In paralytic deformities the chief factors are: Gravity, body weight, inequality of muscular action. Recognition of this unbalanced muscular action is the keynote to treatment, both operative and mechanical. The great error has been to assume that certain groups of muscles irresponsible to stimulation are lifeless and that there is cell destruction in the motor area. To the contrary, actual cell destruction is nothing like so common as one might suppose, the condition often being transient and recoverable. Until this fact is accepted, the potentialities for recovery are not realized.

Splicing should be as smooth and neat as possible. Clumsy projections cause adhesions and prevent the easy motion of the tendon. Opponents of contracted muscles are always elongated. A reinforcing tendon should be fixed in the paralyzed tendon with the latter taut. A slackened tendon will not do its work. It is of great importance in the first attempt at walking to see that the body weight is correctly poised upon the tarsus. Exercises should be made as interesting as possible to the child. Motions opposed to the direction of the deformity should be given preference always. A movement that gives the greatest difficulty is the one deserving of the most frequent practice. All movements at first should be executed with care and deliberation. With deformities even partially corrected, the mental and physical condition of the patient improves wonderfully as a result of his mixing with other children. Recovery is always slow because of the successive steps necessary in each case—first, operative; second, mechanical; third, educational. The patient must be under the absolute control of the surgeon for at least twelve months, often for two years. If this is denied, the attempt had better not be made, for operation without careful and prolonged aftertreatment can only result in discredit to the surgeon and disappointment to all concerned. Pitfalls are many. Superincumbent body weight too early applied to a tendon transplant may be fatal to an otherwise slow but successful function. An extensive muscle group affection may not involve a correspondingly large paralysis of the nerve centre, for opposing muscles, the weight of bed clothes, or the force of gravity may continue a deformity without the presence of a paralysis. The overcorrected position must be maintained sufficiently long to permit the overstretched muscles to take up the slack—to shorten.

#### CONCLUSIONS.

The writer is of the opinion that many cases of infantile paralysis, regarded as hopeless, are ame-



FIG. 7.—Incision over patella. Note development of affected limb, and contrast with same in FIG. 2.

FIG. 8.—Incisions over internal malleolus and scaphoid. Compare development of affected limb with that shown in FIG. 2.

FIG. 9.—Showing incisions over biceps and external malleolus. Compare muscular development of affected limb with that shown in FIG. 2.



nable to the treatment herewith suggested. The double fixation method with tendon transplantation in paralysis of the lower extremity is, he believes, a valuable surgical asset. It is an effective substitute for arthrodesis, much less destructive of tissue, quicker in result, much surer and much simpler. Further, it does not permanently destroy the integrity of the joint or entail the extensive destruction of bone, or cartilage, or both, and does not have to wait for the dictum of the "tenth year" in order to be effective. Again, these screws can be removed when strength to stand and muscular function are firmly established, thus restoring at least in part the integrity of the ankle joint. At this late date of removal recurrence is quite improbable. We may style the scaphoid and cuboid bones the

directed nothing else is quite comparable to the patient himself exercising his own muscles. Self reliance has no substitute.

(THE FARRAGUT)

## REVIEW OF CONCLUSIONS DRAWN FROM THE FREUDIAN SCHOOL.

By MEYER SOLOMON, M. D.

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All thoughts, all passions, all delights,  
Whatever stirs this mortal frame,  
Are but the ministers of Love,  
And feed his sacred flame.

—Coleridge.

If "love," as employed by Coleridge, means "sexual love," then, it seems to me, Coleridge has expressed, poetically, the essence of Freudian contention and the tendencies and intimations of the Freudian school.

The tendency toward psychoanalytical work by the Freudian school cannot be too highly praised. The dynamic viewpoint and many of the mental mechanisms employed by the Freudian school have done much to give us a new feeling, living, thinking, human psychology. Freud and his disciples have given us an impulse and inspiration for psychoanalysis. But where the Freudian school makes its great mistake is in making each psychoanalysis a sexual analysis. Psychology and sexology are not synonymous. Psychoanalysis should not mean sexual analysis alone.

The writer is opposed to many of the sexual ideas of the Freudians, not because he believes the subject of sexuality to be unclean and unworthy of investigation, but because he is certain that the Freudians are seriously in error in many of their ideas. Their sexual theories may apply to some cases, or may have a contributory relation in many instances, but they are not deserving of all of the importance which the Freudians assign to them.

I will not endeavor here to enter into a critical review of Freudism. I wish merely to call attention to certain conclusions which must logically follow, if certain declarations of members of the Freudian school are true. To bring home my argument most forcibly I need but enumerate some of the extensions and generalizations to which one is inevitably led if he believes in these false ideas.

This brief enumeration will, I am certain, suffice to show how extravagant and rash many of the Freudians have been in their dogmatic assertions. It is because so many of their ideas are untrue, and hence most pernicious, that Freudism, as it stands to-day, must in the end fall into disrepute and slowly but surely crumble into dust and be no more. The stimulus which the Freudians have given all of us for psychological analysis will lead to a firmer, truer, more lasting, more stable, and more scientific psychology.

I shall confine my remarks to the question of sexuality. And let it be at once understood that I use



FIG. 10.—Showing patient out for a walk.

key to the arch of the foot, and their fixation at this critical period with that of the ankle joint itself adds material strength to both. It is very effective in the prevention of toe drop. That the screws may act as foreign bodies is an exaggerated fear. *Foreign bodies become active only in the presence of infection.* Lexer and Lane have shown this conclusively.

A double fixation is a double strengthening. It makes assurance doubly sure. The footbridge with handle bars and strings upon the ground running parallel is, I am persuaded, an effective device, the simplicity of which is its recommendation. The value of the open air and sunshine, in connection with the exercises as carried out with this device, is patent. The little patient early learns to become independent of another's assistance, which stimulates and encourages self confidence. Properly

the term sexual in the broadest possible sense; at least in as broad a sense as Freudians themselves, thus including possible incestuous, bisexual, and polymorphous perverse sexual tendencies, physical or psychic.

Let us begin with dreams. Freudians believe that dreams practically always have a sexual meaning. Even if they limited this generalization to the dreams of neurotics, it would have a universal applicability, since the difference between a normal and a neuropathic individual is one of degree only. Consequently, if the dreams of neurotics are fundamentally based on sexuality, then all the dreams that any of us have are dependent on sexuality. Now, the difference between the sleeping state, the waking state, and other states of consciousness is essentially quantitative. It therefore follows that the trend and content of the mental processes of every possible mental state is centered about sexuality. In other words, not a thought we have but what is ultimately dependent on sexuality for its origin. This, as will be appreciated later on, is practically what the Freudians really tell us in an indirect and circuitous fashion.

If, as Jones<sup>1</sup> positively asserts, morbid anxiety means unsatisfied love (and Jones uses "love" in a purely sexual sense), since the difference between common, ordinary, everyday anxiety and so called morbid anxiety is absolutely one of degree alone, then one must conclude that every possible state of anxiety or expectation, however slight in degree or brief in duration, springs in like manner from sexuality.

Again, let us consider what Jones<sup>2</sup> tells us about the underlying therapeutic action of suggestion. He states that in all methods of mental treatment, except in psychoanalysis, affective suggestion is the principal cause of the beneficial results. Under this he would include treatment by persuasion, reeducation, hypnotism, suggestion, simple encouragement, electrotherapy, gymnastics, massage, Weir Mitchell treatment, etc. So far, so good. But Jones goes further and says that the methods by which suggestion acts in therapeutics is as follows: "The repressed sexual affects are withdrawn from their previous expression in various symptoms, and become attached to a more suitable object, namely the person of the physician." This, to me, means but one thing. All dependence is sexual. I am prompted here to ask: Is all authority sexual? Do we value or worship nothing for other than its sexual significance? Does man sexualize the universe?

Let us go one step further. I think you will agree with me that hypnotic states, hypnoidal states, day dreaming, the mental condition of a patient who is giving free associations, etc., are all gradation steps differing in degree of consciousness. What is a fixed law for any one of them applies just as rigorously to all the rest. If, then, sexuality is the mainspring of hypnosis, it is the fountain head from which all these other mental states also spring.

Moreover, if sexuality is at the basis of hypnosis, it must be at the basis of all suggestion, and, likewise, of all negativism. To put it more plainly, if

Jones's contention be true, then all agreeable and disagreeable human relationships must find their *raison d'être* in sexuality.

Freudians tell us that neuroses are the negative of sexual perversions. In other words, if Freud's dictum be true, then all neuroses, as the Freudian school indeed asserts, are the outgrowth of sexuality. It must be generally acknowledged that the real difference between neurotics and the rest of us is one of degree—of degree in physicochemical stability of the nervous system, of degree in adaptability, of degree in resistance to shock, to stress, and to strain, of degree in self control, and in nervous equilibrium. Consequently, what is an absolute law for neuroses must be directly applicable to all other mental states. If neuroses are the negative of sexual perversions, then all other psychic states are the negative of sexual perversions.

If, as Freud and his school have agreed, hysteria is based primarily on sexuality alone, then every possible dissociated state (such as states of distraction, dementia præcox, etc.) is dependent on sexuality.

If the somatic symptoms of hysteria, said by Freudians to be due to "conversion," take their origin from sexuality, then all unconscious and automatic activities must depend on sexuality.

If the root of alcoholism is to be traced to sexuality (homosexuality), as Freudians declare, then all drug and drinking habits must be dependent on sexuality. And if all so called narcomanias are conditioned by sexuality, then, since the desire for strong drinks and drugs differs from normal drinking and eating in degree alone, all nourishment, all gastrointestinal activities and yearnings, whether in neurotic or normal individuals, must, in like manner, be fed from the stream of sexuality. If this be true of gastrointestinal conditions, must we not then agree that sexuality is the alpha and omega of all habits? And, further, since our habits are but the prolongation of our instincts, if all habits derive their origin from sexuality, then all of our instincts have so arisen. In other words, if Freudian conclusions be true, all of our instinctive energy is sexual. (See later on for comparison of vital energy with libido.)

An effort is being made to prove that all psychogenic epilepsies take their source of origin from sexuality. If this is believed, functional tremors, spasms, etc., come within the purview of the same generalization.

Is thumbsucking always a sexual manifestation? Is true bronchial asthma a sexual symptom? Is bedwetting, when not due to epilepsy, always of sexual significance? Certain Freudians practically tell us so, sometimes frankly, at other times by innuendo. Are not these conditions indications of an unstable nervous system or the result of excitation by strong stimuli along paths nervously connected? Is all bodily yearning, all bodily gratification, all feeling of satisfaction of sexual makeup?

Many Freudians tell us that paranoia (which term includes paranoic and paranoid states) is the offspring of homosexuality. Suppose this were true. What would it mean? It would mean that every idea of persecution, of crowding, of suspicion, of dislike, etc., whether ill or well founded,

<sup>1</sup>The Pathology of Morbid Anxiety, *Journal of Abnormal Psychology*, June, July, 1911.

<sup>2</sup>The Action of Suggestion in Psychotherapy, *Journal of Abnormal Psychology*, December, 1910-January, 1911.

must find its seed planted in the fertile field of sexuality. Moreover, if, as Freudians will have it, the exaggerated ego of paranoia finds its birthplace in so called sexual narcissism or self love, then all feelings of satisfaction, of self congratulation, of pride, etc., and their opposites are the outgrowth of sexuality. To present the dictum in a forcible way, we may say that Freudians must believe that all psychic attraction and repulsion, all mental processes, flow from the well of sexuality.

Suppose, for the sake of argument, that sexuality is always the substratum of hysteria. The logical conclusion follows that sexuality is the cornerstone of dementia præcox. And if dementia præcox must kneel at the footstool of sexuality, are we not next compelled to assert that all psychoses, and hence all mental states, have a sexual foundation?

Is all mental normality and aberration (abnormality) centred about sexuality? Cannot these conditions find their causation in the development or disturbance of any of our other instincts?

Is all sublimation sexual? Don't we ever sublimate from any of our other instincts?

Do Freudians mean to tell us, as indeed they intimate and openly say, to judge from their ideas concerning the method of action of suggestion, and the stress they lay upon the incestuous, bisexual, and polymorphous perverse sexual tendencies they see so glaringly present in infantile activities, in dreams, in the neuroses, etc.—do they mean to say that all gregarious, social, and familial tendencies, all human relations between members of the same or opposite sexes are fundamentally sexual?

Freud and his school limit the term neurasthenia to a condition which is the result of certain physical sexual causes, and they call this "true neurasthenia." Why is neurasthenia of sexual origin any truer neurasthenia than neurasthenia from other causes? Surely Freudians do not mean to tell us that the neurasthenic syndrome which is characterized by "an inordinate sense of mental and physical fatigue, 'brain fog,' and difficulty in concentration of attention and application to work, sense of pressure on the head, irritable spine, and various paresthesias, particularly of the joints and muscles," is always of sexual etiology. If this is their viewpoint, then they must believe that this group of symptoms, when occurring as a primary condition, cannot possibly be due to any other disturbance than that occurring in the sexual sphere, and when due to any other cause it must be called secondary or neurasthenoid.

If we would follow the Freudians, we must believe that the very flow of life and the energy which pervades the universe is sexual. That, in fact, is just what Jones<sup>3</sup> tells us when he states that "it will be seen that the importance he (Freud) attaches to the (sexual) instinct does not greatly differ from that of Schopenhauer's and Nietzsche's 'Wille zur Macht,' Bergson's 'élan vital,' Shaw's 'life force' and the 'vital impulse' of so many writers, all of which are equivalent to what Freud terms the 'libido.' He replaces these metaphysical and poetical phrases by a scientific and biological one—one that is also in harmony with the sound intention of the people manifested, among other ways, through

language, an example being the etymological unity of the words 'love' and 'life.'" Jung<sup>4</sup> employs the term "libido" as being synonymous with vital impulse but broadens the meaning to apply not only to the sexual impulse but to all manifestations of vital energy, such as nutrition.

Libido smacks of sexuality. And to most Freudians as well as to the rest of us, libido means sexual impulse. Moreover, the term libido is no more explanatory than any of the other terms employed. Without using the term libido Lowell tells us in beautiful and powerful language of that all pervading upward struggle for self expression. To him

"Every clod feels a stir of might,

And instinct within it that reaches and towers

And groping blindly above it for light

Climbs to a soul in grass and flowers."

I maintain that the word libido cannot be substituted for the term vital impulse, that the sex instinct is not the only instinct possessed by man, and what is biologically significant—and there is nothing in the universe which is not—is by no manner of means necessarily of sexual significance.

All life is not sexual. All love is not sexual. We may love things for their value in self preservation, for their appeal to any of our instincts.

Of course Freudians may contend that the search for happiness and self expression is significant of love of self, and, being a low grade of narcissism, is thus sexual. But we know that these tendencies of man and of all other forms of life, though frequently under conscious, intelligent direction, are, however, essentially unconscious and instinctive. Is this instinctive, biological tendency also sexual or libidinous? Freudians evidently think so. Their best efforts are being expended with the object of proving all unconscious activity to be of a sexual nature. Does not Jones definitely declare that the vital impulse and libido are one and the same thing?

There is one standpoint from which the universe could be viewed from a sexual basis. Briefly stated this viewpoint is as follows: From the biological standpoint every atom and every spark of energy in the universe may be of some significance—advantageously, disadvantageously, or indifferently—to every human being. Biologically considered everything may have some possible relation to our self preservation or self expression. All phenomena are useful, harmful, or indifferent, intimately or most remotely, to every one of us. And since man, though originally bisexual, is of one or the other sex, all possible phenomena throughout the universe, being of some significance to him biologically, even though as a rule he be unaware of it, are consequently of sexual importance. But why take man as the centre of the universe? In the broad scheme of nature man is of no more importance than are all the animals below him, than the air above him, the water and earth beneath him, the grass and trees about him, and the stars and planets beyond him. Looked at from the standpoint of such inanimate and sexless objects as water, air, stone, or what not, all phenomena and all things can be shown to have some possible relation to any of

<sup>3</sup>Paper on *Psychoanalysis*, Preface, p. 11, 1913, New York.

<sup>4</sup>Jung: *Wandlungen und Symbole der Libido*.



them. The former viewpoint, therefore, is indefensible and false. And yet, this, practically, seems to be the manner in which some Freudians contemplate the situation. Their explanation of the exaggerated ego in paranoia (as being based on sexuality) tells the tale.

Do love and life mean only sexual love and sexual life? Is all unconscious thinking sexual? Are all unconscious processes sexual in nature? Is all intrapsychic struggles sexual? Is sexuality the underlying impulse in physiological tropisms, in physicochemical reactions, in all attraction and repulsion, physical or psychic, in the organic or in-organic world?

The Freudians have assumed a purely psychological viewpoint. They have confined their psychology to sexology.

The biological viewpoint is the basic method of approach to a study of the mind of man. Biological relations cannot be explained from a purely psychological conception of the universe. And psychological relations can be explained not from the psychological aspect alone, nor even from the biological standpoint alone, but only on a psychological basis.

Man can be understood only if we agree that he is composed of a bundle of instinctive tendencies. Man does not breathe and eat and digest and sleep and dream and exercise his physical and psychical faculties because he is constantly demanding and seeking gratification of his complex sexual impulse, no matter how broadly this term be construed, but because he instinctively, innately, and frequently blindly, must strive and tend toward self expression all his lifelong life.

In conclusion I wish to state that these questions have not been propounded with a feeling of fixed antagonism and blind hostility, but with a sincere desire to know "the truth, the whole truth, and nothing but the truth."

If certain Freudian teachings regarding the rôle of sexuality are not according to facts as we know them to be, then they should be quickly and surely bombarded and shattered. And the sooner this is done, the better will it be for science and for psychotherapy.

1517 SOUTH KEDZIE AVENUE.

## BLOOD PTOSIS.

### *A Test of Vasomotor Efficiency.\**

By C. WARD CRAMPTON, M. D.,  
New York,

Director of Physical Training, Department of Education.

We have few if any accurate scientific tests of health. On this account school hygiene shares with other branches of medicine a difficulty in quickly and certainly testing the failure or success of its methods. We labor to improve the health of school children and to increase their prospects of life by physical training, athletics, instruction in hygiene, school lunches, open air classes, changes in ventilation and the like and invariably experience difficulty in clearly and honestly stating what gain

has been made by our work. It is true that such records of rates of increase and decrease of hemoglobin have their value, and certain strength and endurance tests have some merit, but they are all subject to error, and are incomplete or difficult to control.

During the course of an exhaustive study on blood pressure<sup>1</sup> I presented a preliminary report on a test which fulfils the latter requirements.<sup>2</sup>

It is a statement of the efficiency of the vasomotor system in responding to the necessity of raising the blood pressure upon rising from the recumbent to the standing position.

In the perfectly normal vigorous male the blood pressure will rise from eight to ten millimetres of mercury upon assuming the standing position. In one damaged by disease, overwork or unhygienic living or weakened by inactivity, the blood pressure will fail to rise and may fall as much as ten millimetres of mercury. The heart rate acts in exactly the opposite fashion, rising in proportion to weakness as much as forty-five beats a minute, but only in exceptional cases falling. These two adjustments are interdependent, one often masking the failure of the other, and both must be considered and balanced. If blood pressure were alone considered many cases showing a high heart rate would be given a good rating when it should be poor, and *vice versa*. This test has been put into regular routine practice by R. Tait Mackenzie, M. D., of the University of Pennsylvania; George H. Meylan, M. D., of Columbia University; Doctor Raycroft, of Princeton; Doctor Storey, of the College of the City of New York; Doctor Marks, of Pittsburgh; Doctor McCurdy, of Springfield, and others in examination of athletes for "permission to compete" and for other purposes. It is based upon the following facts:

If the blood were contained in flaccid tubes without support it would, upon standing, drop to the lowest possible point and remain there. There would be none to reach the heart and none would be pumped to the head. A complete blood ptosis would occur and death would result at once. This does not occur because there is some mechanical support and the blood vessels are not flaccid but held to a narrow lumen by circular muscles, in turn controlled by the sympathetic nervous system. The most capacious system of blood vessels in the body are the splanchnic veins; these can hold all the blood volume if released from the vasoconstrictor efforts of the nervous system.

In the perfectly normal there occurs upon rising from the recumbent position a vasoconstriction effort which squeezes these veins and raises blood pressure which more than overcomes the added hydrostatic load. In the subnormal this vasoconstriction effort is relatively weak and ineffective and does not raise the blood pressure in the upper body, but allows it to fall under hydrostatic pressure. There is a blood ptosis due to the relative failure of vasomotor tone. This may be mild, merely a failure to raise the pressure or a fall of the systolic pressure five or ten millimetres, in which case we

<sup>1</sup>Olympic Congress Lectures, Gold Medal Thesis, St. Louis Exposition, 1904. *Blood Pressure in Its Relations to Physical Training Procedure.*

<sup>2</sup>*Physical Education Review*, 1915-1906; *Medical News*, September 16, 1905.

\*Abstract of address at the Fourth International Congress on School Hygiene, Buffalo, August 25-30, 1913.

may still call our patient fairly normal. It may be a more complete failure, allowing the systolic pressure to drop to forty or fifty, at which point the patient faints from cerebral anemia. This is the familiar picture seen when a convalescent patient with vasotone damaged rises prematurely from a sick bed, and, robbing the splanchnic veins of mechanical support by emptying the bladder, falls to the floor.

The most severe grade of vasotone paralysis occurs as a terminal phenomenon in poisoning from disease in which case the patient literally bleeds into his abdominal veins and dies. Vasotone is then a function essential to life; a delicate measurement of its efficiency such as is indicated in the foregoing is worthy of consideration as an important indication of the condition and vitality of the whole body, which depends upon vasotone for its proper functioning.

It would then seem to be necessary merely to observe the amount of rise or fall of the systolic pressure at a convenient point in the upper body to determine the efficiency of the vasomotor system and its reverse, the amount of blood ptosis.

Another fact presents itself in the increase in heart rate which accompanies vasotone failure. Hill states that the heart, as it were, comes to the rescue of the falling pressure by beating faster in a successful endeavor to reestablish it, its rate increasing in proportion to the necessity. In this case we would discover weakened vasotone by either increased heart rate, or fall in blood pressure, or both, but only by taking both into consideration, we may arrive at a correct estimation of the weakness. Another explanation maintains that the increased heart rate does not raise the pressure but merely reveals it, for the heart furnished with a lessened charge of blood is able to send it into the arteries more quickly.

From my own observation it is clear that a single patient will show in successive readings a variation of blood pressure and heart rate which compensate each other, while the consideration of both will reveal no change in vasotone efficiency.

The balancing of these two is a matter of some importance. The usual range of the systolic pressure is from +10 to -10 of the heart rate increase from 0 to 44, as observed from records of a large number of cases. Upon a statistical balancing of these two series of frequencies, and assigning equal percentages to equal ranges, the following scale is constructed.

#### PERCENTAGE SCALE.

##### Vasomotor Tone.

BLOOD PRESSURE.											
Heart rate increase.	Increase						Decrease				
	+10	+8	+6	+4	+2	0	-2	-4	-6	-8	-10
0 to 4.....	100	95	90	85	80	75	70	65	60	55	50
5 to 8.....	95	90	85	80	75	70	65	60	55	50	45
9 to 12.....	90	85	80	75	70	65	60	55	50	45	40
13 to 16.....	85	80	75	70	65	60	55	50	45	40	35
17 to 20.....	80	75	70	65	60	55	50	45	40	35	30
21 to 24.....	75	70	65	60	55	50	45	40	35	30	25
25 to 28.....	70	65	60	55	50	45	40	35	30	25	20
29 to 32.....	65	60	55	50	45	40	35	30	25	20	15
33 to 36.....	60	55	50	45	40	35	30	25	20	15	10
37 to 40.....	55	50	45	40	35	30	25	20	15	10	5
41 to 44.....	50	45	40	35	30	25	20	15	10	5	0

NOTE.—In case of increase in pressure higher than +10 add 5 per cent. to the +10 column for each 2 millimeters in excess of 10.

This scale provides a convenient and intelligible method of recording and reporting cases and permits a numerical statement of the function in question. Its 100 mark indicates a perfectly efficient working of the vasomotor system under test, the zero is approximately the point where the average person is unable to maintain the erect posture.

The technic of the test is as follows:

The sphygmomanometer is adjusted over the brachial artery and the patient is placed on a comfortable couch with a low pillow. The heart state is counted by quarter minutes and a gradually decreasing rate is usually observed. Counting should continue until two successive quarter minutes are the same, this is multiplied by four and recorded. The systolic pressure is then taken preferably by auscultation. The patient stands, the heart rate is counted as before until it reaches the "standing normal," when it is recorded, and the blood pressure is then taken. The differences are calculated and reference is made to the scale.

For example—Case XX: L. V., age seventeen years, asserts to be in good condition at 11:20 a. m.

	Pulse rate.	Blood pressure.
Horizontal .....	68	100
Vertical .....	104	94
Difference .....	+36	-6
Percentage record 20		

This is a very poor record taken from an apparently normal strong young football player of exceptional ability who had previously given records above 80.

I was at a loss to account for this, for questioning failed to bring out any history of loss of sleep, dissipation, or illness. He looked quite as "fit" as usual. He was absent next day, and remained home for a week with a "cold and fever." It is evident that the test revealed a weakened vasotone, the beginning of actual illness before any other symptom could be noted. Others who have used this test have noted similar cases.

This test has been used to follow athletes through a course of training and as the basis for choice for the entry of one of several athletes of equal ability in an important race where only one might compete. It has been used to guide the daily exercise of athletes to guard against overwork and approaching staleness. It has been found useful in guiding treatment of the neurasthenic and overworked.

It has been used in school hygiene to determine the amount of physical cost of school procedures of various kinds. The following is a typical record.

Time.	Increase pulse rate.	Increase blood pressure.	Percentage.	Remarks.
9:45 a. m. . . . .	0	+10	100	Slept well, no exercise.
10:45 a. m. . . . .	0	+4	85	After lesson in physics standing.
11:50 a. m. . . . .	+8	+10	95	After lesson in algebra.
12:24 a. m. . . . .	+5	+6	85	After lesson in French.
1:10 p. m. . . . .	+6	+8	90	After lunch and rest.
2:00 p. m. . . . .	+14	+8	80	After history lesson.
2:35 p. m. . . . .	+16	+4	70	After slow one mile run.

This shows that one period of work in the physics laboratory (which required continued standing) was more expensive than a slow mile run. It also showed that this was partially regained in the next period, lost again during the

French period, and partially regained by rest at the lunch period. This record also shows the importance of considering both heart rate and blood pressure.

This test opens a wide field of investigation hitherto unworked. The effect of various modes of ventilation, of feeding, exercise, and other hygienic procedure may be tested and recorded in terms which may be statistically stated and easily compared with a control series of records.

It has been used to test the amount of relaxation of vasotone resulting from various forms of physical exercise, and shows clearly that exercise is expensive of nervous energy and should be followed by rest and recuperation.

This test will not reveal more than it assumes to test, i. e., the efficiency of the vasomotor system. It will not show the presence of a mitral lesion any more than it will a decayed tooth. Nor will it test other factors of efficiency such as will power, inhibition, or skill; it does provide a means of making a definite record of an all important bodily function. Those who work to mould schoolroom and other living conditions for the purpose of improving health and efficiency may be able by this means to measure the benefit resulting from their labors.

431 RIVERSIDE DRIVE.

## THE REFLEX OR PROTECTIVE PHENOMENA OF ANGINA PECTORIS.

By W. J. PULLEY, M. D.,  
New York.

It is not my purpose to-night to discuss angina pectoris in detail, but to confine my remarks to a discussion of what James Mackenzie calls the reflex or protective phenomena of it. I have chosen this part of the clinical picture of angina pectoris to talk about because it seems to me to be more or less definite and explainable, while the causative pathology, symptomatology, etc., are more or less indefinite and variable, and furthermore, there are two additional points about it which I consider important and which I have not seen sufficiently emphasized in the literature of the subject. For fear of becoming too didactic I will state simply that the heart, according to Engelmann and his followers, has five functions more or less well defined, viz.:

1. Stimulus production or rhythmicity. The heart takes a certain length of time to produce enough stimulus to cause a normal contraction, and the length is the same between all of the beats.

2. Excitability, or the power of being able to receive stimulus.

3. Conductivity, or the power of conveying stimulus from fibre to fibre.

4. Contractility, or the power of contracting when stimulated.

5. Tonicity, or the power to retain a certain amount of contractility between the active movements.

There are some who deny that these heart functions can be isolated and definitely demonstrated, and the principle reasons they point out as against it is that, taking the assumption as a basis, many of the cardiac irregularities cannot be explained.

However, since Mackenzie has perfected the polygraph and Eithoven the electrocardiograph, a derangement of any of the known functions of the heart can be demonstrated. Exactness of results acquired from the use of these instruments was made possible by animal experimentation.

James Mackenzie says: "I have a great many tracings from patients who have suffered from angina pectoris—during the attacks and when free from pain—and an analysis of these tracings enables me to say with confidence that angina pectoris can occur when the excitability, the conductivity, and the power to produce rhythmical stimuli are unimpaired. There only remains now the function of tonicity and contractility. The evidence of failure of the function of tonicity is mainly shown in dilatation of the heart, and typical attacks of angina pectoris frequently occur in hearts perfectly normal in size. Therefore angina pectoris may occur without any evidence of the impairment of the function of tonicity. Seeing that angina pectoris can occur in patients when four out of five functions of the heart muscle are demonstrably intact, we are led to inquire whether angina pectoris may not be due to an impairment of the remaining function, that is contractility."

Carrying out this line of reasoning, he states that it is his opinion that angina pectoris is an evidence of an exhaustion of the function of contractility. To my mind this looks to a great extent reasonable, at least it gives us a very attractive way of explaining some of the symptoms of angina pectoris satisfactorily, especially the reflex ones, only two of which we will deal with in this paper. Pain and reflex muscular contraction are the symptoms here referred to, both of which are reflexly produced and protective in their action. That these reflex phenomena are due solely to an impairment of the contractile function of the heart does not, I believe, explain the entire situation, for there must of necessity be present with it a great distress of the function of tonicity, if not a beginning impairment. Mackenzie uses the words exhausted and impaired here, evidently leading one to infer that the power of the heart muscle to contract is partly, at least, lost. I think the real condition of affairs would be more correctly stated by saying that the heart muscle is embarrassed and fatigued by contracting against an abnormal obstruction modified by certain conditions, for the heart muscle must be to a great degree intact in order to send out the stimuli so constantly and strongly as to produce irritation in the reflex nerve centres.

In a heart muscle in which the function of tonicity is impaired these symptoms of angina pectoris do not usually occur, even if the function of contractility is embarrassed. In order then to have these reflex phenomena occur, clearly, there must be an overstimulation of the function of tonicity as well as of the function of contractility. As a proof of this I will cite you a case taken from my files, in which repeated attacks of angina pectoris occurred, until the function of tonicity became impaired, after which they became greatly modified and finally ceased altogether. The impairment of the function of tonicity was easily recognized by the development of a systolic murmur at the apex, evidently a relative mitral insufficiency and a slight



displacement of the cardiac apex downward and to the left. From that time on, which is six years now, the patient has been practically free from the intense pains in his chest. In the beginning of this patient's trouble, walking one block, if it was up hill, or the slightest indiscretion in eating, would bring on an attack. Proper dieting, with physical and mental rest and high colonic irrigations, produced the good results obtained in this case.

The mechanism by which pain and muscular contraction in angina pectoris are produced is described in the first instance as a viscerosensory reflex, and in the second as a visceromotor reflex mechanism. Sherrington, Langly, Gaskell, and Mackenzie have worked this out very elaborately.

The heart, like all of the internal viscera, is insensitive to ordinary stimuli. Physiologists and others (Howell, Gaskell, Mackenzie) teach us that the internal viscera are not supplied by the ordinary somatic nerves of sensation and motion, but get their nerve supply from the autonomic or sympathetic nerve system, and that these viscera can be handled, pinched, and bruised without giving any pain, but on the other hand force any of them, especially the hollow muscular ones, to be overworked or contracted against an obstruction, and we immediately have symptoms of pain, referred not always over the site of the viscus involved, but in a great number of instances to some other part of the body. These are the so called referred pains described by Head, Mackenzie, and others.

Embryologically, all of the hollow muscular viscera, as the heart, bloodvessels, digestive tubes, uterus, ureters, etc., have a common origin, but specialization causes them to take different functions later on. Examples of the referred pains here spoken of may be noted where calculi obstruct the ureter and some of the pain at least is referred to the testicle, also pains in the right shoulder in gallstones, pain in the epigastric region in appendicitis, due really to pyloric spasm. In case of the heart, experimental physiologists have proved that its muscle walls are supplied or enervated by the vagus, which gives to it its inhibitory fibres, and by the sympathetic, which supplies it with accelerator fibres passing to the heart, and depressor fibres passing from the heart. However, the matter is not concluded here, as Mackenzie states, for the personal sensation of the animal cannot be communicated to the experimenter. There is unquestionable evidence in dealing with symptoms of heart affections that there is, in addition, a system of nerves not yet definitely described, passing from the heart to the lower cervical and upper dorsal segments of the cord and to the bulb, and that these afferent nerve fibres carry stimuli from the heart to the nerve centres and there, by a summation of stimuli, or by a very violent and sudden stimulation act as irritants, which in turn affects the nearby origins of the sensory and motor nerves, with the resulting symptoms of pain and muscular contraction, referred to the part of the body to which these last named nerves are distributed.

When the heart muscle, for instance, contracts for any length of time against an obstruction of long standing, or against a sudden violent obstruction, as in severe physical exertion, there must of necessity be an increased amount of stimulation

produced to cause such contractions, and this is passed out from the heart over the efferent nerves so constantly and with such force to the centres in the cord and bulb that exaggerated irritation is produced. This irritation affects the nearby nerve origins and then ensues pain in the chest, of a squeezing viselike character, due to contraction of the intercostal muscles, and pain in the neck, radiating along the inner side of the left arm, due to nerve irritation.

The pain in the chest varies from an oppressed feeling to a viselike excruciating pain, which latter causes the patient to sit rigid and breathe superficially, and to be possessed of fear that death is imminent. This is the classical type, but there is another more or less common type, referred to often as pseudo angina pectoris, in which the pain is of a more aching character, the patient's face is flushed, and there is a constant changing of position to be rid of the pain. To call this pseudo angina pectoris is incorrect, for it is just as true an angina pectoris as that of the classical picture, the difference being the arterial change is less far advanced in one case than in the other. Not every patient, but a large majority, suffering from angina pectoris, have vascular supertension, and it is this continuous obstruction to the heart contractions which ultimately embarrasses the contractile function of the heart. The pains are protective, in that they cause the patient to cease most muscular efforts, which tends to rest the heart by taking just that much extra work off it and gives it a chance to regain some of its lost reserve. The fear produced in the patient by these attacks also has a protective tendency, in that it causes the patient temporarily to cease worries of all kinds and excesses of all kinds, thereby tending to lower vascular supertension and rest the heart. The flushed face, in the other class of cases, is due to reflex stimulation of the vasodilators of the superficial capillaries, which also tends to reduce vascular supertension. The contraction of the intercostal muscles is protective, in that it tends to prevent deep breathing, and tends to act as a splint to protect the already stretched and weakened walls of the aorta. Deep inspirations tend to increase the arterial tension (De Jaeger, Howell). Another instance of the protective action of muscular contraction in angina pectoris occurs where the patient suffers from so called cardiac asthma. This is really a resistance on the part of the circular muscular fibres of the bronchial tubes to a deep inspiration and consequently an increase of arterial tension. The vagus supplies the circular muscular fibres of the bronchial tubes, and this reflex contraction probably comes through it, because its origin is near the respiratory centre in the medulla. The musical râles heard in cardiac asthma are alike in quality to those heard in spasmodic asthma, but occur with inspiration and not, as a rule, with expiration.

Another point, and an important one, is the care with which morphine especially, and the vascular antispasmodics, should be used to control the acute pain during an attack of angina pectoris. In certain cases an injection of morphine is the only thing that will give relief from this agonizing pain, but the physician should recognize the fact that there is a certain amount of danger attached to the ad-

ministration of it in a certain proportion of these cases. Sir R. Douglass Powell says that it is contraindicated in angina pectoris if the kidneys are markedly involved, but this has not been my experience. If it is known, or suspected, that the patient has been suffering for any length of time from supertension, it is not unreasonable to assume that a certain amount of change has taken place in the walls of the bloodvessels, and especially the aorta, and that it has been weakened in spots. The effect of the morphine here would be to suddenly dull the sensibility of the nerve centres, thus eliminate the reflex protective phenomena, and produce sudden death by rupture of a weakened spot in the aorta. Personally, I have had two just such very unpleasant experiences through the use of morphine. Both of these patients died soon after the morphine was given, and both with all the symptoms of air hunger and internal bleeding. One of these patients, a physician, I had been able to observe for a number of years, and knew that his arterial tension had been over 220 mm. Hg. for at least two years. The other was a woman of fifty-five years of age to whom I was called for the first time to relieve an attack. From inquiry I felt sure that she, too, had been suffering from supertension for some time.

945 MADISON AVENUE.

## SUPPLEMENTARY OR ACCESSORY PLACENTA.

### *Report of a Case.*

By ALEXANDER STERLING, M. D.,  
Philadelphia,

Physician to Outpatient Department of the Jewish Maternity Hospital; Assistant in Children's Department, and in Ear, Nose, and Throat Department at Mount Sinai Hospital.

**History.** Mrs. C. C., aged twenty-nine years. Married eight years; two children. Past history negative. Third pregnancy. Felt worse during this pregnancy than in the previous two. She could not walk. Had much pain. Motions of fetus in utero were very weak, two or three days passed, sometimes, without a movement, otherwise normal. August 15th, 11 a. m., she was in active labor, normal presentation (left occipitoposterior). August 6th, 3 a. m., she gave birth to a baby girl; delivery normal except that I had to rupture the membranes after the delivery of the head. A half hour later the placenta was delivered; on examination the cord and membranes were found normal. The uterus contracted firmly, but was rather large, but nothing to excite suspicion. Daily visits were made. The uterus was firmly contracted. The lochia were normal, but very little after second day. Some after pains. On the seventh day she was out of bed. On the eleventh day she felt some pain, as she had expressed it "something wanted to come out." She was getting worse; had sharp pains the whole night. The next morning she took a hot douche and while over the basin she passed a large mass—the size of a three month miscarriage—as one of the old ladies described it. I found the patient sitting on the bed very much frightened. There was no hemorrhage; the temperature and pulse were normal. The mass was lying in a basin. It had no odor, was like a big bag completely closed up floating on the water, being a dull grayish white in appearance, and soft and mushy to the touch. With a toothpick I tore open the bag. It was empty, but at one side there were bloodclots which appeared to be organized but which were not, and some bloodvessels branching in all directions. There was nothing inside the bag which resembled an embryo in an undeveloped stage. After assuring the patient that she was not in any danger I summoned Doctor Longacker, who after carefully ex-

amining the specimen said that it was a supplementary placenta, which is rather rare.

This case is an instructive one, in that it illustrates the *hands off* policy in cases of retained pieces of placenta. Placental tissue can with impunity be carried, and then be naturally expelled by the uterus, provided no infection has been implanted by too frequent digital examinations. One of my medical friends told me of an old practitioner who puts his hands into the uterus after the delivery of the placenta in every case, and who claims that he never had an infection. I do not think such a measure as a routine practice is justified. It is safer to observe a conservative course, keeping hands off, unless in emergency—hemorrhage cases.

In conclusion I may say that whatever the opinion of the specialist or the general practitioner may be, this case has demonstrated to me the possibilities of (1) retention—without fever—provided there is no infection; and (2) the ability of the uterus to expel spontaneously retained pieces of placenta.

1531 NORTH SIXTH STREET.

## Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXXIX.—How do you treat chancroids? (Answers closed October 15th.)

CXL.—How do you treat the symptoms of senility, without organic disease, but showing approaching dissolution? (Answers due not later than November 15th.)

CXLI.—How do you treat frostbite? (Answers due not later than December 15th.)

CXLII.—How do you treat chronic constipation? (Answers due not later than January 15, 1914.)

CXLIII.—How do you treat gallstone colic? (Answers due not later than February 16, 1914.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXXVIII was awarded to Dr. Arthur S. Risser, of Blackwell, Oklahoma, whose article appeared on page 871.

## PRIZE QUESTION NO. CXXXVIII.

### THE TREATMENT OF INSOMNIA.

(Continued from page 874.)

Dr. Morris Ginsburg, of Philadelphia, Pa., says:

For therapeutic purposes, the subject of insomnia may be considered under several heads:

1. That due to organic disease, with pain as the predominant causal factor.
2. Infectious processes and intoxications either exogenous or endogenous, acute or chronic.

3. Functional conditions resulting, perhaps in part, from general constitutional disorders.

In the first class of cases, insomnia results from some real, demonstrable cause—a malignant condition, cardiac disease, a fracture—this in turn giving rise to pain, cardiac distress, or dyspnea. If the condition is acute, if the pain or distress is intense, if the disease is hopeless, and if various other manipulations (as in the case of fracture) are without avail, it is vain to temporize. Morphine is the drug to be used, as such, or in the form of one of the various opium preparations. Morphine is the most powerful analgesic, and in heart cases it is specially applicable, because of its undoubted cardiac stimulating property. Respiratory stimulants, however, such as strychnine, atropine, caffeine, may also serve the same purpose. On the other hand, if the pain is not so severe, if the disease is to be long drawn out, and death is not the inevitable end, morphine is the last drug to be employed. We must first exhaust all the other means of treatment.

Under the second subdivision I place the acute infectious disease, the diathetic or constitutional disorders—diabetes, rheumatism, gout, etc., gastrointestinal, biliary and other endogenous intoxications, as well as those due to drugs—alcohol, tobacco—and occupational surroundings.

Insomnia, under such conditions, comes from the introduction into the system or from failure of elimination from the system of poisonous material. Indications therefore are clear. Increase elimination through all possible channels. The gastrointestinal tract must be made active by persistent catharsis, the urinary system should be aided particularly by the most potent and least harmful of diuretics—water—and in sufficient quantities, either by mouth or by rectal instillation. Elimination by the skin should be furthered by frequent bathing or, as in some instances of the acute infections or in uremic conditions, by hot packs. In the more chronic diathetic diseases, regulated exercise, massage, proper diet, and other measures to be elaborated upon, should be used.

I have left the use of drugs for the last, because their action is temporary, and in long continued cases lead to habit formation and to cumulative symptoms. For temporary use, however, coupled with judicious handling of the case by other modes of treatment, drugs should be considered. Begin with the mildest, such as the bromides, either given in regular small doses throughout the day or in larger doses of from twenty to thirty grains at night. Sulphonal and trional, from five to twenty grains, or veronal, from two to ten grains, are also very useful in this class of cases. They have a tendency toward a cumulative effect if used continuously for several weeks, with consequent disturbing and, at times, dangerous symptoms. Their administration, therefore, and for that matter the use of all forms of hypnotics, should be intermittent.

In the acute infections, insomnia may be quite marked and may even lead to delirium. Warm baths may be given and drugs more powerful in their action than those above mentioned, may be necessary. Hyoscine very often serves admirably

—particularly in the small doses of from 1/500 to 1/200 grain, repeated several times. Bromides and even chloral, the latter in doses of from five to ten grains, and guardedly administered, become essential in some cases, as in insomnia and delirium from alcohol, while in others, nothing but morphine, with or without hyoscine, will produce a maximum effect. I do not wish to encourage an undue use of opium, but in cases of pneumonia with labored breathing and with pleuritic pain, it is the drug first in my mind, the more so since I am convinced that the heart is strengthened either directly or through the relief of the distress. Insomnia from gouty or rheumatic conditions will yield to the salicylates, to aspirin, or aspirin and codeine.

We now come to the third class of cases, the one which includes the greatest number of sufferers. Insomnia from neurasthenia or hysteria, from bodily fatigue, from improper living, improper food, bad hygiene, lack of exercise, from nervous exhaustion due to mental strain and business worries, household cares coupled with an unstable personality or mentality.

From this enumeration of causes spring indications for treatment. One very important factor must be borne in mind, namely, that if the physician does not relieve the patient quickly, he will be relieved of the patient who will drift to someone else. Long and patient study of the case, of the habits and surroundings of the individual, is frequently necessary before proper therapeutics can be applied. First, therefore, get the patient's confidence by prescribing veronal, sulphonal, trional, bromides, or paraldehyde, in suitable doses to produce sleep. Then examine the patient methodically. Are there any gross organic faults? Is there any generalized intoxication from one or another source? Is there evidence of any constitutional affection, or is the patient merely anemic, complaining of headache, fatigue, lack of energy, and poor appetite? Examine the urine. Are there any kidney lesions, or is there only a deposition of urates, phosphates, uric acid, or calcium oxalate crystals? Ascertain the reaction of the urine, and if it is abnormal, attempt to correct it by the alkalies—if too acid—by boric acid, hexamethylenamine, etc., if alkaline. Examine the blood for signs of chlorosis, perhaps pernicious anemia, basophilic degeneration, and for malaria.

Then enter into the details of the patient's daily mode of life, the time for work, for food, and for recreation, the amount of time spent outdoors, the hygiene at the home and at the place of employment, the character of the food and drink. There is nothing so efficacious as a definitely prescribed form of spending one's day. Have him awake early in the morning, take a cool or lukewarm bath, go out for a little walk, eat a wholesome and not too heavy breakfast, go to work or to the office, take a rest after the midday meal, go back to the work, avoiding if possible any too great mental strain. A little exercise during the afternoon is useful if obtainable. After the evening meal again take a rest, then indulge in some form of exercise out of doors, take a warm bath, a little massage, drink a cup of warm milk, and go to bed early. In



the case of a woman fatigued by household work and worries, a partial rest cure, together with mild forms of exercise will be useful. Avoid all liquors, tea, and coffee, particularly before going to bed. Make the last meal of the day rather light. Do not allow the mind to work upon complex problems. In other words, live a "simple" and hygienic life.

The various drugs used should be interchanged from time to time, and occasionally, after the patient's confidence has been obtained, I have been in the habit of prescribing one tenth grain of calomel with results as marked as from the administration of one quarter grain of morphine. This is true chiefly in functional cases, but at times even real pain may be allayed by some such placebo. Morphine should never be given. It is nauseating, constipating, habit forming, and demoralizing to this class of insomnias. In the meanwhile, if necessary, use general eliminative treatment, correct what ever defect may be ascertained by careful physical examination, and the great majority of the host of insomnia complainers will be cured.

*Dr. Leonard Keene Hirshberg, of Baltimore, Md., says:*

It has been said of books but it may also be said of sleep theories that of the making of them there is no end! Howell, Sidas, Ribot, Coriat—but why name them here when there are so many who propose theories of sleep? Multitudinous though they be, they fail to explain or to cure insomnia. I have one patient, Mr. G. L., aged fifty-six, who has been a victim of sleeplessness for thirty years. He has read every theory, every book, every article, visited every land, and consulted thousands of doctors—yea, even better ones than I am!—yet he is not cured.

Insomnia is more easily treated than cured. Not that it goes always uncured, but because relief often is the better part of valor. Far be it from me to throw cold water on any insomnia cure! That is not my purpose. It is a question usually of discovering rather the underlying cause, the motive, or the malady that causes the disorder and then of removing that, in lieu of curing merely the symptom of sleeplessness.

If insomnia is due to arteriosclerosis—and this be it remembered is an independent disease from the often associated symptom of high blood pressure which is frequently absent—measures directed toward reducing the hardness and rigidity of the vascular deposits as well as softening the arterial tubes, may help to bring sleep. It required as high as seventy-five grains of potassium iodide to put one such sufferer to sleep at night.

If the insomnia is due to certain kinds of neurotic, hysterical, or sexual traumata, a patient course of treatment which includes psychoanalysis and Freudian dream interpretation may prove effective. Three such patients have in the last two years been relieved of sleeplessness.

Another common type of insomnia is the public official whom the newspapers are hunting. He and the business man whose industry is in trouble become afflicted with an insomnia that, like many others, must first be polished down with veronal,

paraldehyde, medinal, sulphonal, trional, chloral-amide, or one of the other hypnotics. All sleep inducing drugs should be eschewed if possible. Since most of these, especially veronal, lower the blood pressure, and the mental tension which has sent the arrow near 200 mm. Hg. is in part responsible for the insomnia, the reduction pressure soon brings sleep. Morphine should never be used nor any habit forming drug except, perhaps, in the insomnia that is associated with valvular heart diseases. Curiously enough, insomnia with low blood pressure is often benefited by strychnine and lime salts. There is no doubt about this. Regularity of habits, change of scene, seashore, mountain, and hydrotherapy all help.

Perhaps after all is said and done the easiest ways are the best. The victim must be made to understand that insomnia is a bad habit to be broken. Beds, pillows, furniture, and rooms must be changed about. Low pillows must be made high. Light bed covers must be made heavy. Food at night must be stopped, or begun in some instances, hot drinks, hot baths, massage, light rubs, gymnastics, galvanism, and exercises must be started. Insomnia is often broken up by the effervescent bromides at night. I have helped at least one patient by an enema of hot saline. Purgatives and dancing, gymnastics and rest, card playing and silly vaudeville, each play a part in the treatment of insomnia according to the tissue caprices of the individual patient. As in all other aberrant conditions of health, each patient is more or less a law unto himself. The "wee bit of a night cap" that puts my father to sleep may mean a wretched night to another. The wet sheet and cold pack that soothes one patient may spell chloral to another. Strophanthin has played the part of Morpheus to several heart sufferers with auricular fibrillation.

*Dr. W. T. Parrott, of Kinston, N. C., says:*

The first thing to do is to determine the actual existence of insomnia. Patients often apply to the physician complaining of insomnia when it does not really exist and no treatment should be attempted until this is proved, in doubtful cases it may be necessary to have the patient watched in order to make sure of the actual existence of the condition. In no case should the patient be aware that he, or she, is under observation. Now it is a physiological fact that the loss of sleep for three weeks means death, although it is not unusual for a patient to tell the medical attendant that they have not slept a wink for six weeks or more. The selection of the person to make the observation is important because not only the quantity but the quality of the sleep should be noted. Every possible cause tending to prevent sleep should be noted. In the day time the habits of the patient should be watched. His occupation, aims, ambitions, food, drink, exercise, tobacco or other drug diversions, association and the manner in which he spends his evenings. His worries and secret passions may be the *fons et origo*. Fear of impending trouble or even fear of death often keeps some patients awake. A removal of any of these causes is a cure for the insomnia. The physician should carefully examine every organ for a possible cause

and he should not forget that insomnia is an early symptom of many diseases, and a correction of this is the treatment. I believe that simple insomnia *per se* is a very rare condition except in so far as it is that of a habit. Most often it is a symptom-complex and dependent upon an underlying cause which must be treated. A successful treatment therefore, is a treatment of the underlying condition. In the nervous system we very often find a cause and sometimes a treatment.

In neurasthenics we find two grand subdivisions as to cause, first, those of a true nerve exhaustion; second, the neurasthenic proper. Those due to true nerve exhaustion require rest, and a change of climate is often beneficial. Care should be exercised in sending a patient away. I much prefer to send a country man to the city and a city man to the country. In other words my best results have been obtained from a real change of scene. A neurasthenic proper should never be sent away. He never should be advised to rest. My best results have been obtained by putting him at hard work, with little or no time to think of himself. In so far as it is possible I advise rapid diversion and much play for him, and I am not careful as to the kind.

Hydrotherapy. To meet an immediate indication of sleep, hydrotherapy is the best measure with which I am acquainted. While for a majority of patients a hot bath is indicated, still there is a group which do better with a cold bath. Technic is important and there is not sufficient time to discuss it.

Cola. For that class of patients who are very weak and unable to take sufficient exercises to produce sleep, I have found the use of cola of much value, the patient going to sleep immediately after a sufficient amount of exercise was gone through with.

Electricity. I have applied all forms of electricity and am decidedly more impressed with galvanism properly used.

Placebo. For that class of neurasthenics who are very susceptible a placebo at night is often sufficient. Massage is one of the very best non drug agents, but like the hot bath, it sometimes produces sleeplessness.

Hypnotism. In some cases it acts admirably and I have never seen any harm produced from it.

Drug treatment. As to drugs in insomnia I have never applied them except as a *dernier ressort*, and then only with a great deal of care. I should much prefer to have my patient an insomniomaniac than a drug fiend. Still in selected cases and with proper drug selections they are sometimes valuable accessories. In insomnia, due to great mental shock or mental perturbation, a full dose of sulphonal or chloral, or one hundredth of a grain of hyoscine have in turn given me good results.

If sulphonal is selected I prefer to give it with an equal part of trional as the immediate effects of the latter are obtained and these are later reinforced by the more persistent and lasting effects of the sulphonal. In that form of insomnia, in which sleep is qualitative instead of quantitative, drugs should never be applied. Chloralamide has some advantage in insomnia due to pain. Paraldehyde

is a reliable and safe hypnotic, but its disagreeable odor prohibits its use for most patients. Chloroflose is risky and should never be administered. Urethane has nothing to commend it, but it may be used as a change. Veronal in my hands has proved safe and dependable and in every instance devoid of bad aftereffects. Ten grains is the average adult dose and will give the patient two nights' sleep. I do not favor a smaller dose. In a general way I prefer veronal to any other hypnotic and use it in a routine way provided, of course, there is no contraindication for drug administration.

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### Therapeutic Notes.

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Ether in the Treatment of Infections.—Souligoux, in *Tribune médicale* for April, 1913, states that since witnessing recovery without amputation in the case of a man with both legs mangled by a heavy dray, ether having been freely used to cleanse the wounds, he has been employing this agent in the treatment of all wounds and superficial infections such as lymphangitis, erysipelas, etc., with excellent results. In lymphangitis of the upper extremity, for example, the limb is first washed with soap and water, as though for operative work, the skin then dried, and the involved region covered with compresses, upon which ether is copiously poured. Impervious material is finally applied, with bandages holding it, most tightly at the two ends of the dressing, and the whole covered with thick cotton wadding, further to lessen evaporation of the ether. In hundreds of cases thus treated only favorable results were observed, and many cases of serious infection recovered.

In peritoneal infections Souligoux was led to employ ether by his experience in a case of intestinal obstruction of eight days' standing in which, at operation, perforation was found and the peritoneal cavity filled with fecal material and gas. After suture of the perforation, the peritoneal cavity, including the pelvis, was freely irrigated with ether, careful sponging practised, two drains inserted, and an artificial anus instituted. The patient promptly recovered, and since that time the author has used ether in all abdominal operations with suppurations, with obvious success. Marcille, working under the author's direction, has used ether in six cases of ruptured ectopic gestation, seventeen cases of strangulated hernia, three of abdominal wounds with intestinal perforation, three of diffuse peritonitis, and one of perforated gastric ulcer, recovery following in all these except one case of very severe abdominal traumatism, and one of peritonitis. In a case of compound fracture of the bones of the forearm, with deep soiling of the wound, healing took place by first intention after irrigation with ether and immediate suture. The volatility of the ether appears to favor its penetration into all recesses of deep wounds, thus insuring satisfactory disinfection. On the peritoneum no harmful effect could be noticed, the gut merely acquiring a pink color and undergoing contraction.

the cases of Sodium Citrate in Dyspepsias.—analogous, in *Bulletin médicale* for May 31, 1913, states that sodium citrate appears to exert, in the treatment of dyspepsia, several beneficial actions. In the first place, it facilitates the digestion of milk when a milk diet is being given, preventing the formation of large, compact clots where the fluid is drunk too quickly or in excessive amounts at one time. Variot showed that many cases of infantile dyspepsia, such as occur so often in bottle fed infants, yield when a tablespoonful of the following solution is added to each four ounce (120 gramme) bottle full of milk:

R Sodii citratis, .....gr. xxx (2 grammes);  
Aque destillatæ, .....℥iij (100 grammes).  
Solve.

Again, sodium citrate acts as an alkali, and as such, becomes a soothing agent in cases of pyrosis, besides diminishing gaseous fermentation and even obviating the regurgitation of food.

Finally, sodium citrate, even in small doses, is a very good laxative. In combating constipation, so frequent among dyspeptics, it lessens autointoxication from intestinal fermentative processes and obviates the mechanical disturbances resulting from the accumulation of gases. In constipation associated with hepatic congestion, Huchard frequently advised its employment, along with sodium sulphate and bicarbonate:

R Sodii citratis, ..... }  
Sodii bicarbonatis, ..... } .....ãã 3v (20 grammes).  
Sodii sulphatis, ..... }

M Sig.: One teaspoonful every morning in a hot infusion.

Even if given without the sodium sulphate, sodium citrate acts quite sufficiently as a laxative.

**Treatment of Chloasma.**—Dalcé and Fouquet, in *Nouveaux Remèdes* for April 8, 1913, is credited with the following preparation, to be applied to the parts at night on muslin:

R Emplastri plumbi, .....℥iij (12 grammes);  
Styracis, .....gr. xxiv (1.5 grammes);  
Cere flavæ, ..... }  
Picis liquidæ, ..... } .....ãã gr. viii (0.5 gramme);  
Terebinthinæ, ..... }  
Petrolati, .....℥ss (15 grammes).  
M. Ft. unguentum.

Next day the following ointment should be used over the pigmented areas:

R Bismuthi subcarbonatis, ..... } .....ãã 3iiss (10 grammes);  
Kaolini, ..... }  
Petrolati, ..... } .....3x (40 grammes).  
M. Ft. unguentum.

Or, the following mixture may be painted over the parts morning and evening:

R Ammonii chloridi, .....℥i (4 grammes);  
Acidi hydrochlorici diluti, .....℥lxxx (5 grammes);  
Glycerini, .....℥i (30 grammes);  
Lactis, .....℥xiiij (50 grammes).  
Mise.

Or, again, the parts may be rubbed over twice daily with:

R Zinci oxidi, .....gr. v (0.3 gramme);  
Hydrargyri oxidi flavi, .....gr. iiss (0.15 gramme);  
Olei theobromatis, ..... } .....ãã 3iiss (75 grammes);  
Olei ricini, ..... }  
Olei rosæ, ..... } .....gtt. iiii.  
M. Ft. unguentum.

The general treatment in these cases should consist of organotherapy, either in the form of ovarian

extract alone, or better, by the simultaneous administration of ovarian and adrenal extracts.

**Treatment of Hiccough.**—R. Oppenheim, in *Progrès médical* for June 14, 1913, discussing the palliative treatment of hiccough in cases where it persists, notwithstanding apparently appropriate treatment of the original cause, or the cause cannot be found, states that among the empirical procedures most likely to arrest the disturbance are pressure upon the wrists, of the ulnar nerve in its recess at the olecranon, and especially of the phrenics in the neck; the application of a mustard plaster or the hot iron to the epigastrium; slow deglutition of fluid while holding the nose closed; a serious of rapid and deep inspirations (Mathieu); prolonged extension of the tongue out of the mouth (Lépine); temporary suspension of breathing in the position of inspiration or forced expiration, and compression of the epigastrium with the hand or a tight bandage.

In all cases any nervous excitement present should be subdued. Where the general condition permits, the least measure is a tepid bath, 35° C. (95° F.), lasting from one half to one hour. The following preparation should be simultaneously administered:

R Atropinæ sulphatis, .....gr. 1/12 0.005 gramme);  
Morphinæ hydrochloridi, .....gr. iiss (0.1 gramme);  
Aque chloroformi, .....℥iiss (10 grammes).

M. Sig.: Three drops to be taken every two hours in a little water.

Another suitable combination is:

R Potassii bromidi, ..... } .....ãã 3iiss (6 grammes);  
Aque laurocerasi, .....gr. iiss (0.1 gramme);  
Aetheris, .....℥xii (0.6 gramme);  
Syrupi, .....℥i (30 grammes);  
Aque destillatæ, q. s. ad .....℥3v (150 grammes).

M. Sig.: One tablespoonful every hour until the attack ceases.

In reflex hiccough of gastric origin, one of the most frequent forms, prompt benefit is often obtained from the following preparations, recommended by Robin in cases of "hypersthenic" dyspepsia:

R Picrotoxini, .....gr. 1/12 (0.05 gramme);  
Alcoholis, .....q. s. ad solv.;  
Morphinæ hydrochloridi, .....gr. 1/2 (0.05 gramme);  
Atropinæ sulphatis, .....gr. 1/2 (0.01 gramme);  
Extracti ergotæ aquosi, .....℥xvi (1 gramme);  
Aque laurocerasi, .....℥iij (12 gramme).

M. Sig.: Five drops every four hours.

To relieve the epigastric pain accompanying hiccough, the following powders should be prescribed:

R Sodii bicarbonatis, ..... } .....ãã gr. xv (1 gramme);  
Sacchari lactis, ..... }  
Magnesii oxidi, .....gr. xxii (1.5 grammes);  
Crete præparatæ, ..... } .....ãã gr. xii (0.8 gramme);  
Bismuthi subnitratæ, ..... }  
Codeinæ, .....gr. 1/2 (0.01 gramme).

Ft. in chartulam No. i.

Sig.: One powder in a little water upon the advent of pain.

Persistent hiccough in children suggests intestinal helminthiasis, to the elimination of which treatment should be directed. In nurslings, on the other hand, hiccough suggests overfeeding. Rather than administer special mineral waters or sodium citrate, one should try to prevent the hiccough by strict regulation of the feeding.



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### A PHILANTHROPIC RADIUM INSTITUTE.

The Mining Congress held last week in Philadelphia brought out a project of great interest to the medical profession. The announcement was made by Doctor C. L. Parsons, chief of the Bureau of Mineral Technology of the United States Bureau of Mines, that Professor Howard A. Kelly, of Johns Hopkins University, and Doctor James Douglas, a prominent engineer of New York city, had jointly purchased twenty-seven claims of mining land rich in carnotite deposits situated in Paradox Valley, Colorado, the radium of which is to be used solely for philanthropic purposes and mainly for the alleviation and treatment of cancer. It is not in any way to be a money making scheme; nor will any funds be accepted from outside sources. The work will be conducted by the United States Bureau of Mines, under the auspices of the recently incorporated National Radium Institute, of which Professor Howard A. Kelly is president—a guarantee to the medical profession of its high standard. The Bureau of Mines, in virtue of an agreement, will obtain the opportunity of a scientific and technical study of the mining and concentrating of carnotite ores, and of the most efficient methods of obtaining radium, vanadium, and uranium there-

from, with a view to increasing this efficiency and of preventing waste. Nearly one hundred tons of high grade carnotite have already been procured from the claims in Paradox Valley, included by experts among the richest radium bearing regions in the world.

Doctor Parsons asserted that not one cent of the radium to be extracted would be for sale; that every milligramme of the metal would be used in the cause of humanity in the treatment of cancer, and that the United States Bureau of Mines had evolved an entirely new method of extracting radium chloride which would reduce the cost materially. Finally, he stated that clinics for the treatment of the afflicted would be opened in the Memorial Hospital of New York and in Doctor Kelly's own hospital in Baltimore. We hope that means will be found through which the entire country will be able to receive the benefits of this great philanthropy, which, through the distinguished physician who is its initiator, will reflect great credit upon the medical profession as a whole, while proving of incalculable benefit to sufferers of the most dreaded of all diseases.

### THE BALKANS AND THE HEALTH OF THE WORLD.

Unable to prevent the war, powerless to control it, and impotent to end it, in the Balkans, the great powers have scored at least one triumph—the prevention of epidemic disease diffusion throughout the rest of the world—as the result of strife on a tremendous scale. This great achievement of preventive medicine completely eclipses any of the accomplishments of a united European diplomacy during the same period. Although the war is at an end, and much good work has been done in the way of limiting the spread of certain diseases, there still remain for solution many important sanitary problems before the health of the world, with respect to the consequences of the Balkan combat, can be definitely assured. In order that this safety may be secured it is necessary that some agreement be entered into between the powers and the allies; among the allies themselves; between each of the allies and Turkey; between the powers, the allies, and Turkey on all sanitary and health questions.

The Balkan war differed in no wise from the wars of the past—pestilence scored as heavily as nicked bullets; faulty hygiene decimated regiments with a precision deadlier than that of machine guns; and famine claimed its quota of victims—save that, except in remote instances, the health of the outside world was never seriously endangered. Herein lies the large triumph of the great powers, nay, the

triumph of modern preventive medicine. Among the combatants themselves, however, disease was most active. Cholera claimed more than the sabre; typhoid fever still maintained its reputation as the "destroyer of armies"; and dysentery and typhus exacted their usual toll of human lives. Plague did not ravage any of the armies to a marked extent, though conditions were apparently ideal for the disease. The explanation of this seeming anomaly is that plague is not as a rule of frequent occurrence as long as armies keep moving in either attack or retreat. The one way to get rid of plague is to camp out, and away from the focus of infection, and should the disease reappear, to again strike camp and proceed farther afield. Active campaigning is a decided prophylactic, and never was this fact better illustrated than in the Balkan war.

During the period of the peace conference, and while diplomats at St. James were arguing over the creation of a New Albania, and while troops were resting on their arms, disease exerted its greatest fury. It was the oft repeated experience of idle troops in the field and disease; it was the same with American troops at Chickamauga and Montauk; it was the same with the British soldiery on the African veldt; it was the same with the Japanese and the Russians after the fall of Port Arthur; and, unfortunately, it seems it will be ever thus.

Under the new order of things, under changed geographical and political conditions, the work of the European powers, in the interest of humanity, has just begun; and while striving for world peace world health must not be neglected. Out of the Balkan chaos diplomacy is on trial, but over and above all considerations of strategy and ambition loom up the questions of the health of the world, and to the sanitarians of Europe may we look with confidence for the discharge of their full share in the work for mankind.

#### THE MENACE OF MENTAL DISEASE.

For years the medical profession has stood a unit for the preservation and protection of individual life and happiness and the welfare of society. Through its efforts one bulwark after another has been erected to protect the citizens of the United States from physical infection and from mental and moral contamination by the admission of physically, mentally and morally unfit immigrants. In the fight against physical ailments the people at large fully realize the importance of the protection afforded through proper quarantine regulations. The fear of cholera, of plague, and of similar physical affections is so great and so widespread that no health officer of the port of New York

would be tolerated in office who failed to enforce proper regulations for the prevention of the admission of persons infected with these diseases.

Mental disease and inferiority are not less potent factors in bringing about national decay and national disaster than are such diseases as cholera and plague. The only difference is that they act less rapidly and their effects are less easily observed. Under the leadership of Dr. Carlos MacDonald and his successors the State of New York has built up a system of safeguards for the exclusion of the alien insane which has hitherto been most efficient. But the organization which has been brought to a high state of efficiency for this purpose is being made the prey of cheap political grafters.

The testimony in the recent impeachment proceedings revealed that the administration of the Hospital and Immigration Service, an efficient and highly developed organization, has been tampered with. There have been removals made ostensibly for the good of the service. There has been a cry of economy raised in the State Hospital Service. With the present management of the Alien Deportation Bureau before us such changes prompt an inquiry as to whether they have been made really for the good of the service, as asserted, or whether they have been made in the course of an effort to provide governmental pay for political henchmen. The safety of the public demands that the acts of the recently impeached governor be reviewed and any unfit appointments made by him revoked.

#### SOME OF THE LEGAL ASPECTS OF BLOOD POISONING.

While in the class of cases in which this condition occurs as a result of operations the infection is generally introduced from without by unclean fingers or instruments, in some instances infection takes place in spite of the utmost endeavors to maintain aseptic conditions, and the most melancholy examples of this kind have been those where skilled and careful surgeons have themselves contracted fatal septicemia in operating. The dose of the poison may be exceedingly small; yet some of the most fulminating cases have followed a very slight prick of the skin—showing in these instances the extremely toxic character of the virus. As to whether the latter finds entrance at once into the blood, or indirectly and later by the lymph stream, it would seem probable that either event may occur, and, as Victor Horsley says, if this be the case, it offers some explanation of the difference in the incubation period in different cases. A living, rapidly growing virus may easily be understood to

multiply and spread through the meshes of connective tissue and along the channels of lymphatic vessels, although only a very small quantity may have lodged in the wound. An important element in determining the period of incubation, as well as the severity of the disease, is the degree of efficiency of the resistance afforded by the lymphocytosis at the point of entrance. All such matters may have to be taken into consideration in some of the cases which come up from time to time in the courts.

There are also other cases of blood poisoning besides those from wound infection in which civil suits are brought, and the legal aspects of the subject may truly be said to be varied and of great importance. At the October meeting of the Society of Medical Jurisprudence, at which Dr. A. Ernest Gallant presented the medical aspects of blood poisoning, Mr. James Taylor Lewis, counsel to the New York State Medical Society, made an address in which its legal aspects were well brought out. In the class of cases having to do with the abdomen he said the two most common were appendicitis cases and those of pyosalpinx, the pathological condition being in the great majority of instances of the latter due to gonococcus infection. In one case to which he referred a suit for \$50,000 damages was brought against a surgeon who had left in the abdomen of a patient one of the large gauze pads employed to "wall off" the seat of operation. At first, Mr. Lewis said, it looked to him as if the surgeon were altogether culpable, but a careful examination into the facts of the case convinced him to the contrary. Both lawyers and physicians should "get to the bottom of things"; and in this connection he criticized his legal confrères for too often failing to acquire such intimate knowledge of all the attendant circumstances in their cases as, in justice to themselves and their clients, it was their duty to obtain. In the case in point the legal aspects were shown in the questions: Is it a proper precaution to number the instruments, gauze pads, and other matters used in operating? Were they here so numbered? Were they all accounted for? Are the nurses the agents of the hospital or of the surgeon? A different kind of case related was that of a man who suffered from a very severe colon bacillus infection resulting from the application of cow dung (which some one had told him was "good for a felon") to an open incision which his physician had made in treating an inflammation in a finger caused by an injury. He sued the physician for \$25,000, but at the trial the lawyer who had been the plaintiff's adviser did not have the hardihood to appear. He had to plead his own case, and it is needless to say that he lost.

## APPARENT CURE OF RABIES.

It is a matter of general knowledge that, apart from the Pasteur treatment, our means of helping the unfortunate victim of rabies are virtually *nil*. And even with the Pasteur method we are often doomed to failure because we do not recognize the existence of infection sufficiently early, for, after the onset of symptoms a cure can scarce be hoped for. We can, therefore, heartily welcome such an experience as James H. Haberlin records under the title quoted in the *New York State Journal of Medicine*, September, 1913.

The first patient was bitten in the face by a rabid dog five weeks before the onset of symptoms, and, in spite of all that could be done, death ensued a few hours after the beginning of treatment. Some three days later a second patient, a dog catcher, came under observation, having been bitten in the leg five weeks previously by the dog that bit the first patient. After stabling his horse at 6:20 in the evening of the onset of symptoms he walked three quarters of a mile to his home. Shortly after entering he went to bed, displaying for the first time considerable emotional excitement. In a few minutes he began crying and gesticulating violently, clutching frantically at his throat as if to relieve some obstruction. He seemed conscious and oriented, and seemed to realize his trouble, for he would try to drink, always without being able to swallow, and then would grasp his throat and nod his head as if trying to tell those present of his difficulty. His condition rapidly grew worse and he became maniacal and began to spit continuously. The clonic spasms of his pharynx continued, finally becoming tetanic and threatening suffocation. This was at 8:30 in the evening and at this point our author entered upon the scene and began the treatment which seems to have been responsible for the cure of the patient. He began by injecting ten c. c. of a one per cent. aqueous solution of phenol into the subcutaneous tissues of the abdomen. In half an hour ten c. c. of a two per cent. solution were injected, and this dose was repeated in an hour. By 11 p. m. improvement in the patient's condition was very perceptible. Hourly doses of ten c. c. of the one per cent. solution were then given until a total of 1.5 grammes of pure phenol (twenty-two and a half grains) had been administered. Six hours after the onset of the treatment the patient began to grow somnolent, and when aroused was able to swallow easily. At this time—2 a. m.—it was learned from the patient that he remembered nothing from the time of his stabling of his horse. The treatment ended at this point and in four days the patient was



out of doors, resuming his work on the sixth day.

Haberlin says that he was led to use phenol subcutaneously in the treatment of this patient on the basis of Guido Baccelli's reported cures of tetanus by the same means, and by the fact that there is apparently so close a resemblance between tetanus and rabies. He seeks to explain the action of the subcutaneous injections on the grounds of the well known selective affinity of phenol for nerve tissue, its loose union with cell protoplasm, and its firm combination with bacterial substances. On account of the fact that phenol does not act to precipitate albumins in the manner of the ordinary precipitants, and because it is rapidly taken up from the point of injection into the lymph and blood it is possible to give the large quantities of such concentrated solutions as were used without causing any unfavorable local reaction.

Attention is called by Haberlin to the fact that this single case proves nothing so far as the treatment of the disease is concerned. Though recoveries are very rare, it is believed that the disease is not strictly one hundred per cent. fatal in man. In this case also the fact that the patient had been bitten a number of times before by suspicious dogs cannot be totally dismissed, on account of the possible acquisition of a certain degree of immunity. "Everything connected with the recovery in the case is a subject for pure speculation at this stage of our knowledge, or lack of knowledge."

The scientifically conservative attitude of the author toward the results he reports is in refreshing contrast with the usual eagerness with which such a phenomenal record would have been heralded by many an author. This very conservatism inclines us to devote so much attention to his possible invaluable addition to our knowledge of the treatment of rabies. Moreover we would call attention to the fact that phenol was recommended by Déclat (*Traité de l'acide phenique*, page 544, fourth edition, 1874) in 1865 in the treatment and prophylaxis of this dread disorder.

### PUNISHMENT FOR SUBSTITUTERS.

We have taken occasion from time to time to point out the evils of substitution, both from a moral and from a medical standpoint, and it is interesting to note that the practice of furnishing something other than is ordered by the physician seems to be on the decline. This is no doubt due largely to an ethical awakening on the part of dispensers. The enforcement of the National Food and Drugs Act has been a very important factor in stimulating the conscience of the people as a whole. The discussions incident to the enforcement of this act have aroused the moral sense

of the people to a keener appreciation of their duties in every direction. The leaders in the drug trade are fully aware of the grave responsibility resting upon the pharmacist and the dispenser and have done much to arouse pharmacists to a just appreciation of these responsibilities. The increasing severity of the sentences imposed upon prisoners found guilty of substitution has also been an important factor in discouraging this evil practice. In New York a substituter was recently sentenced to three months' imprisonment. Nor is this an isolated instance, as prison sentences have been imposed in several cases of this kind during the past few years. This subject is one that vitally interests the physician, for unless his prescriptions are filled as written he cannot hope to achieve the desired results. It is to be hoped that the courts will continue the imposition of severe sentences for crimes of this kind.

### Obituary.

#### ALEXIS MARCY LEON, M. D.,

of New York city.

Dr. Alexis Marcy Léon died on Sunday, November 2nd, in his home at 79 East Fifty-sixth Street, New York city. Born in New York city on March 25, 1857, he was educated in letters at Manhattan College, receiving the degree of A. B. *cum laude* in 1875, and the degree of M. A. shortly after; and in medicine at the College of Physicians and Surgeons (medical department of Columbia University), receiving his M. D. in 1878. After being graduated in medicine he served as interne at Charity (now City) Hospital until October, 1879, when he succeeded to the extensive practice of his father, the late Dr. Alexis Léon, an eminent physician who numbered among his *clientèle* many of the best known families in the city.

He was a member of the Medical Society of the County of New York, the Medical Society of the State of New York, the American Medical Association, and the Alumni Association of the City Hospital. He was for many years visiting physician at St. Francis' Hospital.

He was an old subscriber to this JOURNAL and also a valuable contributor. Doctor Léon died suddenly, after a short illness, of heart disease. He is survived by his widow, a son, and five daughters.

### News Items.

**Changes of Address.**—Dr. Warren S. Simmons and Dr. A. Sutherland Miller, to 20 Gates Avenue, Brooklyn, N. Y.

**Mississippi Valley Medical Association.**—At the annual meeting of this association, held in New Orleans on Thursday, Friday, and Saturday, October 23d, 24th, and 25th, the following officers were elected: President, Dr. D'Orsay Hecht, of Chicago; first vice-president, Dr. W. W. Butterworth, of New Orleans; second vice-president, Dr. Willard J. Stone, of Toledo, Ohio; secretary, Dr. Henry Enos Fuley, of Louisville, Ky. (reelected); treasurer, Dr. S. C. Stanton, of Chicago (reelected).

**Section in Laryngology and Rhinology of the New York Academy of Medicine.**—The date of the regular meeting of this section has been changed to Tuesday evening, November 25th, when exercises commemorative of the fortieth anniversary of the founding of the section will be held in Hosack Hall. A full programme will be issued later.

**New York Society of Anesthetists.**—At a meeting of this society, to be held in the New York Academy of Medicine on Thursday evening, November 20th, Dr. George W. Crile, of Cleveland, Ohio, will deliver an address on Anesthesia and Anociassociation. Dr. Joseph E. Lumbard, of New York, is president of the society, and Dr. Harold A. Sanders, of Brooklyn, is secretary.

**A Joint Meeting of Pediatricists.**—The Section in Pediatrics of the New York Academy of Medicine will be the guest of the New England Pediatric Society at a joint meeting of these two bodies with the Philadelphia Pediatric Society, the New Jersey Pediatric Society, and the Pediatric Section of the Medical Society of the State of New York, to be held in Boston on Saturday, November 8th.

**State Health Commissioner of Pennsylvania Issues Warning against Diphtheria.**—Dr. Samuel G. Dixon, State Health Commissioner of Pennsylvania, has issued a warning in regard to diphtheria, urging parents to act promptly in cases of simple sore throat. The department has established 667 stations throughout the State where diphtheria antitoxine can be obtained free of charge by those who are unable to pay for it.

**Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.**—Monday, November 10th, Annual meeting of the Aid Association of the County Medical Society, and the Samaritan Hospital Medical Society; Tuesday, November 11th, Pediatric Society; Wednesday, November 12th, County Medical Society; Thursday, November 13th, Polyclinic Ophthalmic Society; Friday, November 14th, Northern Medical Association and the Psychiatric Society.

**Alumni Association of the Lying-in Hospital.**—A stated meeting of this association will be held at the Harvard Club, 27 West Forty-fourth Street, New York, on the evening of Tuesday, November 11th. The paper of the evening will be read by Dr. Franklin S. Newell, of Boston, on the Treatment of Eclampsia. At the business meeting which will precede the scientific session, the election of officers for 1914 will be held. The present officers of the society are: Dr. H. B. Blackwell, president; Dr. W. L. Bradley, vice-president; Dr. C. Frederic Jellinghaus, secretary and treasurer; Dr. D. J. Hamburg, editor.

**Cornell University Medical College.**—At the opening of this college for the fall term, which took place on Wednesday, October 1st, the enrollment was as follows: For the degree of M.D., first year, 36; second year, 32; third year, 20; fourth year, 20; special students (work not leading to the degree of M.D.), 5; for the degree of Ph.D., 2; for the degree of M.A., 2, making a total of 117 students. All students now registered, with the exception of those pursuing the combined seven years' course leading to the degrees of A.B. and M.D., are graduates in arts or science, or are doctors of medicine doing advanced work. Dr. J. S. Ferguson is secretary of the faculty.

**The Hodgkins Prize Awarded to Two Physicians.**—On the recommendation of the Committee on Award of the Hodgkins Prize of \$1,500 for the best treatise On the Relation of Atmospheric Air to Tuberculosis, which was offered by the Smithsonian Institute in connection with the International Congress on Tuberculosis held in Washington in 1908, the institution announces that the prize has been equally divided between Dr. Guy Hinsdale, of Hot Springs, Virginia, for his paper on Tuberculosis in Relation to Atmospheric Air, and Dr. S. Adolphus Knopf, of New York, for his treatise On the Relation of Atmospheric Air to Tuberculosis. The members of the Committee on Award were: Dr. William H. Welch, of Johns Hopkins University, Baltimore, chairman; Dr. Hermann M. Biggs, of New York; Professor W. M. Davis, of Harvard University; Dr. George Dock, of Washington University Medical School, St. Louis, Mo.; Dr. Simon Flexner, of the Rockefeller Institute for Medical Research, New York; Dr. John S. Fulton, of Baltimore, and Brigadier General George M. Sternberg, United States Army (retired), Washington, D. C.

**A Meeting of Neurological Societies.**—A meeting of the Section in Neurology and Psychiatry of the New York Academy of Medicine will be held in conjunction with the New York Neurological Society on Tuesday evening, November 11th, at the Academy of Medicine. The programme includes the following papers: The Irregular Bony Formation of the Sella Turcica in Some Epileptics, by Dr. L. Pierce Clark and Dr. E. W. Caldwell; Brain Structure According to Age, by Dr. H. H. Donaldson, of the Wistar Institute, Philadelphia; Newer Researches Concerning the Hypophysis, by Dr. Frederick Tilney; Some Causes of Disappointment in Operations on Brain Tumor, by Dr. William G. Spiller, of Philadelphia. The papers will be illustrated by lantern slides.

**New York Division of the Medical Reserve Corps of the Army.**—The annual banquet of the New York Division of the Medical Reserve Corps of the United States Army, which is composed of New York physicians who are on the inactive list in that branch of the Service, will be held on the evening of Saturday, November 8th, at the Hotel Savoy. Lieutenant Colonel Alfred E. Bradley, Medical Corps, United States Army, and Dr. Simon Baruch, professor of hydrotherapy at Columbia University, will be the guests of honor. It is expected that there will be a good attendance of army medical officers stationed in and around New York. Dr. Henry C. Coe, professor of gynecology at the University and Bellevue Hospital Medical College, will act as toastmaster.

**The National Radium Institute.**—This institution was incorporated recently in Baltimore with the following officers: President, Dr. Howard A. Kelly, of Baltimore; vice-president, Dr. Curtis F. Burnam, of Baltimore; secretary and treasurer, Dr. Archibald Douglas, of New York; Dr. James Douglas, of New York, and Dr. E. J. Maloney, of Wilmington, Del., are additional directors. The institute has been formed for the purpose of procuring a sufficient amount of radium to conduct extensive experiments in radium therapy, particularly in reference to cancer. Investigations will also be conducted regarding the physical characteristics and chemical effects of radium rays, with the hope that possibly the effects of the rays may be produced by physical means. Ample hospital facilities have already been supplied both in Baltimore and New York.

**Supervisor of Public Health Exhibits Wanted.**—Among the positions for which the New York State Civil Service Commission will hold examinations on November 29, 1913, is one for the position of supervisor of exhibits, State Department of Health, with a salary of \$1,800 to \$2,400 a year. The department is desirous of securing a man between the ages of thirty and thirty-five years, capable of designing and preparing health exhibits, and with experience in public health work, in managing health exhibitions, and in organizing health campaigns. A knowledge of illustration or design is necessary for the artistic and forceful presentation of material in exhibit form. Subjects of examination and relative weights: Written examination relating to the duties of the position, 1; education, experience, and personal qualifications, 1. The written examination will consist of the writing of a paper, or discussion of some topic, connected with the preparation of a health exhibit.

**Philadelphia Joint Lecture Course.**—The work of the Rush Society for the Correlation and Support of Medical and Biological Lectures in Philadelphia during the past year has shown that some attempt should be made to correlate all lectures on medical and the allied sciences given in Philadelphia, and to arrange the programme in advance. The Rush Society has therefore entered into an agreement with the committees controlling the Mutter Lecture and the Weir Mitchell Lectures at the College of Physicians of Philadelphia, the lectures of the Philadelphia Pathological Society, and the two lectures supported by undergraduate organizations at the University of Pennsylvania. In another year it is hoped that as a result of present efforts this list of cooperative committees may be further extended to include the lecture of the John Morgan Society and the Gross Lecture of the Jefferson Medical College. The Samuel D. Gross Lecture, before the Philadelphia Pathological Society, October 23d, opened the course. The next one will be the fifth Rush Society Lecture, on November 18th, at 8:30 p. m., by Frederick L. Hoffman, Esq., of the Prudential Insurance Company of America, on the Incidence of Cancer by Organs and Parts of the Body Affected, at the College of Physicians building. The medical public is invited to attend.

## Pith of Progressive Literature.

WIENER KLINISCHE WOCHENSCHRIFT.

September 4, 1913.

**Sugar Content of the Blood under Normal and Pathological Conditions.**—Bela Purjesz finds from his investigations that the sugar content of the blood fluctuates considerably within normal limits in healthy individuals. Slight fluctuations are found in the same individual whose blood is examined at intervals of from two to four days, although living on the same diet and under the same conditions. The greater part of the sugar content of the blood is normally in the blood plasma, and only to a less extent in the blood corpuscles; during a rise of temperature the sugar content of the blood corpuscles increases. When the functional activity of the thyroid gland is increased, the sugar content is lowered; it is increased after the subcutaneous injection of the infundibular portion of the pituitary gland in healthy persons. In Addison's disease the demonstrable quantity of sugar is small. Hypertony and hyperglycemia run parallel. During the fever of pneumonia, especially in bad cases, hyperglycemia is present, but in miliary tuberculosis and in typhoid fever an absolute hyperglycemia was not demonstrable.

**Electric Accidents.**—Fritz Fischl reports the case of a man, twenty-seven years old, who short circuited a current of 5,000 volts, which passed from one hand to the other. He fell unconscious and was carried to the hospital. Consciousness returned after about half an hour, when he complained of headache and photophobia, even when his eyes were shut. He was weak, depressed, and sleepy, and showed some signs of paralysis, but these symptoms all passed off in a few days. The burn on his hand was slight.

September 11, 1913.

**The Power of Resistance of Local Foci of Spirochetes to the Combined Treatment of Syphilis.**—Fritz Fischl reports three cases in which he was able to demonstrate the presence of nests of spirochetes in patients who had undergone treatment with neosalvarsan and mercury.

**A Mucous Cyst of the Nasal Septum with Postoperative Nasal Hydrorrhea.**—Victor Fruehwald reports the case of a man, twenty-eight years of age, from whom a cyst containing mucus was removed from his nasal septum. The operation was followed by a profuse discharge of fluid from the nose, which was determined to be cerebrospinal fluid.

**Radium and Mesothorium in the Treatment of Malignant Tumors.**—Otto Schindler describes at considerable length the details of his experiences in the use of radium and mesothorium rays in the treatment of cancer, and concludes that it is well to employ them prior to operation in all operable and inoperable cancers of the skin, and then if they fail to operate. In all other operable carcinomas a thorough extirpation should be performed first, and then the field of operation may be irradiated. In some operable cases in which immediate operation is not imperative, or the general condition of

the patient contraindicates intervention, irradiation may sometimes be performed successfully. In inoperable cases, without disseminated metastases, an attempt may be made to render the tumor operable by the most intense irradiation, perhaps in combination with other procedures, such as injections of thorium x, and even when metastases have formed, the sufferings of the patient may be relieved by these rays.

September 18, 1913.

### Early Diagnosis of Carcinoma of the Stomach.

—F. Leitner says that the Röhmer-Grafe test for the early diagnosis of carcinoma of the stomach is not reliable, as it contains serious sources of error.

**Radium and Its Therapeutic Use in Dermatology.**—Gustav Riehl and Max Schramek describe in a long paper the way in which they are accustomed to use radium, and conclude with a tabulation of their cases, which number in all 246. Of these, 104 patients are still under treatment, sixty-five are apparently cured, seventy-three improved, four unimproved or harmed by the treatment.

**Statistics of the Geographical Distribution of Cancer.**—Siegfried Rosenfeld emphasizes the need of a careful investigation of areas in which cancer is particularly prevalent, forming "cancer islands" surrounded by land in which cancer is scarce, as well as of the portion of the country in which cancer does not abound, and the comparison of data thus obtained. He states that cancer is apt to abound in old houses, the cheaper rents of which attract the sick with their increasing poverty. He thinks that the supposed rarity of cancer in the tropics is not a fact, but the result of imperfect statistics. In support of this position he quotes figures obtained from various parts of the world. His figures would seem to show that the mortality from cancer is unusually high in Joachimsthal, the region from which we obtain most of our radium. The entire article is well worth reading.

September 25, 1913.

**Nonproteinogenous Allergy.**—Robert Hift says that he has been able to so sensitize the organism with a chemically simple, colloidal silver preparation, that after a number of injections, or at a certain interval after one injection, a local reaction takes place in circumscribed places in the skin to a reinjection. This cannot be ascribed to accumulative effect, so he thinks it must be ascribed to an allergy, at least of the skin.

**Two Successful Operations for the Removal of Bullets from the Vicinity of the Gasserian Ganglion.**—Peter Ritter von Walzel reports two cases in which revolver shots lodged in the skull and were located with the x rays. Life did not seem to be endangered, but the symptoms caused were so annoying as to force the patients to seek surgical relief.

PARIS MÉDICAL.

October 4, 1913.

**Inhibitory Functional Disturbances Associated with Organic Lesions.**—M. Klippel and M. P. Weil report the case of a man, fifty-three years of age, who, after slipping on an orange peel, striking the external surfaces of the left shoulder, arm, and



face, but not losing consciousness, developed complete monoplegia of that limb, with anesthesia of part of the hand and loss of tendon reflexes, followed by muscular atrophy. The patient was syphilitic, and showed coldness and cyanosis of the upper limbs, especially that of the affected side, when standing up. In spite of the signs suggesting total neuritis of the brachial plexus, gradual and almost complete recovery followed electric treatment. This leads the authors to aver that in certain susceptible individuals there may readily become superadded to mild nervous lesions marked functional disturbances due in reality to inhibition or concussion. Such disorders must be carefully distinguished both from the serious organic lesions they simulate and from traumatic hysteria, neither the symptoms nor course of which are similar to theirs.

**Precautions to Be Taken in Neural Surgery.**—T. de Martel insists upon the advantages, in operations upon the nervous system, of having the operating room warmed to 37° C., of dealing with the nervous tissues as gently as possible, of irrigations with tepid saline solution to prevent drying, and of interrupting the operative procedures whenever the blood pressure begins to fall, resuming them only when it has returned to normal. In prolonged operations he has discarded chloroform as anesthetic, uses ether only occasionally, and much prefers nitrous oxide-oxygen under pressure, according to Paul Bert's method.

#### PRESSE MÉDICALE.

October 4, 1913.

**Adrenal Syndromes.**—Léon Bernard discusses the normal and pathological histology of the adrenals and the symptoms and signs to which disease of these organs may give rise. He divides the clinical manifestations of adrenal disorder into three groups, viz., hyperpinephry, hypopinephry, and the melanodermic syndrome, the first involving the production of high vascular tension, aortic atheroma, and glycosuria; the second, muscular asthenia, low blood pressure, and digestive and nervous disturbances, including mydriasis, delirium, convulsive states, and coma; and the third, pigmentation of the skin and mucous membranes, frequently with epigastric and lumbar pains, and ultimately with hypopinephry as a superimposed condition. The melanodermic state may appear not only from a partial or even a trifling adrenal lesion but from disease of the solar plexus; it can be controlled or even cured, however, by adrenal organotherapy. It should be borne in mind that tuberculosis of the adrenals may at times induce acute symptoms of hypopinephry instead of Addison's disease.

#### SEMAINE MÉDICALE.

October 1, 1913.

**Diagnosis of Pericardial Effusion and Puncture of the Pericardium from the Epigastrium.**—A. B. Marfan asserts that, if a positive diagnosis of pericardial effusions is to be made, the enlargement of the area of cardiac dulness must be accompanied by one of the four following pathognomonic signs: 1. Distinct prolongation of the dull area below the point of cardiac impulse; 2, observation under the x rays of a pericardial shadow with sta-

tionary margins, and within it of a darker, pulsating shadow representing the heart; 3, dyspnea which compels the patient to bend the trunk forward or assume the knee-chest posture; and, 4, disappearance of the signs suggesting pleurisy over the base of the left lung when the patient is required to assume the knee-chest posture (Pin's sign). Each of these signs, however, is often lacking, and the author advocates puncture of the pericardium as both a diagnostic and therapeutic measure. He much prefers puncture through the epigastrium to either of the other routes hitherto employed. Epigastric puncture has thus far been done twenty-six times in eight patients, with good results and no untoward consequences. With the patient in a semi-sitting posture, the trocar is inserted immediately below the xiphoid and exactly in the median line. It is directed at first upward and backward, then carried up vertically so as to follow the posterior surfaces of the xiphoid and sternum as closely as possible. In children less than five years of age the depth of penetration is about four centimetres and in adults approximately six centimetres. The needle enters the pericardium at the best point for the evacuation of fluid, and passes through neither the peritoneum nor the muscular fibres of the diaphragm. Wounding of the mammary vessels and pleura is avoided, and experience has shown that the heart itself is in no danger. The procedure is advocated for facilitating the circulation and relieving dyspnea in the presence of effusion. Studies on the cadaver have shown it to be contraindicated in marked tympanites and in funnel breast.

#### BRITISH MEDICAL JOURNAL.

October 18, 1913.

**The Investigation of the Higher Nervous Functions.**—I. Pawlow has approached this work upon a purely physiological basis, discarding the methods of the psychologist as being inadequate to the conditions. Utilizing some of his previous observations upon the functions of the salivary glands, he has sought to examine the mechanism of the development of reflex actions. He finds that the nervous system has, in addition to the primitive function of reproducing innate reflexes, the capacity of forming new reflexes. He has found it possible to develop entirely new reflexes in dogs by making use of normal strong stimuli. Thus, if a dog is frequently subjected to a painful electrical stimulus applied to a given area of the skin just at the time when he is being fed a reflex to this electrical stimulus will soon develop which is precisely like that shown in response to the exhibition of food. This new reflex is termed a "conditional" reflex in contrast with the normal, or unconditional reflexes. Pawlow explains this on the ground that, "the nervous impulse resulting from the stimulus, which formerly went to a particular region of the nervous system, is now directed to a different one." He says: "In this way we have been able to divert the impulse from one path to another, according to the conditions, and we cannot avoid the conclusion that this represents one of the most important functions of the highest parts of the central nervous system." The relative functional power of the several centres, or their de-

gree of irritability, seem to be the factors which determine the direction of the nervous impulse along certain special channels. It is easy to produce conditional reflexes in connection with feeding, for the feeding reflex is prepotent as compared with many other reflex responses to stimuli. One or more of the many adventitious stimuli which arise in connection with the performance of an experiment may readily become a conditional reflex. These adventitious stimuli may constitute a decided obstacle to the formation of the desired conditional reflex by creating a focus in some particular region of the cerebrum, resulting, in turn, in a relative depression of the excitability of the other brain centres. In the presence of this lowered excitability the desired stimulus falls below the threshold value of the centre concerned, or is blocked from passage to other portions of the brain. These newly developed conditional reflexes are readily subject to inhibition by many factors. There may be a spontaneous inhibition through the development of a drowsy condition of the animal. Inhibition may result from the entrance of other stimuli, coming from without. By altering the time relation between the conditional stimulus and the unconditional one, or by omitting the unconditional one for a few times, an internal inhibition may arise. A "conditional" inhibition may appear if the conditional stimulus is accompanied by an indifferent stimulus. As the result of extirpation of the entire cerebrum no conditional reflexes can be formed, leading to the conclusion that the cerebrum is the organ by which sensations are analyzed and new reflexes are built up: "It is an organ for direct and appropriate adjustment to the most varied combinations and changes in the phenomena of the surroundings; it is the organ which is above all others necessary for the unimpeded evolution of the organism. It is perhaps not rash to think that some of the newly formed conditional reflexes can be transmitted hereditarily and become unconditional thereby."

**"Struma," an Important Factor in Disease of the Eyes.**—T. Harrison Butler believes that chronic, nonvirulent tuberculosis is the causative factor in a large number of affections of the eyes. He bases his belief on the frequency with which the subcutaneous injection of tuberculin gives a focal reaction in the suspected eye, and on the striking curative powers of small doses of tuberculin in many eye conditions. Among the affections which are often due to tuberculosis of a chronic type are: Phlyctenular ophthalmia, in which it is the commonest cause; xerophthalmia; scleritis; interstitial keratitis, in thirty per cent. of the cases; iritis; cystitis; and choroiditis.

**On the Rigidity of Calcified Arteries.**—A. H. MacCordick's attention was drawn to the fact that during life arteries of stony hardness are very seldom encountered, while post mortem they are often found. Even in cases of senile gangrene of an extremity the vessels are usually sufficiently soft to permit of occlusion by ligature, yet the same vessels are brittle and tend to break after the part has been amputated. From experimenting with specimens of such arteries, removed very shortly after death or at operation, and from experiments with

mixtures of calcium oxide and calcium phosphate subjected to various chemical conditions, MacCordick concludes that the alkaline reaction of the tissues in life is the cause of the pliability of calcified vessels. Very shortly after the death of the tissues their reaction becomes acid, and this change leads to the setting of the calcium deposit present.

**Significance of the Wassermann Reaction in Gynecological Diagnosis.**—A. Louise McIlroy and her collaborators have carried out this test in a series of 100 unselected cases. Although most of the cases gave no history or symptoms which would suggest syphilis, the reaction was positive in thirty per cent. Especially worthy of note is the fact that it was positive in a very large proportion of cases of uterine hemorrhage and such patients recovered rapidly under specific treatment.

**Circulatory Disorders in Relation to Alopecia Areata.**—David Walsh suggests that some circulatory disorder is at the bottom of most cases of alopecia. His hypothesis is that the tissues under normal circulatory conditions are able to resist the inroads of the cutaneous bacteria, while, when the circulation is deficient, this resistance is diminished, permitting the bacteria to gain a foothold. The organisms cause an inflammatory reaction about the bases of the hair follicles, the circulation in the capillaries is cut off, depriving the follicles of nutrition, and causing the hair to fall out. Recovery from the infection leaves a cicatricial deposit, which, if sufficient, renders the baldness permanent. The predisposing condition is a circulatory disorder, the exciting cause a traumatism, usually bacterial in origin. Treatment should take the circulatory disturbance into consideration. On the other hand, baldness is so often associated with some circulatory deficiency that its presence should always lead one to suspect some disturbance in the circulation.

LANCET.

October 18, 1913.

**Some Applications of Antenatal Eugenics in Heredity.**—D. Berry Hart succinctly presents the salient points in heredity as brought out by the work of Darwin, Mendel, and Weismann and their followers, and holds that the points which have an important bearing upon antenatal eugenics are: "1. The continuity of the germ plasma. 2. The origin of the heredity cells, not from the somatic cells covering the sex gland, but from an early division of the zygote. 3. The distributed and transmitted determinants of qualities giving rise to variation by means of the mitoses in the heredity cells and their maturations prior to fertilization, these processes being carried out according to the law of probability. 4. Natural selection considered as an eliminant. 5. The autonomy of the unit characters, and therefore the autonomy of the causal zygotic determinants. 6. The probability result of the distribution of the determinants in the zygotes by which each of the contrasted characters has a twenty-five per cent. chance of its pure distribution." He believes that the important antenatal changes in the heredity cells before fertilization are intrinsic in the germ plasma, and are hence beyond any direct control. From this it is evident that we

must look to postnatal eugenics for much valuable progress. The abnormal human conditions which are due to germ plasma conditions and distributions fall into two groups. In the first are "those inherent in the germ plasma determinants and subject to ordinary variations and distribution." Such are the neurotic strain, minor and major degeneracies, etc. The second group is made up of "those that are due to loss of determinants at maturation and are therefore characterized sometimes by a striking manifestation of deformity." In de Vries's sense they are mutations. These are of two classes—those limited to one sex, such as hemophilia and brachydactyly, and those found in both sexes, as achondroplasia. In the application of the known facts of heredity it is obvious that legislation will not be of much avail, but, like all great social advances, success is to be attained chiefly through the education of the people.

**Relief of the Pain of Laryngeal Tuberculosis.**—Edward D. Davis advocates the resort to one or more of the usual methods; but, in addition, finds the injection of alcohol into the internal laryngeal nerves of especial value in lesions of the ventricular bands, anterior surfaces of the arytenoids, aryteno-epiglottic folds, or of the laryngeal surface of the epiglottis. The larynx is pressed toward the side which is to be injected; the nerve is indicated by the nail of the index finger, placed between the hyoid bone and the thyroid cartilage immediately above the superior thyroid tubercle, at a spot that is usually found to be tender; over the centre of the nail the blunt needle of a Schlosser syringe is inserted to a depth of 1.5 cm. By carefully moving the needle a spot is found at which the patient experiences pain in the ear. At this point one or two c. c. of the warmed alcohol is injected. Davis uses a solution of two grains of eucaïne in an ounce of eighty per cent. alcohol. In twelve cases he has had only two in which there was failure to secure relief.

**Hereditary Optic Neuritis.**—A. S. Worton contributes an account of eleven cases of this rare disease, all of which occurred in males in three generations. In each case the disease was transmitted through an unaffected female. The cases were all descended from a common pair of ancestors, neither of whom was affected. In the series the ages ranged from nine to thirty-two years. Four patients were examined by the author, and two of those have gained nearly normal vision, having only some deficiency in light sense.

**Treatment of Infections by Means of Fixation Abscesses.**—De Lostalot is a strong advocate of this procedure in such conditions as puerperal sepsis, infectious arthritis, pneumonia, appendicitis, typhoid fever, etc. He acknowledges that the method is empirical, the precise mode of action not being understood as yet. Nevertheless, de Lostalot's experience of it has been such as to lead him to say: "It is of the greatest importance that time should not be lost in trying other methods before employing this; it is far better to form a 'fixation abscess,' and then the other methods can be used as well." The method is simple, consisting in injecting aseptically two c. c. of pure oil of turpen-

tine under the skin of the gluteal region. An immediate sharp pain results, which may be relieved by the application of a hot fomentation. In three or four days a sterile abscess has formed. This is incised, but must not be allowed to drain, and a Bier's cup is applied twice daily. Healing will be complete at the end of a week and "the patient will be cured."

#### BRITISH JOURNAL OF DERMATOLOGY.

September, 1913.

**Hereditary Dupuytren's Contracture.**—J. L. Bunch relates a case of Dupuytren's contracture which he had observed in a father, his son, and his grandson; and which disease, according to their statements, had affected the male members of their family for the last 300 years. It is only the male members that transmit the disease and the male members alone are affected. The disease started at about the same age, reached its height about the same time, and the same finger was involved in each instance. The author has been unable to discover any case of inherited or hereditary disease which would parallel the case under consideration.

#### INDIAN MEDICAL GAZETTE.

September, 1913.

**Iodine as an Aid to Aseptic Vaccination.**—E. E. Waters pictures the dirty arms to be seen in India (sometimes elsewhere), and has obtained most satisfactory results from the following practice: The arm is painted with tincture of iodine, and at the same time the vaccinator, as he holds the arm, paints his left thumb nail. The lancet blade is dipped in the tincture and allowed to dry. A sufficient quantity of lymph is extracted from the tube with the now sterile knife and placed either directly on the iodined arm, or on the left thumb nail, vaccination is then performed through the iodined skin and no dressing is applied.

#### BOSTON MEDICAL AND SURGICAL JOURNAL.

October 25, 1913.

**An Anatomical and Surgical Study of Pericecal Membranes.**—Michael F. Fallon concludes that the so called "Jackson membrane" is a congenital, normal, peritoneal membrane, and is not a membranous pericolicitis. It may be confounded with the pericolicitis of Virchow. The ascending mesocolon is a less frequent form of attachment of the ascending colon; the accompanying cæcum mobile in itself is not pathological. Digestion in man requires the retarding of the food current in the first half of the large intestine—the physiological stasis. When this stasis is pathological the causes frequently are faulty habits, and hygienic and dietary, rather than surgical measures, as a rule, are indicated. Pericecal membranes frequently predispose to appendicitis, and afford one explanation for family appendicitis.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

October 25, 1913.

**Some Newer Methods of Reducing the Mortality of Operations on the Pelvic Organs,** by G. W. Crile.—See this JOURNAL for June 28th, p. 1366.



**Can Rabbits Be Infected with Syphilis Directly from the Blood of General Paretics?** by W. W. Graves.—See this JOURNAL for July 5th, p. 47.

**Clinical Report of Seven Cases of Hydrophobia, Together with a Case Clinically Similar, with Recovery Following Injections of Quinine.**—D. L. Harris reports these cases. The seven cases referred to all ended fatally. In the case which recovered ninety grains of quinine and urea hydrochloride (in fifteen grain doses) were administered intravenously in twenty-four hours. In commenting on this case the author says that the fact of recovery raises the question of diagnosis, which rests solely on the clinical history. There were certain elements, however, which made for exclusion of hysterical fear of the disease. The patient had been bitten many times before by dogs, and he did not consider the last bite of sufficient importance to seek medical attention. It had altogether escaped his mind until the pain began. All the clinical manifestations were of such a character as seemed to warrant the diagnosis of rabies.

**Holding Fractures with Absorbable Material—Ivory Plates and Screws.**—P. B. Magnuson ascribes the following advantages to ivory: 1. Ivory is absorbed when in close contact with living healthy tissue. 2. It does not loosen, like other materials, when inserted in bones. 3. It does not produce necrosis or softening in the bone in contact with it. 4. In oblique fractures but little manipulation is required in the use of ivory screws; the screws maintain a strong hold on the fragments; there is no irritation, and there is nothing to take out after the fracture has healed. 5. In transverse fractures ivory plates fit closely into the fragments, do not loosen up, are strong enough to withstand any pull by the muscles attached to the fragments, will not allow angulation, especially if put in at right angles to the greatest tendency of displacement or, better, to the greatest pull of the muscles, will be gradually absorbed, and never act as a foreign body in the bone.

**Bacterial Invasion of Blood and Cerebrospinal Fluid by Way of Lymph Nodes; Findings in Lymph Nodes Draining the Pelvis.**—E. E. Southard and M. M. Canavan give the following summary of their study: 1. This continuation of former work shows that the cerebrospinal fluid (seventy-two per cent.) still leads the heart's blood (sixty-eight per cent.) in the proportion of positive cultures (routine aerobic methods; post mortem material). 2. Pelvic lymph nodes lead both blood and cerebrospinal fluid (seventy-five per cent.). 3. This is possibly due to the great proportion of pelvic lesions in the present series. 4. It is still uncertain whether these findings indicate ante mortem or post mortem invasions. 5. If, as seems likely, the invasions are intravital or agonal, it would appear that the pelvic lymph nodes are accustomed to harboring many bacteria. 6. Whether this habit of receiving more organisms than other nodes induces any superiority on their part in respect to power of digestion is unknown. If so, a rationale for Fowler's drainage position might be imagined. 7. The pelvis, often subject to acute and chronic disease in the insane, appears to supply its lymph nodes with very numerous bacteria. Some of these

are saprophytes, some doubtless pathogens; they are often found in the cerebrospinal fluid post mortem, even when absent (destroyed?) in the blood.

**A Discussion of Various Anesthetics and Methods. Experimental Observations.**—B. F. McGrath says that the best anesthetic administered by the most expert anesthetist would be the ideal in anesthesia; but such an ideal condition is no more feasible than that every surgical operation be performed with the best technic by the most skillful surgeon. No other anesthetic or method for application in general is so soundly supported by time and experience as ether administered by an expert, with a due allowance of air to the patient, and, compared with other anesthetics and methods, ether by the so called 'drop method' is at least as immediately safe and is more available, more economical, and more conducive to efficiency in extensive work. This is the position of the Mayo Clinic on the question of general anesthesia, as shown by the statistics from 1900 to 1913. After referring to the preliminary administration of drugs, such as scopolamine, atropine, and morphine, the author states that the present tendency at the clinic is toward amplifying the employment of local anesthetics. He then reports that for three months he has been pursuing experimental investigations on the subject of general anesthesia, but does not deem it advisable to discuss the results of these at the present time. One hundred and fifty-three experiments have thus far been undertaken on 145 dogs, and the anesthetics employed were ether, chloroform, paraldehyde, paraldehyde and ether in combination, urethane, and nitrous oxide-oxygen-ether.

#### MEDICAL RECORD.

October 25, 1913.

**A Case of Pseudobulbar Paralysis Presenting Spastic Movements Simulating Laughter.**—B. Oettinger reports this case, and in connection with it refers to cases of similar character seen by other observers and tabulates twelve cases of spastic laughing and eighteen cases of spastic crying. He discusses the terminology, classification of cases, and pathology, and states that his study demonstrates our need to note the conditions which relate to subcortical lesions. Here localization refers to nerve tracts, of projection and association, and, in case subcortical gray masses be involved as the added factor, reflex centres inherent to these ganglia. Hence modification of cortical impulses upon basal gray masses may be as effectively brought about by tract interruption or irritation as by lesions of ganglia themselves in which central neurons are rearranged or through which cortical projection fibres pass. For this reason, for instance, frequency of lenticular disease in the face of evidence that such lesions are vital to forced movements of laughing and crying fails to negative a like effect from softening of supranuclear tracts communicating with this ganglion.

**Mild Manifestations of Syringomyelia, with Report of Three Cases.**—C. B. Craig comments on the increasing number of reported cases of syringomyelia in American literature as bearing noteworthy testimony to the more widespread knowledge possessed by the general practitioner

and to his greater care in examining cases. In regard to the three cases which he reports in detail he says that they show a great disparity between the motor inconvenience experienced by the patient and the unsuspected sensory disturbance. The mild degree of atrophy and other trophic disturbance and the comparatively slight loss of motor power indicate the remarkable manner in which the depredation of the spinal gliosis is confined, in the early stages at least, to the sensory tracts bearing thermic and pain sensations, tactile and postural sense being unimpaired. The symmetry of the sensory disturbance is worthy of note as favoring the belief that the *Anlage* of the disease is of congenital origin, consisting of an inclusion of the glial cells in the posterior median fissure of the spinal cord during the involution of the neural ectoderm.

**The Röntgen Rays in the Diagnosis of Diseases of the Stomach.**—I. H. Levy says that the x rays give us a definite idea of the shape, location, and size of the stomach. They show the depth, rapidity, and direction of the peristaltic waves, and enable us to determine the motor power of the organ, and also by the aid of variously coated bismuth capsules of different weight the amount and character of the secretions. It cannot be too strongly emphasized, however, that the rays are not to be invoked as a first aid. Alone, they do not make the diagnosis; they are simply a diagnostic aid, and should be employed only in conjunction with all other aids. The Röntgen rays, whether we use the fluoroscope or radiograph, give us only a picture, and it is the interpretation of this which is all important. The x ray examination must be checked up and controlled by all other methods, and if it contradicts the other findings great care must be used in coming to a conclusion. As to its assistance in the diagnosis of gastric ulcer, the belief to-day is that in simple ulcer the bismuth does not help us to locate the lesion. But in cases of chronic ulcer of the pylorus leading to stenosis the diagnosis by means of the x ray is very simple, and in another form of ulcer, the "ulcus penetrans callosus" of Haudek, it makes a positive diagnosis. In fact, this is the only means of making a diagnosis previous to operation. The hour glass type of stomach also can be diagnosed with certainty only by this means: When the stomach is adherent to surrounding organs or structures the adhesions cannot be seen with the x rays; yet we are able by this means to suspect their presence. Cancer of the stomach in its incipency cannot be diagnosed, but when a tumor is present which encroaches on the lumen of the organ, by means of the x rays we can see the defective shadow. This can often be discerned before the mass is palpable; which is already a great gain. But we can frequently suspect cancer even before there is a break in the bismuth shadow, and, in fact, the Röntgen picture may take the place of an exploratory incision. Although, unfortunately, the x rays as yet do not make the early diagnosis possible, the author believes it may safely be asserted that if all cases were seen early enough and x rayed, the prognosis of the surgical treatment of gastric cancer would be much better.

### The Frequency of Amentia as Related to Sex.

Miss L. S. Hollingsworth, of the Clearing House for Mental Defectives, New York city, states that more males than females are brought to the clearing house in a ratio of about 1.3 to 1.0. Between the ages of two and sixteen years there is a very marked preponderance of males, but above sixteen, a marked preponderance of females.

### AMERICAN MEDICINE.

September, 1913.

**The Need for Coordination of Antituberculous Measures.**—Sir R. W. Philip says that tuberculosis is an insidious infection which, although readily prevented and treated when appropriate means are used for a sufficient length of time, is yet tenacious and illusive to a high degree. The recognition of these features must be the prelude to any sound programme of prevention and treatment. It is because tuberculosis is so insidious, so tenacious, and so illusive, that more specialized procedure has to be adopted than is needed for other fevers. The time has come when the disease in its remarkably varying expressions, must be handled as a definite entity. It is extensive enough, with its complex issues, to warrant the starting of a special department of public health activity. What is needed is an organized and coordinated scheme which will include and link together the different institutions and agencies which the circumstances require. The essential unity underlying the endless diversity of expression of this disease calls urgently for centralization of intelligence and direction, and the remarkable diversity of manifestations affords the reason why differentiation is necessary in the provision of institutions for its treatment. The experience of thirty years has convinced the author that it is only by intimate correlation and careful coordination of the several factors that satisfactory and permanent progress will be made in the struggle with tuberculosis.

**Intravenous Injections of Neosalvarsan in Septic Scarlet Fever.**—Louis Fischer states that he has employed this treatment in fifteen cases, but feels that a larger number must be treated before its merits can be passed upon. One fortunate point stands out prominently in its commendation—that he has not seen one deleterious symptom follow the use of neosalvarsan. When high fever existed a decided and striking antipyretic effect was noted within from twenty-four to forty-eight hours after one injection, and this was observed in twelve of the fifteen cases. The injection was usually given when the disease appeared to be at a standstill, with a decided loss of resistance. While there was no immediate amelioration of the symptoms, the neosalvarsan seemed to provide an increased power of resistance by elevating the general tonicity of the system. He believes there is some virtue in the drug and that it merits a more extensive trial, since it benefited some of the patients whose cases he reports.

**The High Frequency Current as a Rational Treatment in Tic Douloureux.**—A. C. Geyser maintains that from the conditions associated with tic douloureux, and the special qualifications char-

acteristic of the high frequency current, from a theoretical point of view at least this current is the most logical and scientific therapeutic agent that could be devised. The practical results, he says, are most gratifying. During his earlier cases his patients had complete relief and recoveries in sixty-five per cent. of the cases, while by properly selecting suitable cases, with wider experience and improved technic, he is now able to promise satisfactory results to eighty per cent. of his patients.

#### ARCHIVES OF INTERNAL MEDICINE.

September, 1913.

**Nitrogen Retention and Phenolsulphone-phthalein Excretion.**—C. Frothingham, Jr., R. Fitz, O. Folin, and W. Denis report experiments in which the amount of nonprotein nitrogen, including urea, retained in the blood in rabbits rendered nephritic by uranium, was estimated and compared with the already clinically used phenolsulphone-phthalein test for renal function. In general the results obtained from the two procedures were found to parallel each other as indicators of renal capacity, with the difference, however, that whereas the excretion of the drug showed the kidney function at the moment the test was performed, the nitrogen retention represented an accumulating difference between the amount of waste nitrogen produced in metabolism and that eliminated by the kidneys. The previous duration of the nephritis was therefore an important factor in determining the results of the nitrogen test.

**Reaction of Salomon and Saxl as a Diagnostic Test for Carcinoma.**—Isidor Greenwald found no difference between the urines of patients with carcinoma or other diseases and normal individuals in their response to this test, and concludes that the latter is of no value in the diagnosis of carcinoma.

**Protein Metabolism in Pregnancy.**—J. R. Murlin and H. C. Bailey found that in a normal pregnancy and puerperium the proportion of ammonia nitrogen in the urine before and after labor lies within the ordinary limits (from four to six per cent.), except for one or two days immediately following delivery, when it is slightly increased (from seven to ten per cent.). High ammonias may, however, be encountered in normal cases because of bladder contamination, and reduced amounts after irrigations of the bladder with boric acid solution. The percentage of total nitrogen eliminated as urea in the last month of pregnancy is somewhat diminished, largely owing to retention of nitrogen for the growth of the fetus. The ammonia nitrogen, on the other hand, may be as high as twelve per cent. and be unaccompanied by any unfavorable symptoms. Since it is subject to marked variations arising through catharsis or changes in diet, the absolute ammonia nitrogen value is much more reliable than the percentage; it varies but slightly from day to day. Any amount up to 0.12 gramme of ammonia nitrogen to the kilogramme of body weight in the twenty-four hour urine is well within normal limits. The creatinin coefficient is probably increased in pregnancy, creatin occurs in the urine, and the total purin nitrogen is slightly higher than in normal male subjects on similar diets.

**Use of Pituitary Extract in Obstetrics.**—F. C. Harrison deems pituitary extract of great value in cases of weakness in uterine contractions after the soft parts are well dilated. The later in labor, but before delivery, the more striking the effect. As an addition to some mechanical method, e. g., the Champetier de Ribes bag, it is of great value in bringing on premature labor or abortion. In the former case it may be sufficient in itself, but there is some risk of tetanus of the cervix or uterus, especially when repeated injections are required. For delivery of the placenta its use is accompanied by the danger of tetanus uteri and retention. In post partum hemorrhage a considerable proportion of failures may be expected.

**Intraspinal Injections in the Treatment of Syphilitic Affections of the Central Nervous System.**—H. F. Swift and A. W. M. Ellis, in view of the fact that there is very little excretion of curative agents from the blood into the cerebrospinal fluid, were led to study the effect of injections of the serum of salvarsan treated cases into the subarachnoid space of patients with central nervous syphilitic disease. Their technic has already been described (see this JOURNAL for July 13, 1912, p. 53). In the present paper they report gratifying results in an additional series of cases, laying special emphasis on the improvement in the condition of the cerebrospinal fluid as revealed in the number of cells contained, globulin, and Wassermann reaction. Their present treatment is to give 0.45 or 0.50 gramme intravenously every few weeks, and in addition intraspinal injections of thirty cubic centimetres of forty per cent. salvarsan serum. Most of the cases under observation have been of tabes, though some improvement has also been noted in a few paretics. By careful clinical examination, as well as examination of the cerebrospinal fluid, many cases of tabes could probably be detected in an early stage and arrested by intensive and prolonged treatment. Many tabetics give a history of diplopia or other transient eye disturbances several years before the onset of any other symptoms. In the treatment, each case must be considered individually, as some respond much more rapidly than others. In all, however, the object should be to obtain a persistently normal cerebrospinal fluid. Combined intraspinal injections and intensive intravenous treatment is indicated in all cases of rapidly advancing tabes and paresis, or where the disease has resisted other forms of treatment.

#### INTERSTATE MEDICAL JOURNAL

September, 1913.

**Cerebrospinal Meningitis: Some Atypical Manifestations and a New Diagnostic Aid.**—N. P. Barnes says that the result of his observation of this disease as it has occurred in and around the District of Columbia during the past two years is to bring out the atypical character of the cases. The following facts are worthy of mention: 1. Cervical opisthotonos one of the very last signs to develop. 2. The contraction of the recti and other abdominal muscles, noticeable in all the cases. 3. In several instances the symptoms for a week or more could have been mistaken for any other disease, on ac-



count of the absence of the classical symptoms of meningitis. 4. The disproportion between the pulse rate and temperature, particularly noticeable in three of the cases. 5 The dilatation of the pupils produced in all cases when Kernig's sign was being elicited; also in several instances when the head was being flexed upon the chest. 6. The complete covering of the palate with herpes vesicles in two of the cases. 7. The ability to produce the rash in true cerebrospinal meningitis with the electric light and reflector; which phenomenon could not be induced in meningitis of other type. 8. The necessity for prompt examination and reexamination of the spinal fluid. 9. The importance of making a leucocyte count.

**The Acute Diarrheas of Infants.**—It is possible, says R. M. Smith, to differentiate certain fairly distinct groups, and the recognition of these groups is important because the treatment of each group differs from that of the others. He first describes the group associated with disturbances of digestion and the treatment of the conditions met with. In the second place he takes up the affection popularly known as "summer complaint," the cases of which come in waves, while certain facts would seem to indicate that the cause of disturbance is in some way related to atmospheric conditions. In the third group, infectious diarrheas, bacteria play a primary rôle. These are the dysentery bacillus, the gas bacillus, and other organisms not yet fully determined. The symptoms are digestive and toxic, and diarrhea is usually the first sign of the disease. Treatment consists of two things: Treatment of the toxemia (by far the more important) and treatment of the local condition. A cathartic (preferably castor oil) should be given at first; then water should be given freely, and all food withheld. Normal salt solution, by subcutaneous injection, may be called for. In from twelve to fourteen hours after the initial purgation a five per cent. lactose solution should be given. Milk should be withheld for a considerable time, and it is rarely wise to increase the diet so long as the temperature is elevated or the stools contain blood. Dextrose infusions, 2.5 per cent., may be given as another means of supplying food and liquid. Stimulation is often necessary. In the local treatment cleanliness is most important. Irrigations of the colon with normal salt solution or plain sterile water should be given twice daily, provided they are not followed by a severe depressing reaction. In gas bacillus dysentery, the symptoms of which resemble those of the bacillary type, the treatment consists in the administration of food of high proteid and low carbohydrate composition.

**The Influence of the Injection of Tuberculin on the Eosinophile Cells in the Peripheral Blood.**—J. M. Swan gives the details of the differential leucocyte counts in eight cases in which tuberculin injections were made for diagnostic purposes, in order to determine, if possible, the influence of tuberculin on the eosinophile leucocytes. In these cases eosinophilia was seen after the injection of the tuberculin in five instances and was absent in three. In the latter cases the reaction was negative. From these results two conclusions might be drawn: First, that eosinophilia is due to the fever accompanying a positive reaction; second, that after the

injection of five milligrammes of tuberculin in a person who is not suffering from tubercle bacillus infection, not enough tuberculin is administered to produce the eosinophilia. The first conclusion must be rejected, because all elevations of temperature are not accompanied by eosinophilia. The second conclusion may or may not be justified, though the author has no evidence to offer on this point.

#### JOURNAL OF CUTANEOUS DISEASES.

**Additional Studies on the Presence of Spirochaeta Pallida in General Paralysis and Tabes Dorsalis.**—H. Noguchi's article may be divided into two parts for the purpose of analysis. First, a historical résumé of the etiology of general paralysis and tabes. It is admitted by the majority of clinicians that tabes and general paralysis are in their origins intimately connected with a previous luetic infection. This statement has met with a great deal of opposition, owing to the fact that neither of the above mentioned diseases show the characteristic pathological changes of lues, and they are neither cured by the remedies that have a curative influence in syphilis. On the other hand cerebral and cerebrospinal lues show the characteristic pathology of lues and yield to antisypilitic medication. It is because of these facts that general paralysis and tabes have been called parasypilitic diseases, metaluetic or postluetie conditions, and it is also true that some authors have advanced the theory that tabes and general paralysis are the result of some toxic substances emanating from some as yet unknown metabolic anology brought about by a previous luetic infection; and it is because we have to deal with the aftereffects of the disease that the syphilitic remedies prove unavailing. Secondly, concerning the technic and technical difficulties of finding the spirochete in general paralysis and tabes, the author states that he was led to the study of this problem, by the observation that at times and under certain conditions in pure culture, the spirochete assumed the form of minute granules, from which, upon transplantation into suitable media, spiral forms were seen to sprout. This suggested the thought that possibly the spirochete assumed the granular form in cases of parasypilis. For this communication the author has examined the brains of 200 cases of general paralysis, and was successful in finding the spirochete forty-eight times. He also examined the spinal cords of twelve cases of tabes; spirochetes were found in only one case. In the cord the difficulties are greater than in the brain, because in cutting the sections transversely, the search for spirochete is hampered by the pressure of numerous neuroglia fibres and cross-sections of nerves; but by cutting the sections longitudinally, this difficulty was minimized. The spirochetes were found more abundantly in the cortical layers. Noguchi emphasises certain points in technic: First, it is often advisable to cut sections of five millimetres thickness instead of two millimetres, as it is easier to identify the spirochete in the interior postures. Second, that neuroglia fibrils stain well in an imperfectly fixed tissue, and the spiro-

chete never takes on the silver impregnation, unless the tissue be completely fixed prior to impregnation. Third, that prolonged formalin fixation interferes with the staining of neuroglia and accelerates the staining of spirochete. The nerve tissue (brain or cord) of five to seven millimetres thickness is placed in a mixture of ten per cent. formalin; ten per cent. pyridin; twenty-five per cent. acetone; twenty-five per cent. alcohol, and thirty per cent. distilled water for a period of five days, at room temperature. The tissue is then washed in distilled water for twenty-four hours. Next put in ninety-six per cent. alcohol for three days and thoroughly wash in distilled water for twenty-four hours. After this the following directions are carried out in a dark bottle. Bath in 1.5 per cent. nitrate of silver solution for three days at 37°C. (or five days at room temperature). Wash in distilled water for several hours. Reduce in a four per cent. pyrogallol solution with the addition of five per cent. formalin for twenty-four hours at room temperature. Wash in distilled water. Transfer to eighty per cent. alcohol for twenty-four hours. Then ninety-five per cent. alcohol for three days. Absolute alcohol for two days. Xylol, xylol paraffin, and paraffin. When the staining is successful the various tissues of the brain appear in color varying from pale yellow to yellowish brown, while the pallids are pure black.

#### JOURNAL OF INFECTIOUS DISEASES.

*September, 1913.*

**The Toxicity of Human Tonsils.**—At present various investigators are asserting that there is a definite relationship between the tonsils and asthma. One man considers the possibility of these cases being due to the absorption of toxic substances from the tonsils. Dick and Burmeister undertook to determine by their experiments just whether or not there are toxic substances in the tonsils; second, if present, the nature of those substances; and, third, the factors influencing the degree of toxicity. Extracts of the tonsils, removed at operation, were made by grinding them in a mortar with salt solution. The extract thus obtained was either centrifuged or filtered through paper. On injecting rabbits and guineapigs with this substance the animals died in a few minutes with symptoms closely resembling those of anaphylactic shock. The post mortem examinations also showed the changes found in these conditions. The authors conclude that extracts of tonsils are acutely toxic for animals. That these substances affect animals in a manner similar to that of anaphylatoxine. The results of their work also would indicate that as a rule extracts of those tonsils which are associated with hemolytic streptococci are most toxic.

**Studies on the Cultivation of the Virus of Vaccinia.**—Steinhardt, Israeli, and Lambert undertook a series of experiments to determine whether or not the virus of vaccinia could be caused to increase by being grown artificially. They took small pieces of rabbit or guineapig cornea and placed them for a few minutes in a weak emulsion of virus. These pieces were then transferred with a small quantity of the virus to cover glasses to

which drops of rabbit or guineapig plasma were added. These were then incubated and at the end of from seven to eighteen days were rubbed on the freshly shaven skin of a rabbit. In every instance, an extensive confluent eruption occurred, while with uninoculated specimens discrete vesicles, from ten to fifty, were formed. As a result of the cultivation *in vitro* of corneal tissue plus the virus of vaccinia the authors state that there is a multiplication of the virus of vaccinia although no specific vaccine bodies are found in the preparations.

**The Treatment of Tetanus.**—McClintock and Hutchings come to some important conclusions concerning the treatment of tetanus in consequence of their experimental work. They believe that there is little if any value in the carbolic acid treatment of the disease. If there is any gain, it is probably due to the sedative action of the drug and not to any direct action on the disease process. The subcutaneous use of magnesium sulphate also proved of no value. The only thing of value was antitetanic serum, which alone had a definite, but usually insufficient, curative action. The authors, from the observations of a large number of animals and quite a number of human beings dying of tetanus, believe that the exhaustion due to the muscular contractions is a large factor in producing fatal results. According to them the best that can be done in the treatment of tetanus is to neutralize the toxine with repeated doses of serum while controlling the muscular spasm with some such drug as chlorbutanol.

#### Proceedings of Societies

##### NEW YORK ACADEMY OF MEDICINE.

##### Section on Pediatrics.

*Stated Meeting, Held October 17, 1913.*

Dr. HENRY D. CHAPIN in the Chair.

**Atypical Infantile Paralysis.**—Dr. F. L. WACHENHEIM, of New York, read this paper, in which he called attention to the large proportion of atypical cases in the present epidemic of infantile paralysis which had prevailed since 1907. In the typical or classical form of the disease the patient fell suddenly ill with moderately high fever, more or less marked gastrointestinal disturbance, and general weakness of the extremities. In a few days the fever abated and left the child paralyzed in one or more limbs. This paralysis gradually passed off except for one group of muscles, usually in the lower extremity, which remained atrophied for life. Infantile paralysis was considered a disease of the anterior horns, usually of the lower spinal cord, rarely involving other portions of the gray matter, though the poliomyelitis of Wernicke and that of Strumpfel were regarded as possible variations of the type described.

During the epidemic of last fall the writer observed seven cases in all, only one of which was typical. The other six were so atypical they were worth reporting in detail. In the first case the child had had a temperature up to 106° F. and the prognosis seemed doubtful as to life and poor as to the

restitution of the impaired muscle, yet he made a rapid and complete recovery, save for a slight weakness in the left leg. All of the other cases showed severe cerebral symptoms. A deep somnolence was a characteristic feature of the entire group. Many authors insisted that the cerebral affections associated with poliomyelitis did not affect the cortex but only the basal ganglia, while others did not accept this restriction. The whole matter was far from a final decision but the frequent grave disturbance of the sensorium was strong evidence that the cortex was sometimes involved. A most unusual feature of the third case reported was that of localized facial sweating. General hyperidrosis in infantile paralysis might very well be attributed to the disturbance of the sweating centre in the medulla oblongata, and was therefore especially likely to occur in cases of the cervical and cerebral types. In the case under consideration it seemed reasonable to bring this local sweating into relation with a slight facial paralysis which was present, though the connection was not as clear as one might wish. The fifth case reported was unusual on account of the prolonged subfebrile temperature with tachycardia lasting seven weeks. This child then succumbed, during an attack of bronchopneumonia, to acute dilatation of the heart. There was no doubt but that in this case the involvement of the gray matter was unusually extensive and it was quite possible that the patient suffered from grave impairment of the cardiac innervation. The last case was apparently one of meningitis but this diagnosis was rejected because of the preponderance of lymphocytes in the cerebrospinal fluid, the absence of meningococci, the rapid recovery from the uncommonly severe symptoms of posterior basic involvement, and the absence of an epidemic of cerebrospinal meningitis at the time. Tuberculous meningitis was excluded by the high leucocyte count, the acute onset, the favorable outcome, and the negative von Pirquet reaction. The other forms of meningitis would have shown their respective germs and would also have ended fatally, and, hence, one was safe in excluding them. The speaker called attention to the series of cases reported by Koplik in which symptoms recalling both cerebrospinal and tuberculous meningitis dominated the clinical picture throughout the course of the disease. While no records could be found of another case presenting, as did this one, optic neuritis terminating in atrophy and amaurosis, such an untoward event was readily conceivable. It seemed that the Fehling test was of doubtful value in severe cases of meningoencephalitis, seemingly varying according to the intensity of the infection, rather than the etiology of the disease. A characteristic feature of these cases was the acute onset, the high leucocytic count, differing from the findings in ordinary poliomyelitis. The cerebrospinal fluid was at first cloudy but differed from that of cerebrospinal meningitis in that the sediment consisted chiefly of leucocytes; in a few days the fluid cleared up leaving only a delicate fibrin on standing. The germ of poliomyelitis which had only just been identified might be discovered in the spinal fluid of this group. The intraspinal pressure was usually not high, far lower than in the usual forms of meningitis. The temperature was apt to

run the course usually observed in poliomyelitis, possibly rather higher at first, but falling to normal before the remission of the grave cerebral symptoms. The most striking feature was the disproportion between the cerebral symptoms and the general condition of the patient; this was the chief guide to the real diagnosis in his case. Such a discrepancy was so remarkable that it could not fail to attract the attention of the attending physician and clear up speedily all doubts as to the type of the disease. The resulting paralyses were apt to be of the flaccid type distinctive of poliomyelitis, not spastic as after ordinary meningitis. The remarkable variations displayed by so small a clinical material were sufficient to convince one that infantile paralysis was one of the most protean affections of the central nervous system.

#### A Year's Progress in Poliomyelitis Research.

—Dr. GEORGE DRAPER, of New York, said that his subject called for a review of the literature, and consequently any thing that he said would be a repetition of what had already been stated. He considered only the salient points in recent literature calling attention to three in particular, the general visceral pathology, the demonstration of the virus in healthy persons, and the discovery of the organisms. In regard to the first point he said that poliomyelitis had hitherto been regarded as a disease of the central nervous system, but that lesions had been found in various viscera. The secretions of the nose and mouth which had long been suspected of being the vehicle of infection had been definitely proved to be carriers of poliomyelitis. The discovery of the greatest importance was the identification of the organism itself. This organism was extremely small. It was from 0.15 to 0.3 micron in length, and just on the limits of visibility. It was anaerobic and cultivated only with the greatest difficulty. The cultures stained best with Giemsa stain, were variable to the Gram stain, but tended to be Gram positive, varying with the constituents of the media. The organism fulfilled Koch's laws. The interest of the moment was directed not only to the relation of the germ to poliomyelitis but to the fact that its discovery opened up a new field of bacteriology.

Dr. HENRY HEIMAN, of New York, who opened the discussion, said that when one considered that there were at least nine varieties of poliomyelitis, it was not surprising that so many atypical cases were found. Doctor Wachenheim's cases would serve as a nucleus for many other types likely to be observed in the future. Hardly any part of the cerebrospinal system was exempt from attack, and this might account for the many types of the disease. The cerebrospinal and meningeal types were sometimes confounded with meningitis because of the presence of spasticity. After the subsidence of the spastic signs, paralysis appeared and the diagnosis became clear. It was almost impossible to give a definite prognosis in the severe cerebral forms of the disease. Since the germ was anaerobic how was it able to live in the nasal secretions or in the rectum?

Dr. H. L. AMOSS, of New York, remarked that Doctor Draper had given a very good description of the organism. It was only with the greatest



difficulty that they had succeeded in cultivating it at all according to Noguchi's method. They had tried about twenty-five samples of ascitic fluid before they at last succeeded in cultivating the organism from the nervous tissues of a monkey dead of the disease. The organism had been found once in the spinal fluid of a monkey, but never, to his knowledge, in that of a human being. They had concentrated spinal fluids from several cases of acute poliomyelitis in the human being under diminished pressure at 33° C. and injected it into the brain of monkeys; suggestive symptoms alone resulted. As to the viability of the virus, one of their strains had been kept in sterile glycerin in the ice-box for twenty-four months and was still capable of producing the disease when inoculated into the brain of monkeys.

Dr. GEORGE DRAPER, in closing the discussion, said in reply to Dr. Heiman's question that possibly the secretions of the nose and throat formed a capsule enclosing the organism and excluding the air and thus preserved the vitality of the organism.

Dr. F. L. WACHENHEIM said that the points which he wished to emphasize were the difficulties in diagnosis in meningeal cases, and that in a few days one could usually size up the case as not typical meningitis. The subject of insects as carriers of poliomyelitis had not been discussed and it was to be hoped that it would be brought up later.

**Results of Investigations of Summer Diarrhea at the Boston Floating Hospital.**—Dr. HENRY J. BOWDITCH, of Boston, read this paper by invitation. He declared that greater interest had been shown in Boston than in most other cities in the bacteriology of intestinal diseases of infancy. His remarks were based on the investigations in the Boston Floating Hospital from 1910 to 1913 and illustrated the advantage of intensive work. The Floating Hospital had accommodations for 120 ward and 160 day patients. The children admitted ranged in age from one day to seven years. The first object of this hospital was to serve the public, but in addition it had attempted to produce scientific results which would be helpful to humanity.

The scientific work was started in 1909 by Dr. William P. Lucas, who with others studied agglutinins in the blood of dysenteric cases. In 1910, Dr. Arthur I. Kendall, with the cooperation of the staff, made an extensive study of diarrheas both from the bacteriological and the clinical standpoint. They established a shorter method by twenty-four hours of making the bacteriological diagnosis of the dysenteries produced by the Flexner and Shiga bacilli. They found the gas bacillus the predominating organism in many cases and then demonstrated a short clinical test for its presence in the stools. This test consisted in taking a tube, one quarter full of milk, and inoculating it with mucus from a movement. The whole was boiled over a Bunsen flame for one minute and then kept at blood heat for from six to nine hours. A positive gas bacillus infection peptonized the milk, squeezed out the whey, riddled the curd with gas, and produced a strong odor of butyric acid. This same year they shortened their former long period of starvation in dysenteries from three, five, or seven days to twenty-four hours. Boiled water was given as

temporary starvation. This was followed by barley, lactose, and buttermilk, according to the infection. In the year 1910 they used for the first time a solution of dextrose (2.5 per cent. in normal saline) for stimulation in cases of dysentery of the Flexner type with marked loss of water and depletion. It was usually injected in rather large amounts, at first four, six, and eight ounces every twelve hours. The idea underlying this procedure was that the normal amount of dextrose in the system had been partially used up and by supplying the infecting organism with this food it could be prevented from living on the body proteins and producing toxins.

In 1911, they for the first time isolated the Shiga bacillus from the blood. During this summer they made an investigation along the line of rectal irrigations, trying various solutions, most of which seemed to do little good. They now gave saline irrigations immediately on admission and but few during the course of the disease. They used silver nitrate (three per cent.) in instances where the infection was low. Solutions like tannic acid had little effect. They found that pyelitis was rather frequent in their cases, the majority of cases occurring in cases of streptococcus infection.

In 1912, the number of cases infected with the gas bacilli greatly increased, and they carried out their theory of feeding high proteids, giving buttermilk, fatfree milk, and Eiweiss milk without any trouble. After the first week they felt safe in giving these without making a bacteriological examination. Almost all the children improved under this treatment and one variety of milk seemed to agree as well as another. They therefore concluded that milks with high protein content were better for gas infections, and they also found that in this kind of infection it was dangerous to give lactose. If one was giving lactose and the symptoms reappeared one should change immediately to a high protein diet.

While the year 1913 was not yet complete the work was interesting as far as it went. They now made more accurate bacteriological examinations than formerly. During this year there was a predominance of the slime bacillus. This bacillus first appeared in August, 1912. The bacterial study of these cases brought out the fact that the predominating bacillus in the month of August in one year would be the predominating one in the following July; this carried out the cyclic phenomenon of epidemic diseases. They had used during July of this year high proteid feeding on account of the presence of the gas bacilli, but in August the Flexner bacillus appeared and because of the danger of giving high proteids in such cases they quickly changed to other methods of feeding, giving lactose solutions (from five to seven per cent.) with or without barley starch.

There was a pleasing cooperation among the members of the staff of the Floating Hospital; the patients were at the service of any one of the visiting staff. They held a yearly clinical midsummer meeting in order to go on with their season's work, which proved most beneficial and to which all who were interested were welcomed.

In opening up the discussion, Dr. RICHARD M. SMITH, of Boston, said that they had paid special

attention to the acute diseases of the gastrointestinal tract on the Floating Hospital and had tried to separate the cases into groups. They had used the classification recommended by the pediatric department of the Harvard Medical School and found it a satisfactory basis. They had seen, primarily, three large groups of patients. The first group presented simple digestive disturbances caused by errors in diet, due either to a single constituent in the food or to a combination. In this group the disease was not primarily associated with the summer months and they had studied it less intensively than the other groups. The second group included patients who had more than a simple digestive disturbance. The etiology of this group was not well understood; apparently it was not primarily due to bacterial action, though the bacteria might enter into the condition. Neither was it dependent entirely on atmospheric conditions. However, there was a small group of cases within this general division which were certainly due to great atmospheric humidity. There was a possibility that a further study of these cases would show that the weather had more to do with them than they were at present inclined to believe. The third group included cases which were true infections and were to be sharply differentiated from the other groups. The organisms responsible for individual cases varied, but the cases as a whole could be better grouped together under the term "infectious diarrhea." The type of organism showed a marked seasonal tendency, one type usually predominating in a single summer. The particular organism could not be positively determined by clinical study alone but must be determined by bacteriological examination. The pathological findings from different bacteria varied strikingly, as did also the response of individual babies to various kinds of treatment. Many of the types of organism were only partially understood, but several distinct groups were recognized, the Shiga, Flexner, and the gas bacillus. Further investigation would be necessary in order that they might reduce the undetermined organism to a minimum. Their work had been undertaken with no preconceived ideas, but they were trying to draw logical conclusions from the combined clinical, pathological, and bacteriological study of the material as it presented itself in the Floating Hospital.

Dr. ROWLAND G. FREEMAN, of New York, said that his first experience in pediatrics having been in the autopsy room, he had become accustomed to an anatomical classification. Clinically, cases were readily classified in this way. The lesion was in most cases an ileocolitis, only the lower twelve inches of the ileum and each end of the colon being infected, the transverse colon being distended with gas. These cases might be acute or chronic. There might be simply a congestion or an enlargement of the follicles, or an erosion giving rise to blood in the stools. He had always looked forward to a bacteriological classification, but so far their information had been insufficient for this. For some years he had been interested in the isolation of the Flexner bacillus and in studying the results of the bacteriological examinations in two large services he had felt convinced that the Flexner bacillus was simply a terminal infection and had no significance

as regarded prognosis or treatment. At the time, however, they were not looking for the Flexner bacillus as a predominating organism.

Dr. GODFREY R. PISEK, of New York, said that the practical point in this work was the opportunity to study a large number of cases over a long period of time. The results of this work had given them practical information. The southerner who came to their schools often asked more questions on the bacteriology of diarrheal diseases than any other, and this was because he had larger opportunities for observing that therapeutical measures that gave good results in some cases did not do so in others. The Boston men were on the right track in saying that certain bacilli were predominant in some localities and not in others. Doctor Bowditch had told them nothing of their mortality in Boston; in New York they were justly proud of their statistics of infant mortality. Doctor Pisek cited some of the figures showing what had been accomplished by various agencies in New York in the reduction of infant mortality. For instance, the mortality of children under one year of age for the year 1906 was 153.7 to each 1,000 births, while in 1912 it was 105.3. The death rate for the three months of 1913 for infants under one year of age showed an actual decrease from 1908 of 28.2 per cent.; from 1909 of 20.1 per cent.; from 1910 of 26.1 per cent.; from 1911 of 10.3 per cent.; and from 1912 of 5.7 per cent. For July, August, and September of 1912 the total number of deaths of infants under one year of age was 4,381 and for 1913 it was 4,119. The number of deaths from diarrheal diseases of children under one year of age was 1,921 for 1912, while for 1913 it was 1,638. In 1912 the infant deaths were 43.8 per cent. of all deaths, and in 1913 they were 39.7 per cent. of all deaths.

Dr. L. E. LA FETRA, of New York, stated that last year he had had the privilege of making two visits to the Floating Hospital and wished to express his admiration of the work done there. All the cases were most thoroughly studied and the staff conference which he had attended was most interesting. From what had been said of the different results of using Eiweiss milk on the cases with gas bacilli and on those with the Flexner bacilli, it would seem that a knowledge of the predominating bacteria would be of distinct advantage. Occasionally they got a case that did not clear up with the Eiweiss milk, and a bacteriological examination would certainly be a help. It would be interesting to know if Doctor Bowditch had discovered any characteristic feature of the stools, as odor or reaction, that would indicate the kind of infection present.

Dr. HERMAN SCHWARZ, of Boston, observed that in the examination of a large number of stools they had found the Flexner and Shiga bacilli wherever there was blood and pus in the stools. It seemed possible that these bacilli might be the normal terminal infection of all these diarrheas.

Dr. ALFRED F. HESS, of New York, said that Doctor Bowditch had not mentioned the reaction of the stools. Dr. Kendall originally emphasized the importance of this reaction. He had stated that where an acid reaction was present, one should use proteids, and where the reaction was alkaline, a

carbohydrate diet should be used. They had found, however, that in spite of an alkaline reaction the children frequently got well with proteid food. What was meant by starvation of from five to seven days? It had been stated that sugar had been suggested because this substance had partially disappeared from the blood. Was that a demonstrated fact? It was most important in these cases to give water. The drip method by the mouth, using a nipple, was very satisfactory. A quart could thus be given in a day and the method had the advantage of keeping the baby quiet.

Dr. HENRY HEIMAN, of New York, expressed the opinion that Doctor Bowditch had proved his cases to be infectious diarrheas. All were acquainted with these bacteria as causing specific infections, but these cases must be distinguished from the so called summer diarrheas in which there was no specific infection, but in which hundreds of saprophytes were found, the bacteria playing only a secondary rôle. At the Mount Sinai Hospital in the so called summer diarrheas examinations for the Shiga bacilli were almost always negative; out of forty cases examined there was only one with cocci, though Gram negative bacilli were always present. It was Doctor Heiman's belief that most cases ordinarily called summer diarrheas were not caused by specific organisms but were mostly due to nutritional disturbances with gastrointestinal symptoms in which the bacteria played only a secondary rôle.

Dr. J. FINLEY BELL, of Englewood, N. J., thought the work in the Floating Hospital most interesting, but said it required elaborate apparatus which was not practical in private practice. Probably a simpler method would be deduced of determining the kind of infection present. In one case of the recurring type which had come to his notice in which blood and mucus were present in the stools a diplococcus was found. Was that a distinct organism, or a streptococcus infection?

Dr. ROGER H. DENNETT, of New York, said he was particularly interested in the therapeutic test of determining the variety of diarrhea by feeding sugar solution. He stated that in New York many had used just the opposite therapeutic test, that of feeding high proteid mixtures as a routine, in all cases except the acute febrile dysenteries, in which gruels seemed to be indicated. In all cases except the last variety, Eiweiss milk and the strong milk and water mixtures seemed less liable to do damage and appeared more logical. Doctor Dennett asked if starches could take the place of sugars solutions. He believed that there must be some place therapeutically for the time honored barley gruel which had been used so many years in the treatment of diarrhea.

Dr. HENRY I. BOWDITCH said that he did not intend to evade the question of mortality, and, while he had not the exact figures, he might say that in 1910 and 1911 it was high when the Flexner, Shiga, and streptococcus bacilli were predominant. The mortality in the presence of the gas bacilli, in 1912, was much less, from ten to twenty per cent. This year, 1913, it was low until August when it suddenly jumped up, due to a wave of the Flexner bacilli. Dr. Hess was correct in his idea as to the indications of acid and alkaline stools, but the re-

action must be taken into consideration with the other symptoms. By starvation was meant starvation as regarded food. Water was permitted. It was their practice to give five per cent. lactose or barley water. One point that should be mentioned was the greater opportunity for them as physicians to get results from groups of cases by cooperative study. They would like it if such a group of cases could be studied in Philadelphia, New York, Boston, etc., and then they could get together and compare results and get something worth while from their investigations.

## Letters to the Editor.

### RADIUM TREATMENT.

850 SEVENTH AVENUE,  
NEW YORK, October 27, 1913.

To the Editor:

Among my applicators for the treatment of cancer and other diseases with radium, there is one containing twenty milligrammes of the most powerful radium salt, having an activity of two million. As far as consistent with my other work it is my custom not to limit the use of my radium instruments to those who can afford a fee commensurate with the expense of the outfit, the risk of loss or destruction, and the time and study devoted to the subject. On the contrary I hope to extend its benefit to many persons in moderate circumstances to whom a reduced charge will be expensive but not prohibitive.

My reason for making this announcement lies in the sense of a special duty toward the community in which one earns livelihood felt by the possessors of a remedial agent which, for the present, is so scarce.

SINCLAIR TOUSEY, M. D.

### THE SENSE OF SMELL IN DIAGNOSIS.

428 FORTY-SEVENTH STREET,  
BROOKLYN, N. Y., October 26, 1913.

To the Editor:

If Dr. Theodore Zangger will kindly look up my article on The Sense of Smell as An Aid in Diagnosis, he will find that I mention the odor of the perspiration in tuberculosis (page 123, second column, line 32) as follows: "In pulmonary tuberculosis there is a characteristic odor about the patient, aside from the odor of the breath before alluded to. This odor is pungent and emanates from the skin and sweat glands of the patient. It may be perceived on the underclothing after removal from the body." Hence it is easy to see that Doctor Zangger's observations along this line agree precisely with those expressed by the writer.

The title of my paper bears out the doctor's idea in regard to the advisability of considering "the sense of smell as a confirmation of diagnosis—the proper clinical diagnosis should precede the other." It is interesting to notice that Doctor Zangger can detect the odor of acute incipient tuberculosis and that for years he has made a note in his register "specific odor."

Let us hope that other careful observers will follow up these observations, possibly on a larger scale.

ROBERT E. COUGHLIN, M. D.

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*Ionic Medication.* The Principles of the Method and an Account of the Clinical Results Obtained. By H. LEWIS JONES, M. D., Fellow of the Royal College of Physicians of London, Consulting Medical Officer to the Electrical



Department in St. Bartholomew's Hospital, 1913. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. viii-151. (Price, \$1.50.)

This little volume provides for a decided need. Recent observations have increasingly emphasized the value of this method of treatment, advocated with due reserve by the author, not for everything or anything that the human frame is heir to in the line of pathological conditions, but in those conditions in which it has been proved effective. He defines ionic medication as "a method of treatment in which electric currents are used for their power of setting the constituents of a saline solution in orderly motion in a definite direction." From the point of view of electrical conductivity, the tissues of the body may be regarded as a saline solution, and the laws of the conduction of electricity in solutions may be applied to the interpretation of the effects of currents traversing the tissues. In other words, the ion is an *electrically* active and independent particle whether negative or positive (never both), this electrical activity being its essence as such. These ions endow the drug used—only such as can penetrate the epidermis—with their own activity and thus may influence beneficially certain disorders of the joints, fibrous tissues, or nerves, by initiating chemical interchanges throughout their substance. The antiseptic metallic ions of zinc, copper, mercury, and silver, the ions of lithium, magnesium, radium, various alkalis, chlorine, iodine, and the salicylic ion may thus be employed in the various diseases in which they are known to be valuable, with a considerable degree of confidence that they will prove helpful—provided they are employed by a competent person. On the whole, Doctor Jones's little work is a valuable addition to our therapeutic resources.

*Old Age. Its Care and Treatment in Health and Disease.* By ROBERT SAUNDY, M.D., Fellow of the Royal College of Physicians, London, Professor of Medicine in the University of Birmingham, etc. New York: Longmans, Green, & Co.; London: Edward Arnold, 1913. Pp. vii-312. (Price, \$2.10.)

Senescence in its clinical aspects has received inadequate attention till very recently. A number of treatises have appeared lately, of which this one by Doctor Saundby is the most systematic, complete, and free from bias. The author speaks from a rich store of experience, as well as knowledge of special pathology. It is gratifying to find old age, its natural history and disorders, considered judicially and comprehensively.

The process of ageing is a vital question for all mankind and one which demands intelligent research from every aspect. The subject, like many less pertinent ones, is constantly obtruding and has suffered much confusion through well meaning attempts to reach conclusions unfortified by critical study and exact scientific data. Happily the profession now realizes this and in some medical schools (at least at Fordham University and at the College of Physicians and Surgeons of Boston) there is a chair of "Geriatrics."

Old age in its practical bearings has points of contact with every department of clinical medicine and surgery. To ignore the special conditions of ageing structures is to invite errors in diagnosis and prognosis which may prove fatal to the best laid plans. Hence all should familiarize themselves with such excellent data as is contained in Saundby's book. In it is to be found a judicial, systematic summary of most that is known on the subject. The text shows evidence of extensive reading of both modern and ancient literature.

All must grow old and suffer its penalties, limitations, and renunciations. How careful regulation of the conduct of life can materially mitigate the inevitable distresses, influence favorably disease processes, we need to know. Doctor Saundby has made an excellent, readable contribution to the elucidation of the problems of geriatrics. He covers the domain of the duration of life in chapter I, normal old age in chapter II, diseases of old age in chapter III, under which is included in other chapters: Diseases of the heart and bloodvessels, of the respiratory system, of the digestive system, of the genitourinary system; and ends with wise observations and recommendations on regimen, dietetics, and general treatment. There is also an appendix full of practical information. Altogether it is a book well worth the perusal of every active practitioner.

*Handbook of Physiology.* By W. D. HALLIBURTON, M.D., LL.D., F.R.C.P., F.R.S., Professor of Physiology, King's College, London. Eleventh Edition (Being the Twenty-fourth Edition of Kirkes' Physiology). With Nearly Six Hundred Illustrations in the Text, Many of Which Are Colored, and Three Colored Plates. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. xvii-923. (Price, \$3.)

The present edition, the eleventh, is stated by the author to have been thoroughly revised, the sections on salivary secretion, the formation of urine, and a considerable portion of the section on respiration likewise. Much new matter on the process of conduction in the heart, on the applications of physical chemistry to physiology, on so called vitamins and several other subjects has likewise been added, as has also the entire chapter on reproduction and development. Notwithstanding all this additional matter, the bulk of the volume has not been increased, being in fact shorter than the former edition by one page. One cannot but deplore the paucity of progress in physiological knowledge of a kind that will aid the internist or pathologist in solving many of the problems with which he is constantly being confronted. This defect is not, of course, more evident in Halliburton's work than it is in other textbooks of the same high order; it is due to the facts that physiologists as a whole neglect such questions—the mechanisms of vasodilatation, which plays so vast a rôle in organic function; cardiac inhibition, which means so much to the pharmacologist, among others. These criticisms apply, we repeat, to physiology as a whole. As a textbook, Doctor Halliburton's undoubtedly ranks with the best.

## Meetings of Local Medical Societies.

- MONDAY, November 10th.—Society of Medical Jurisprudence, New York; New York Ophthalmological Society; Corning Medical Association; Williamsburgh Medical Society, Brooklyn; New Rochelle Medical Society; Waterbury, Conn., Medical Association.
- TUESDAY, November 11th.—New York Academy of Medicine (Section in Neurology and Psychiatry); Medical Society of the County of Schenectady; Medical Society of the County of Rensselaer; Buffalo Academy of Medicine (Section in Medicine); Newburgh Bay Medical Society; New York Obstetrical Society; Jamestown Medical Society; Rome Medical Society; Practitioners' Club of Jersey City, N. J.
- WEDNESDAY, November 12th.—New York Pathological Society; New York Surgical Society (annual); Medical society of the Borough of the Bronx; Alumni Association of the City Hospital; Alumni Association of the Norwegian Hospital, Brooklyn; Brooklyn Medical and Pharmaceutical Association; Dunkirk and Fredonia Medical Society; Richmond County Medical Society.
- THURSDAY, November 13th.—New York Academy of Medicine (Section in Pediatrics); Brooklyn Pathological Society; Blackwell Medical Society of Rochester; Jenkins Medical Association, Yonkers; Buffalo Ophthalmological Club; Society of Physicians of the Village of Canandaigua; Auburn City Medical Society; Physicians' Club of Middletown; Gloversville and Johnstown Medical and Surgical Association.
- FRIDAY, November 14th.—New York Academy of Medicine (Section in Otolaryngology); New York Society of Dermatology and Genitourinary Surgery; Eastern Medical and Surgical Society of the City of New York; Society of Ex-Internes of the German Hospital in Brooklyn, N. Y.; Saratoga Springs Medical Society.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending October 29, 1913*

Austin, H. W., Senior Surgeon. Detailed to represent the service at the fourth annual session of the

Clinical Congress of Surgeons of North America, to be held in Chicago on November 10 to 15, 1913. **Cobb, J. O.**, Surgeon. Detailed to represent the service at the fourth annual session of the Clinical Congress of Surgeons of North America, to be held in Chicago on November 10 to 15, 1913. **Cumming, H. S.**, Surgeon. Directed to proceed at the earliest convenient time to Norfolk, Va., for the purpose of making an inspection and report upon the availability of the United States Naval vessel *Newark* as a floating quarantine station at Providence, R. I. **Frost, W. H.**, Passed Assistant Surgeon. Directed to attend the conference of town and county health officers of West Virginia, at Parkersburg, November 28, 1913, and present an address on the subject of the Prevention of Typhoid Fever in Town and Country. **Lloyd, B. J.**, Surgeon. Directed to proceed to Vancouver, B. C., on special temporary duty. **Lumsden, L. L.**, Surgeon. Directed to proceed to Martinsburg, W. Va., for conference and preliminary investigations of typhoid fever; upon completion of this duty to proceed to Lonaconing, Md., by October 31, 1913, to address the teachers' conference regarding measures necessary to prevent the spread of typhoid fever and other communicable diseases. **Preble, Paul**, Passed Assistant Surgeon. Directed, in connection with the investigations of the pollution of the Ohio river at Pittsburgh, Pa., to proceed, when necessary, to points in the vicinity to make sanitary surveys of localities, to locate sampling points, and to arrange for collection of samples. **Ruoff, J. S.**, Assistant Surgeon. Relieved from duty at the New Orleans quarantine station, and directed to report at the bureau for further orders. **Spratt, R. D.**, Passed Assistant Surgeon. Granted one month's leave of absence from October 24, 1913. **White, M. J.**, Surgeon. Detailed to attend the annual meeting of the Ohio Valley Medical Association, November 5 and 6, 1913, at Evansville, Ind.

#### Casualties.

Acting Assistant Surgeon Garland P. Moore died at sea near Aden, Arabia, September 5, 1913.

Acting Assistant Surgeon W. W. Markoe died at Charlestown, N. H., October 19, 1913.

#### Board Convened.

Board of medical officers convened to meet at the call of the chairman at Manila, P. I., for the examination of pharmacist N. C. Comfort to determine his fitness for promotion to the grade of Pharmacist of the first class. Detail for the board: Surgeon Victor G. Heiser, chairman; Assistant Surgeon B. J. Duff, recorder.

#### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending November 1, 1913:*

**Baker, David**, Major, Medical Corps. Relieved from duty at Fort McPherson, Ga., to take effect upon the arrival at that post of Major Thomas S. Bratton, Medical Corps, and will then proceed to Fort Sill, Okla., for duty. **Blanchard, R. M.**, Captain, Medical Corps. Ordered to Fort Porter during the absence of Major Wadhams. **Dunbar, L. R.**, Captain, Medical Corps. Granted two months' leave of absence. **Duncan, L. C.**, Captain, Medical Corps. Ordered to Fort Howard for temporary duty during the absence of Major P. C. Hutton. **Qualls, G. L.**, First Lieutenant, Medical Corps. Joined camp at Texas City on October 21st. **Smith, W. H.**, Captain, Medical Corps. Relieved from First Aero Squad and assigned to duty at Field Hospital No. 3, Texas City, Texas. **Turnbull, S. J.**, First Lieutenant, Medical Corps. Relieved from duty with the Second Battalion of Engineers, and ordered to duty with Ambulance Co. No. 3, Texas City, Texas. **Van Poole, G. M.**, Major, Medical Corps. Granted one month's leave of absence.

#### United States Navy Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending November 1, 1913:*

**Borden, J. T.**, Assistant Surgeon, Medical Corps.

Ordered to the Naval Medical School, Washington, D. C., for a course of instruction. **Bostick, J. B.**, Assistant Surgeon, Medical Reserve Corps. Commissioned from October 4, 1913. **Brown, Rexwald**, Assistant Surgeon, Medical Reserve Corps. Commissioned from October 3, 1913. **Camerer, C. B.**, Passed Assistant Surgeon, Medical Corps. Commissioned from March 28, 1913. **Carr, C. W.**, Assistant Surgeon, Medical Reserve Corps. Commissioned from October 10, 1913, and ordered to the Naval Medical School, Washington, D. C., for a course of instruction. **Costello, C. A.**, Assistant Surgeon, Medical Reserve Corps. Commissioned from October 10, 1913. **Kaveny, J. J.**, Assistant Surgeon, Medical Reserve Corps. Commissioned from October 10, 1913. **Manchester, J. D.**, Surgeon, Medical Corps. Commissioned a surgeon from September 28, 1913. **McGuire, L. W.**, Passed Assistant Surgeon, Medical Corps. Ordered to the Louisiana. **Pollard, J. B.**, Passed Assistant Surgeon, Medical Corps. Detached from the naval recruiting station, Atlanta, Ga., to waiting orders. **Riordan, J. F.**, Assistant Surgeon, Medical Reserve Corps. Commissioned from October 10, 1913, and ordered to the Naval Medical School, Washington, D. C., for a course of instruction. **Roddis, L. H.**, Assistant Surgeon, Medical Reserve Corps. Commissioned from October 10, 1913; ordered to the Naval Medical School, Washington, D. C., for instruction. **Smith, G. T.**, Medical Inspector, Medical Corps. Ordered to the Navy Yard, Washington, D. C. **Sprating, L. W.**, Medical Inspector, Medical Corps. Detached from duty at the Navy Yard, Washington, D. C., and ordered to the Naval Recruiting Station, Atlanta, Ga.

The following named assistant surgeons of the Medical Reserve Corps, commissioned from October 2d, have been ordered to the Naval Medical School, Washington, D. C., for a course of instruction: W. E. Bradbury, H. L. Hawwarth, Daniel Hunt, H. R. McAllister, and T. A. Ratcliff.

### Births, Marriages, and Deaths.

#### Married.

**Arnold—Ingersoll.**—In New York, on Thursday, October 30th, Dr. Harold Sears Arnold, of New Haven, Conn., and Miss Justine Ingersoll. **Elkin—Sturgeon.**—In Atlanta, Ga., on Tuesday, October 21st, Dr. Archibald Elkin and Miss Amelia Sturgeon. **Gregory—Ungrich.**—In New York, on Wednesday, October 22d, Dr. William Smith Gregory and Miss Etta C. Ungrich. **Wynne—Ryan.**—In Brooklyn, N. Y., on Wednesday, October 29th, Dr. Eugene Wynne and Miss Francis Augustine Ryan.

#### Died.

**Baldwin.**—In Elkhorn, Neb., on Monday, October 20th, Dr. Charles W. Baldwin, aged forty-seven years. **Burns.**—In Bement, Ill., on Monday, October 27th, Dr. Claude E. Burns, of Decatur, Ill. **Elder.**—In Chicago, on Sunday, October 19th, Dr. Thomas A. Elder, of Wooster, Ohio. **Hudson.**—In Milano, Texas, on Tuesday, October 21st, Dr. John W. Hudson, aged sixty-eight years. **James.**—In Louisville, Ky., on Wednesday, October 22d, Dr. Thomas James, aged thirty-five years. **Keyes.**—In Leroy, Ill., on Wednesday, October 22d, Dr. Thomas W. Keyes, aged seventy-five years. **Lynn.**—In Hastings, Neb., on Saturday, October 18th, Dr. William H. Lynn. **Mills.**—In Louisville, Ky., on Friday, October 24th, Dr. Samuel B. Mills, aged eighty-five years. **Mosgrove.**—In Urbana, Ohio, on Wednesday, October 22d, Dr. Samuel M. Mosgrove, aged sixty-two years. **Newlin.**—In McKeesport, Pa., on Sunday, October 19th, Dr. Harry S. Newlin, aged fifty-five years. **Peterson.**—In Chicago, on Monday, October 20th, Dr. Herman D. Peterson, aged forty-five years. **Rader.**—In St. Louis, Mo., on Wednesday, October 22d, Dr. John M. Rader, aged fifty-four years. **Todd.**—In Pottstown, Pa., on Monday, October 27th, Dr. John Todd, aged eighty-four years. **Wood.**—In Lakewood, N. J., on Saturday, October 25th, Dr. Allen L. Wood, aged seventy-three years.

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### Original Communications.

#### THE FAMILY SUBSTANCE AND THE THEORY OF COINCIDENT DISEASE IN BLOOD RELATIONS.

By BAYARD HOLMES, M. D.,  
Chicago.

The trend toward mysticism in our time is marked. It appears in the field of the intellect, in religion, and in art. Professor Harold Höffding, of Copenhagen, declared at a recent congress of psychologists that since all the most important problems were beyond the reach of man's reasoning power, a search for ultimate reality led inevitably to mysticism. Henry Bergson, the French Jewish philosopher, whose speculations have deeply influenced the whole thought atmosphere of the day, shows decided mystical leanings. Symbolism is the keynote of modern drama, the watchword of Ibsen, Hauptmann, and Maeterlinck, and symbolism, we are often told, is only another name for mysticism.

In spite of its pervasiveness very few persons can define mysticism. There is a mystical tradition extending for many centuries back to Egyptian civilization, through Clement of Alexandria, St. Basil, St. Bernard of Clairvaux, Bonaventure, St. Francis of Assisi, Thomas à Kempis, St. Catherine, Fénelon, Mme. Guyon, Henry More, George Fox, Sigmund Freud, Wilhelm Fliess, and a great army of pseudo-scientists, known only to their own several cults.

J. Ellis McTaggart, in the *New London Quarterly*, gives a very comprehensive definition of mysticism:

It seems to me that the essential characteristics of mysticism are two in number. In the first place it is essential to mysticism that it assert a greater unity in the universe than that which is recognized in ordinary experience or in science. However apart this unity is, how far it excludes differentiations, are questions which would be answered differently by different mystics. What is essential is the affirmation of a unity greater than that which is usually acknowledged.

The second essential characteristic of mysticism is the affirmation that it is possible to be conscious of this unity in some manner which brings the knower into closer and more direct relation with what is known than can be done in ordinary discursive thought.

We are all familiar with the comprehensive theory of Sigmund Freud, and with the extensions which this theory has received in the hands of his multiplying admirers, both in Germany and in America. It is distinctly a mystical theory insusceptible of either proof or refutation. It includes many excursions into the intangible and the mystical, especially in the direction of dreams and of pathological psychology. Those who are able to read Freud's theories and the numerous illustrations which he puts forth as confirmatory of them,

without an attack of mental indigestion or an intellectual crisis, may perhaps be able to read the theory of the family substance which was put forth by Wilhelm Fliess in 1906, in a beautiful volume entitled *Der Ablauf des Lebens, Grundlegung zur Exakten Biologie* (Franz Deuticke, in Leipzig). This book contains eight pages of assumptions, and 584 pages of illustrations of these assumptions, somewhat after the manner of Freud. It is the most remarkable mystical, mathematical, and biological compilation of modern times, and resembles the symbolic mysteries of Egyptian mathematics and Egyptian medicine.

It appears that Fliess discovered that women menstruate regularly once in twenty-eight days and that many of them have irregular menstruations, which can be easily made to correspond with nodes produced by the coincident, or aggregated, or interfering rhythms of twenty-eight and twenty-three days.

He takes as an illustration Fräulein H., who menstruated on March 22, 1896, and following that at intervals of twenty-three, twenty-one, twenty-six, twenty-four, twenty-one, twenty-five, sixteen, sixteen, thirteen, and twenty-two days, the last time upon October 15th of the same year. Now the normal interval of menstruation is twenty-eight days, but it is not once apparent in this sequence. If, however, we take seven periods beginning with April 14th, and ending with October 15th, and omit considering the other menstruations, we have the following series: 23, 47, 24, 46, 45, 22, which are equal to the following series respectively:  $1 \times 23$ ,  $(2 \times 23) + 1$ ,  $(1 \times 23) + 1$ ,  $(2 \times 23) - 1$ ,  $(1 \times 23) - 1$ .

If we make a sum of these factors we find that it is equal to  $9 \times 23$ . In these seven terms then we have a distinct interval of twenty-three days, with a possible error of a plus or minus 1. Now, taking the remaining terms, May 5th to August 25th—which is equal to 112 days, or  $4 \times 28$  days, and the terms between July 15th and September 10th—which is fifty-seven days, equal to  $2 \times 28$  days + 1, we see then that in the exceptional menstruations which rendered the whole series irregular and caused it to apparently depart very strongly from the regular menstrual period of twenty-eight days, that these four intervals exceed the regular interval by only one day.

From such a system of examining irregular menstruations Fliess comes to the conclusion that there is in each individual a family substance having a male and a female manifestation, the rhythm of the former being twenty-three days from node to node, while the latter is twenty-eight days.

He shows further that the eruption of the teeth in the children, the appearance of menstruation in the



girls, and the various sicknesses of both the boys and the girls stand in a remarkable coincidence to the menstruation of the mother.

The period of gestation is shown by Fliess to be a multiple of twenty-eight and twenty-three, and furthermore, that the appearance of the next pregnancy, the next gestation, and the next birth correspond similarly with these mystic numbers. In this manner he follows out the complete history of Sigmund Freud's family and that of many of the most celebrated and best known characters in Europe.

He gives an illustration of epileptics who have their epileptic attacks beginning after intervals of  $571 \times 28$  days after birth and occurring after that time at intervals readily measured by twenty-eight or twenty-three days. In further examples he shows that measles, pneumonia, scarlet fever, and many other infections appear at intervals, measured by these mystic numbers.

Perhaps one of the most remarkable examples (example xxxiv) is that of Herr Ecke, who was born November 26, 1834, and on January 27, 1891, had an attack of gout. From that time on he had nine attacks of migraine and then an epileptiform attack. At last, on November 15, 1896, he had an attack of hemiplegia with aphasia, and died on March 11, 1897. It takes twenty-five pages of complicated mathematical formulæ to show that these events, which occurred at the latter end of a life of 22,751 days, are commensurate with the mystical numbers twenty-three and twenty-eight, and that each event occurred at one of the nodes which disturbed the family substance.

In examples xxxv *et seq.*, he gives illustrations of the coincident diseases of several members of the same family and from these examples deduces his theory of family substance. The most striking one is that of the Fliess family, where he naturally has had the best opportunities of making observations. The 125 or 130 pages devoted to this demonstration appeal largely on account of their bulk and on account of the introduction of numerous functions represented by the Greek letters of the alphabet, and by complicated formulæ.

Fliess also takes great bulks of statistics of stillbirths and of twins and triplets, and reduces them to conformity with the mystical numbers twenty-eight and twenty-three.

In order to facilitate the explanation of facts by his theory, he has added a series of formulæ and tables occupying ten pages.

Arnold Siegmund, in the *Annalen der Naturphilosophie*, I, p. 35, has devoted a large amount of space and a great redundancy of illustrations to demonstrate simultaneous sickness of blood relations. His observations are in support of Fliess's theory of the family substance. It is hardly worth while to give more than a few of his assertions. When, as a laryngologist he is called to see a sick child at the grandmother's house, he is obliged, in order to treat the child properly, after making a diagnosis of laryngitis, to discover the condition of the family substance by telephoning to the mother and to the school where the brothers are placed. If he prescribes for hives in a child, the castor oil must be given not only to the infant but to

the father, the mother, the sisters, the brothers and the uncles and the aunts. If the father and mother are traveling and one of them is attacked with colic, he recommends that the telegraph and telephone be freely used to discover the condition of the children at home. In other words, it is necessary to treat the family substance wherever it exists, whenever any member of the family is discovered to be ill. The multitude of his illustrations seem to appeal to his method of thought, although to those who hold to a materialistic philosophy, there is no more reason in the sequence of words than there is in the effusions of a maniac.

Fliess replies to his silent critics at great length (*Annalen der Naturphilosophie*, x, pp. 314-50), and closes with the following significant words, which I closely translate:

My researches have had a singular fate.

In their life is shown for the first time as a function of our planet and as rhythmical with its two great periods, the time of revolution, the day, and the time of rotation, the year. These functions were demonstrated specifically and generically in a great number of the most various organisms. New lights fell thereby upon the existence of the two sexes, upon bilateral symmetry, upon procreation and growth, upon birth and death. Problems of the very first order were touched upon and connections revealed themselves to our eyes, where previously misunderstood isolation existed. Periodical rhythms flashed simultaneously through the entire body of a generation and on the day of death of the ancestress the procreative ripeness of new life showed itself budding. Surely all are questions well worth the labor of the most noble. But in the literature no echo was forthcoming and with the exception of the editor of these annals, university professors of high rank have not expressed themselves and the few other representatives of science who have spoken repeated only (with what right the readers will have to decide for themselves) one and the same objection, namely: "The author was toying with figures and was unacquainted with the most simple principles of arithmetic." The youngest critics considered themselves justified in ignoring all the material brought forward by the author from the entire range of biology and the author's own medical experience of more than thirty years' activity. And why? Because the researches, as one of the critics say, are of a simplicity at first quite shocking. These researches came forth from no laboratory; they were discovered without Röntgen rays, radium emanations, or ultramicroscopy. They were brought forth without aniline colors and without hemolytic and serum reactions. They were the sole product of human genius.

To me the theory of Fliess is but the flower of modern mysticism, the sublimation of Freud's neophaallicism.

As we value the intellectual integrity of our profession, and as we are all jealous of its scientific judgments and rational opinions, so we should combat by every means in our power the insinuation of the smallest vestige of occultism or mysticism into the accredited materia medica of medical science.

108 NORTH STATE STREET.

## THE MEDICAL CARE OF THE AGED.\*

By I. L. NASCHER, M. D.,  
New York,

Professor of Geriatrics, College of Physicians and Surgeons, Boston.

I wish to express my gratitude to Doctor Crothers for allowing me to take as the theme of this address a subject in which I am deeply interested and hope to interest the public and especially

\*Opening address of the Thirty-fourth Annual Session of the College of Physicians and Surgeons, Boston, September 17, 1913.

the medical profession—the care of the aged. I shall go beyond the scope of the title and consider the institutional and home care as well as the medical care of the aged, as these are correlated.

The care of the aged involves many difficult problems, problems in sociology, in psychology, in economics, philanthropy, and medicine. These are often so closely interwoven that it is impossible to consider one without bringing in the others. It is probably for this reason, and for the reason that there are few who can deal with these problems collectively, that we have gotten into a *laissez faire* attitude, an attitude of indifference in regard to the aged, looking upon them only as an economic burden which we must bear for humanitarian reasons. In the institutions and in the home the aged are treated by the community at large, by the family, and by the medical profession as they were treated a generation and a century ago. Whatever advances have been made in their betterment have been incidental to the general progress of civilization, and not to any direct effort to improve their mental, physical or material condition. The old man dependent upon the bounty of the community still goes to the workhouse or poorhouse, a pauper. He is treated as a pauper, lives as a pauper, and dies as a pauper, unpitied, uncared for. You know the ancient quatrain, "Rattle his bones over the stones, he is only a pauper whom nobody owns." Nobody owns the pauper. The child dependent has the world for its guardian; the aged dependent is disowned by his own.

It is but little better in the home. So long as the old man and the old woman are able to support themselves and look after their own welfare they are endured with more or less cheerfulness. Let them become dependent and they are at once an unwelcome burden. It is then noticed that the old man cannot readily accommodate himself to the new order of things and he is called "old fashioned." Owing to increasing forgetfulness, he leaves his clothes on the chair and paper scraps on the floor, and the housewife who has now additional work, calls him a nuisance. The old woman who adheres to her old ideas and decries modern dress, customs, and unconventionalities, is "cranky," while if she tries to adapt herself to modern ideas and wants to keep up with the spirit of the times in dress and customs she is called "giddy." Where the old folks cause hardship to the breadwinners they become financial burdens, the more unwelcome if the bread they eat must be taken from the mouths of the younger members of the family. They are burdens from whatever standpoint we view them, social or economic burdens, often both.

The economic factor is the most important factor in every day life and we gauge the desirability of men and things by their economic value. The child has a prospective economic value. The aged individual is an ever increasing economic deficit from the moment that the value of his consumption exceeds the value of his production. It is true that some men have continued to be economic assets until extreme old age. We find them in every field of thought and human endeavor except where brute strength is involved. Among statesmen we could

mention von Bismarck, Gladstone, Disraeli, Thiers, von Metternich, Franklin, and Clay. Among scientists are Galileo, von Humboldt, de Buffon, Darwin, Spencer, Harvey, Euler, and Von Baer. Tintoretto, Perugino, Titian, Cruikshank, and West, among painters; Verdi, Rossini, Meyerbeer, Handel, among musicians—all did remarkable work after their seventieth year. In our own profession there were many and there are still many to-day who have passed the biblical limit of threescore years and ten, yet are active and add to the general store of medicine their knowledge gained by sage experience. But these are all exceptions to the rule that when a man reaches the period of decline he soon becomes an economic burden. It needs no political economist who deals in values, reducing values to figures attached to a dollar sign, to show that the aged are and will continue to be economic burdens. The aged themselves feel that they are no longer as valuable to humanity, to the community, or to their family as they were formerly. But they also feel that there is no sentiment in figures, that the world has little time to waste upon those who cannot add to the world's stores, be it in knowledge, work, or tangible goods.

The family still looks after its aged members, though more often from a sense of duty or fear of condemnation than from gratitude or filial affection. The State looks after its dependents, with pity for the helpless child in the asylum, with sympathy for the charity patient in the hospital, with indifference for the aged pauper in the almshouse. Visit the public institutions for these three classes of dependents. Compare the cheery rooms, the pleasant surroundings, the solicitous care taken of the inmates of children's homes; see what efforts are made to relieve the patients in the hospitals and make them more cheerful and happy; then go to the almshouse and observe the poor aged wretches sitting about on pine benches, often unattended, generally neglected, awaiting the final summons, with a helpless, haunting fear.

Those who have never given a thought to this subject cannot realize the utter neglect of the aged by the medical profession. There is perhaps no other branch of science which has made greater strides in a single generation, certainly none which has done more to increase the happiness of mankind by diminishing pain and prolonging life. The death rate has been reduced over forty per cent. between birth and forty-five years of age. Some of the most fatal diseases of early life have been brought under control. The study of child nutrition has altered our views as to infant feeding, and gastrointestinal diseases and diseases of malnutrition have diminished. The study of child psychology has revolutionized educational methods. The physical development of the young has received attention in late years such as has not been given to it since the days of ancient Rome. The diseases of early life have been studied by specialists who have devoted their lives to this subject and pediatrics has now become one of the most important branches of medicine. International congresses have been held to discuss the welfare of the young. There are innumerable homes for children, most

of them upheld by private philanthropy. There are children's hospitals and there is hardly a general hospital which has not its children's ward.

What has been done by the medical profession for the aged? While childhood is recognized as a physiological entity, and considered apart from maturity, physicians still look upon old age as a pathological state of maturity, though the anatomical and functional differences between senility and maturity are greater than between childhood and maturity. The diseases of old age are still treated as diseases of maturity complicated by degenerations, instead of diseases in normally degenerating organs and tissues. And when our misdirected efforts fail, we fall back upon "old age" as a diagnosis and an excuse for our failure. Does the pediatricist, called to a child suffering from difficult dentition, say the child is suffering from childhood? Yet the physician seeing a patient with senile arteriosclerosis will say he is suffering from old age, and he will dismiss the case perhaps with a placebo. Old age is not a disease, though the term is a handy cover for ignorance. Death from old age, that is, physiological death, is very rare, far rarer than statistics indicate, since physicians include under this heading deaths among the aged who gave no clearly defined symptoms of a diseased organ or tissue, or where the symptoms were uninterpretable. Yet physiological death would occur far more frequently if we gave to geriatrics but a tithe of the study that we now give to pediatrics. At the present moment there is not a hospital, a ward, or a bed (outside of the homes for the aged) set aside for senile diseases.

There are but few physicians in this country who take any special interest in the aged, or who make a special study of the senile organism. I do not know of any medical school, except this, in which lectures on geriatrics are given. Not a single work on the subject has appeared in this country in over thirty years, yet there are scores of French and German works on senile diseases. I will not attempt to explain why the medical profession in this country has so utterly neglected the aged and their ailments, but will leave it to you to furnish the explanation.

I will not touch upon the diseases of old age here as these will be taken up in my course of lectures, but will mention a few measures which can be applied to the aged, whether well or ill, in the institution or in the home, to better their mental and physical condition. We cannot deal successfully with the aged unless we understand the altered mentality of old people. This change begins at the moment that the individual finds that he is aging. It may be the finding of a few gray hairs, shortness of breath when going up stairs or walking fast, more rapid fatigue, or lessened ability to perform the ordinary labors. It may be the recognition of lessened sexual virility. Whatever may have been the initial cause, from the moment that he realizes that he is on the downward path his thoughts run to the abyss that lies at the end. The realization comes as a shock and produces a mental depression which cannot be shaken off except in forgetfulness. From this moment the individual's thoughts revert to himself, and while he may continue in his accus-

tomed routine of life, with advancing age he becomes self conscious and more concerned about himself, becomes more sensitive to the petty infirmities of age, develops an intense conscious desire to live. Resigned to die? Yes, but it is the resignation to the inevitable, the resignation that comes with the knowledge of absolute impotence. It is a helpless resignation from which develop apathy and melancholy.

Much can be done to overcome the mental depression of the aged. I have repeatedly referred to the beneficial psychic effect of flattery and of the stimulation of the sense of pride in appearance, even to the extent of arousing a spirit of vanity. How much more pleasing is the appearance of the old woman who has taken care of her skin and hair and dresses tastily than of the old woman who makes no effort to improve her appearance. The same applies to the old man. Induce him to make the effort to improve his appearance; stimulate his sense of pride and let those around him tell him how young he looks. The psychic effect is instantaneous. Association with the young has a rejuvenating effect, and if the young people treat the aged as one of themselves, it will arouse a youthful spirit in the old folks. I have recommended sexual relations between the aged and the young. Notwithstanding the criticism this has aroused I still maintain that the courtship and marriage of an old man to a young woman will produce a marked mental rejuvenescence and it will improve the objective and subjective manifestations of age. The reverse, the marriage of an elderly woman with a man younger than herself, will have the same effect upon the woman. There is no basis of fact in the belief that such rejuvenescence is brought about at the expense of vitality or virility on the part of the younger person. The infant does not age when lying with its mother, nor does the mother feel younger as a result of having her child with her. We can make the aged feel younger by playing upon their vanity and we can cause them to look younger by instilling into them the sense of neatness and pride in appearance.

We must make an effort to keep their minds pleasantly occupied. If they have nothing to do they think of their past and the future, and they brood. A commissioner of charities of New York city who realized that light physical work which would at the same time engross the attention, would keep their minds pleasantly occupied, established a city farm. Here the aged people could do such light work as they were able, take care of plants, discuss their work, and take an interest in every day affairs. This was one of the most beneficial measures ever adopted in an almshouse. Change of environment and scene, recreations, pastimes, and amusements have all a psychic effect and sometimes a marked physical effect. But their proper application requires a knowledge of the senile mind and organism. Young persons can climb mountains without injurious effect, but let an old man go from the seashore to an elevation of 2,000 feet and, if unaccustomed to the rarefied air, dyspnea will develop before he reaches the top and his senile emphysema will be aggravated. The salt air of the seaboard is irritating to the inland



dwellers, and will aggravate a chronic hypertrophic bronchitis, though it is beneficial in the atrophic form. Change of scene may be beneficial or injurious. Coming from the country to a large commercial city, the individual is intensely interested, but in a few minutes or hours mental confusion sets in, and if this is prolonged dementia will follow.

Recreations for the aged follow the principle that the recreation should be the antithesis to the work which necessitates it. Here again we must consider the capacity of the senile mind and body. Active physical exercise is the proper recreation from mental labor, but as the aged individual usually carries on his mental labor till brain fag forces him to cease and he cannot take active physical exercise, he falls asleep. Yet some physical exercise is necessary to prevent stiffening of the joints and to produce the stimulation of the circulation required to carry on properly the metabolic processes. Mental confusion and early brain fag show mental deterioration and they cause further brain degeneration. The old man falls asleep at the sermon or play, not through inattention or lack of interest, but through excessive attention which causes brain fag. Simple melodies are pleasing while a Wagnerian composition will soon produce mental confusion. For the same reason the ball with its riot of motion is objectionable, but not the ballet with its pleasing combination of colors and its harmonious rhythmic dances. Emotional plays, and plays with intricate plots, soon tire, while the old man will sit through a musical comedy, pleased and benefited. Here let me explain the old stage joke about the baldhead row, the front row, at the theatre. The old man who has usually a presbyopia and a presbycusis must get close to the speakers to see and hear well. Imagination may be stimulated but he seeks the sensuous rather than the sensual impressions, and when sight and hearing are weakened he will get a front row seat, notwithstanding the implied reflection upon the motive. The musical comedy, with its flimsy plot, pretty women, catchy airs, harmonious colors, and simple dances, is the best form of amusement for the aged. If they cannot afford to get a front seat, let them go to the humble stepchild of the musical comedy, the burlesque show. In spite of old prejudices this form of dramatic performance is less likely to demoralize the aged (or the young, either) than many of the modern society plays, and the aged who cannot afford the more fashionable musical comedy will derive as much pleasure and benefit from the burlesque. The circus is confusing. An old, familiar air often acts as a powerful stimulant to rouse an aged person from depressing apathy. Among pastimes, harmless hobbies should be encouraged. Hunting and fishing are excellent pastimes for the aged, while such simple outdoor sports as bowls and croquet can be indulged in by both sexes. Indoor games which do not require much calculation keep the mind pleasantly employed and do not fatigue.

And while the physician is looking after the hygienic side of the old man's welfare, he should not neglect the strictly medical precautions. He should inform the family that the actions and the appear-

ance of the aged individual are more certain indications of the condition of his health than his statements. The family should know that there may be fever in spite of a cool forehead, that mumbling in sleep is often delirium, that when the old man or woman shows a disinclination to get out of bed at the usual hour it usually means a serious disease, though the patient does not complain of pain or other discomfort than weakness. Every symptom arising suddenly, even the sudden relief from a symptom, as sudden relief from dyspnea, is a grave omen. The family should know that the absence of pain does not exclude a disease which is usually painful, the absence of surface elevation of temperature does not exclude fever, the absence of cough does not exclude pneumonia, the absence of the accustomed snore does not exclude a coma from which the patient will never awake.

The physician in dealing with the aged should apply to them the principles which he applies to the child, the principles which underlie the practice of medicine, sympathy and science; sympathy, to relieve distress wherever he may find it; science, to study life and how to prolong it. The aged need more than the sympathy and the science of the physician. They need the support of the humanitarian, the altruist who will help them, cheer them, and make them happy. Happiness is, after all, the ultimate aim of humanity. Let the physician carry out to the full the principles that underlie his profession. Let him add the spirit of the humanitarian. Let him study the aged and their ailments, and apply his knowledge to relieve and cheer them. And though his reward may not be in tangible form, he will value the more and retain the longer the soul satisfying gift of his patient, the simple "God bless you!"

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## THE SEXUAL THEORIES FORMED IN EARLY CHILDHOOD, AND THEIR ROLE IN THE PSYCHONEUROSES.\*

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The rather general opinion that, as Freud phrases it, "the sexual instinct enters into the child at puberty as the devils in the gospel entered into the swine" (1) is gradually being abandoned. The works of Freud, Ellis (2), Hall (3), Moll (4), and others not only contain overwhelming proof of the proposition that the beginnings of the sexual life in the child long antedate puberty, but point out that, although the very existence of such a field for investigation may have once been denied, the study of the sexual psychology of this early period is of great importance. In view, therefore, of the attitude of these high authorities no apology is necessary for the theme to which this paper is devoted.

The purposes of the paper are two. First, to present an outline of some of the opinions formed

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by children in regard to the great facts of human reproduction. Second, to show the part that these childhood hypotheses may play in the neuroses of later life, and to emphasize the necessity of a knowledge of the former as a prerequisite to the understanding of the latter. To accomplish the first purpose I have borrowed freely from the writings of Freud, while to carry out the second I have cited some cases from my own practice. No attempt has been made to accompany the statements made in the first part of the paper by any sort of proof. It is perhaps best to state, therefore, that the generalizations herein set forth are not the result of a few isolated observations, but the fruit of Freud's study of a large amount of material. It may be said further, that the observations and deductions herein described have been well confirmed by investigators in all parts of the medical world.

It appears that during the first two or three years of life children take the existence of themselves, their parents, and their acquaintances as a matter of course, and display no particular curiosity as to the differences between the two sexes in appearance, dress, and behavior. But psychoanalytical investigation seems to show that children at a little later age—perhaps most commonly in the fourth or fifth year—take a very decided interest in all these matters and pass through a definite "period of sexual investigation." However, the desire for knowledge which appears at this time probably does not awake spontaneously. Apparently it results primarily in response to certain stimuli from without; secondarily, from a feeling within. The stimuli from without are furnished, in typical cases, by the advent of a new baby in the household.<sup>1</sup> The inner feeling aroused thereby is that of jealousy. The average four year old child looks upon a baby, not as a desirable addition to the family, but as a most unattractive intruder with whom in future he must share importance, worldly possessions, and, above all, parental love. By the often ill concealed feelings of hostility and jealousy born of such considerations the child is naturally led to ask himself the important question, "Where do babies come from?" But this question, judging from certain analyses of children, is not one of simple curiosity alone. Another, and possibly more important source, seems to be the child's hope that a satisfactory answer may place him in a position to prevent any repetition of that occurrence which has impressed him so unfavorably. In an emergency of this kind the small investigator naturally turns first to his parents, a source of aid and information hitherto found reliable. But in most cases he gets little satisfaction; his questions meet with either a laughing and evasive answer, an admonition not to speak of such matters, or an interesting statement such as, "The stork brings children," or, "The doctor finds them in the woods." These three typical answers affect children in much the same way. The stork or the doctor story is soon doubted and, like admonition or other evasion, merely serves to give the

child the impression that the theme of birth is one to be avoided in the presence of adults. This impression, instead of removing his curiosity, simply causes him to conceal it, and to pursue any further investigations in a less open and direct manner. At the same time the failure of the parents to aid and instruct him in a matter of so serious moment gives rise in his mind to more or less distinct feelings of resentment, suspicion, and distrust.

Then, since the parents will not explain birth for him, the child attempts to explain it for himself. In secret he ponders the problem, and, from watching his elders, from seeing the sexual acts of animals, from the examination of his own body, from certain physical sensations, from vague impulses, inclinations, and longings that begin to stir within him, he collects material, and from it constructs his own theories of reproduction, which, though grotesque and faulty, are surprisingly near the truth. The content of some of these theories we will now consider.

Practically all children who form any theory whatever come to the right conclusion in the one important particular that the baby grows in the abdomen of the mother. How this conclusion is so frequently reached it is difficult to say. It is certain that some children, even very young ones, connect the arrival of a baby with the precedent enlargement of the mother's abdomen. But in some cases there is no history that a birth took place anywhere within the child's range of observation until after his sixth or seventh year. Nevertheless, in these same individuals there occasionally is evidence of the early formation of theories which include the conception of the intraabdominal origin of infants. It is, of course, possible that these children had seen pregnant women and forgotten it, but there are some cases which almost tempt one to think that the child has some intuitive realization of this great fact of the physiology of reproduction. It would seem, upon first thought, that if children were able to guess that babies came from inside the mother's body, the formation of correct conceptions of impregnation and birth would ordinarily follow. Yet such is not the case, for by certain faulty premises the infant theorist is led widely astray. The first of these erroneous premises is the theory, very commonly entertained, that every human being, female as well as male, possesses a penis. That such a belief should exist among small boys who have never seen the female genitals is not at all strange. But even those who have seen the genitals of some small female member of the family still cling to this notion and reconcile their preconceived views with the actual evidence to the contrary in some such way as this: "She is still little; when she gets older it will grow." Some little girls also have a similar penis theory, for, after having seen the male organ, they conclude that they too are entitled to a like appendage. Thus a little girl, one of my patients, felt very much hurt when she found that her brothers possessed a protuberance which she lacked, and repeatedly begged her mother to remedy the defect by "buying one like that from the doctor." Because of the penis theory and through ignorance either of the existence or of the functions of the vagina, the investigating child is prevented from guessing cor-

<sup>1</sup>A child in whose family no birth takes place during his early years learns of the dreaded possibility from his acquaintance with other households. Older children are much less likely to be jealous of newly arrived brothers or sisters than are younger ones—and in many cases they welcome their small relation with unmixed satisfaction.

rectly the route by which the baby reaches the outer world. Consequently, the most natural conclusion is that the baby makes its exit from the abdomen through the same opening as do other solid products of bodily activity—in short, that birth takes place via the rectum (the "cloaca theory"). In this connection it must be remembered that children of an age to form such theories would feel toward this hypothesis none of the esthetic objections which must occur at once to an adult. "Then," as Freud says, "defecation was something that in the nursery could be spoken of without reserve; the child had not yet divorced himself from his constitutional coprophilic tendencies; it was no degradation to come into the world like a mass of excrement (5). Since the cloaca theory does not contain the concept of anatomical differences between the sexes, the supposition naturally results that males as well as females can bear children. Thus Freud's five year old patient, little Hans, remarks, "I'll have a little girl," and when his father answers, "But a boy can't give birth to a little girl," Hans replies, "Oh yes, a boy gets a girl and a girl gets a boy" (6). I once heard a boy of five say to his nurse, "When I get big I'm going to marry Will" (an older boy whom he much admired). When the nurse smilingly said, "But you and Will never could have children," the boy replied, with great superiority, "Why of course we could! Why not?" This remark was construed by the parents as evidence of the boy's complete innocence of all ideas concerning sex. A different construction could, I think, be put upon it.

Now, when the child has answered to his satisfaction the questions of where the baby develops and how it reaches the outer world, there remains another riddle to be solved. What starts the process? How does the baby get into the mother? The explanation most obvious to the child's mind is, that since the baby comes out like feces, it must go in like food. Therefore, to start a pregnancy the mother must eat or drink something,—a fruit or seed, or something furnished by the doctor,—and from this substance the baby develops. This belief is strengthened if the child learns that rain and manure are required for the proper development of seeds planted in the ground. He reasons by analogy that urine and feces must be designed to favor in like manner the development of a "baby seed" within the abdomen.

A theory somewhat different from these already described is formed by children who, through sharing their parents' sleeping room or in some other way, happen to see or overhear the act of sexual intercourse. From such an experience they often derive the so called "sadistic" conception of coitus. "They see in it something that the stronger does, by force, to the weaker; and they compare it (boys especially) to a scuffle such as those with which they are acquainted from their association with other children" (5). One of my patients who distinctly remembers seeing the coitus of her parents when she was five or six years old, expresses rather typically the impression sometimes made upon the child spectator. She says: "I thought they were fighting; I was afraid; nevertheless, I thought they must love each other a great deal and that I should like to

have some one love me as much." It seems probable that some children recognize the true significance of coitus and assume a connection between it and the phenomenon of birth. But a larger number apparently do not guess this connection, and, therefore, look upon the act simply as one of violence. In children who have strong sadistic or masochistic tendencies (as did the patient just mentioned) such a conception may occasion no displeasure. The tendency of children to regard coitus as a sort of assault and battery committed by the male is strengthened if they see the apparently hostile sexual activities of fowls, cats, and other animals, or if they find blood spots in the bed or upon the linen of some woman in the family. Added to this is the fact that in certain homes the entire married life presents to the observant child the spectacle of continuous strife, expressing itself in loud words and hostile demeanor. From this he takes it as a matter of course that the quarrel is continued into the night, and is decided by the same means that he is accustomed to employ with his brothers, sisters, or playmates (5).

A theory less common than any of these already mentioned is described by Reitler in the *Zentralblatt für Psychoanalyse* (7). Reitler had a patient, a single woman of forty-two, whose chief symptom was a peculiar insomnia. The patient described the insomnia as the result of her supersensitiveness of hearing. Any noise, even the slightest, was sufficient to waken her and to prevent her from going to sleep again. On account of this, her place of residence was shifted to a street which was entirely unfrequented by vehicles and, as far as possible, deserted. Moreover, she rented the top story in order that there might be no tenants over her sleeping room to disturb the nightly quiet. For the same reason, the dwelling rooms adjoining her bedroom had to be unoccupied. All doors were protected by portières; the double windows, which remained tightly shut even during the hottest summer, were hung sound proof with thick curtains and drapery. But these and other measures of defence, such as stopping up her ears with wax, were of no avail; she remained sleepless. As the analysis went on, it became more and more evident that the patient's insomnia resulted not from being disturbed by actual noises as she had first stated, but from a *fear of noises*. Reitler concluded that this fear represented the partial return from repression of a wish which concerned some sort of noise. He first thought the symptom might be due to the patient's having heard as a child the coitus of her parents, but ultimately this theory proved untenable. The true meaning of the fear was finally discovered from the analysis of two of the patient's suicide fantasies. In one she imagined killing herself with an army revolver that had belonged to her father; in the other, she fancied herself turning on the gas from a horizontal jet in her room and being found there dead in the morning. Behind these fancies, as is usually the case, was an erotic symbolism. The revolver and the horizontal gas jet represented the penis; *death* meant *love*. But further investigation showed that there was greater effective emphasis upon the *sound* of the revolver and the *sound* of the escap-



ing gas than upon any other part of the fantasies. Finally there came to the patient a memory picture which solved the riddle of the insomnia. When she was about seven years old she had arisen early one morning and quietly stolen into the room where her parents were sleeping in a double bed. Her father lay with the covers thrown back so that she saw his naked buttocks. She crept out again without waking her parents, but upon returning to her own bed and pondering over what she had seen, she came to a conclusion of the following nature: "When the parents do that secret thing of which children may not know, they must press their naked buttocks together and blow wind into each other." This was the patient's early theory of the impregnating act. Her fear of all nightly sounds concealed by generalization a fear of one particular kind of sound and corresponded to repressed erotic wishes. The analysis based upon this conclusion caused the insomnia to disappear.

Such are some of the theories formed in the first period of childhood. In them, there is little variety; most children construct one or another of a few typical theories. But this lack of variety need cause us no surprise if we remember that these hypotheses are to a much greater extent the expression of the dominant sexual components of the child's constitution rather than the result of external impressions.

This early period of sexual investigation and theory formation ordinarily comes to an end with the beginning of the latency period. At that point the theories are usually abandoned, repression sets in, and by means of repression they are more or less excluded from conscious memory. *It is on this account that many adults are unable to recall that they ever had any views upon or interest in sexual matters in early childhood.* The repression of the investigating impulse goes so far in some cases that a permanent inhibition of sexual curiosity results. On this account we often find, particularly in women, not only a seemingly profound ignorance of all matters of sex, but also a striking inability to make even the most obvious deductions in regard to such things.

During the latency period, and consequent upon the quiescence of the investigating instinct, children often accept without any particular conscious doubt the stories that babies are brought by the stork or the doctor, or else they conclude that God makes some mysterious and supernatural arrangement by which infants appear in the homes of the married. These beliefs then remain in consciousness and are recalled in after life as if they were the *only* ones that existed in childhood.

In most children, at the close of the latency period (ordinarily, at some time between the eighth and eleventh years), the dormant sexual curiosity again appears, and a second period of sexual investigation begins. But the conditions are now quite different from those of the first period. Children now discuss matters of sex with each other; the older and better informed share their knowledge with the younger, or, occasionally, more or less complete sex instruction is given by parents or teachers. In some cases, children thus learn the whole truth about reproduction, but, more often, the child is either ignorant or misinformed concerning one or more im-

portant facts and is thus prevented from drawing correct conclusions. Consequently, the theories formed at this time are often extremely absurd and, because they are based upon such various external conditions, they are of infinite variety. To be sure, a partial revival of the earlier theories may occur and serve to color or modify later conclusions, but the typicality of the primary and, so to speak, endogenous theories no longer exists.

As these later theories are from the medical standpoint of much less importance than the earlier ones, I shall limit myself to making little more than a brief mention of a few of them. One of the most frequently found secondary theories is the belief that birth takes place through the umbilicus, through the linea alba, or through an artificial abdominal opening made by a doctor. To my personal knowledge even grown women occasionally entertain some such view. Such conceptions are really remnants of the cloaca theory. When repression of the anal and coprophilic interests occurs the original cloaca theory becomes objectionable and is excluded from consciousness. Then some less objectionable part of the abdomen, such as the umbilicus, takes in the new theory the place formerly occupied by the perineal region. One set of secondary theories depends upon the fact that many children, though no longer in ignorance of the existence of the vagina, have not yet learned of the seminal fluid. Hence, in some cases, they conclude that the urine possesses the power of fertilization; in others, that mere contact of the male and female genitals (without penetration) is all that is necessary for impregnation. According to my experience, the latter, or "contagion theory," is found only among females. Other beliefs that might be mentioned are the following: That impregnation results from kissing, that coitus takes place by rectum, that birth follows invariably or immediately after coitus, etc. One of my patients, apparently believing that some close analogy existed between human copulation and the incubation of eggs, concluded that intercourse had to take place every night for nine months in order to produce a child.

In great part, the preceding pages represent a partial review of some observations published by Freud in 1908 (5). But the relation of infantile sexual theories to mythology, as well as certain other matters discussed in his paper, have been omitted here. Let us now proceed to consider the part played by the infantile sexual theories in the composition of the neurosis and the practical bearing of them upon psychoanalytical work. As we know, the infant possesses certain vague impulses, tendencies, and cravings, which, in a general way, represent precursors of the complicated psychosexual instinct of the adult (8). When, in the course of development, the child reaches the latency period, and there then appear the inhibitory feelings of shame, disgust, morality, sympathy, etc., the process of repression sets in, and a varying proportion of the earlier impulses, or psychosexual components, is excluded from consciousness. The neurosis represents a failure of repression, and this failure permits some of the early trends to reexpress themselves in consciousness, and to secure a sort of roundabout gratification in the form of symptoms.

In general, these symptoms represent more or less distorted erotic fantasies serving as wish fulfillment. But these fantasies are usually old ones, i. e., ones which were formed in early childhood, and necessarily, therefore, they are based upon the *infantile conception* of sexual activities. In other words, the neurotic falls sick in terms of infantile rather than of adult sexuality; his symptoms are shaped according to the theories held in childhood, rather than with regard to the better knowledge of later life. It is upon this account that a knowledge of our patients' early conceptions of sex is of prime importance. Without such knowledge the psychological structure of many neurotic symptoms would remain a mystery to us, and the analytical cure of these symptoms would be an absolute impossibility. The brief case reports that will now follow, I hope may illustrate these points satisfactorily.

CASE I. The patient was a man about twenty-three years old. His symptoms consisted chiefly of compulsive ideas relative to masturbation. He feared that a rather free indulgence in this practice as a boy had injured him sexually and that, as a consequence of such injury, his voice was high and peculiar, his genitals smaller than normal, his bodily hair too scanty, and his reproductive power impaired to such a degree that it would be impossible for him to marry or to have intercourse. In other words, he feared that he was extremely effeminate. These fears came on some few months after he became engaged to a young woman, and had existed more than three years before I first saw him. But though from the first he worried over his condition considerably, he did not tell of it, nor was he really very sick, until some four months before he came to me. At that time he had rather suddenly grown worse. Though previously he had been able to laugh at his obsessive fears, they now became almost delusions. He sometimes fancied that other people noticed his condition, knew its cause, and therefore shunned him.<sup>2</sup> He gave up his work, became greatly depressed, cried a great deal, and wrote to his fiancée telling her that he was impotent and that their marriage would be impossible. He consulted a number of physicians who assured him there was nothing wrong with him, but neither their statements nor a course of Christian Science which he underwent brought him the slightest relief. When he came to me I undertook an analysis of the case, and will now relate some of the facts brought out. When the patient was five or six years old he paid a visit to an older boy and was taught by him to masturbate. This practice he continued until he was about sixteen years of age. Between his eighth and twelfth years, he and some other boys engaged rather frequently in mutual masturbation and pederasty. The latter act impressed him so favorably that, as a little boy, he often thought there was no particular need of marrying a woman, for, in his opinion, a boy would do as well. When about thirteen he heard about hermaphrodites and, as he said, "wished either to know one or to be one." Though there were practically no gross sexual experiences with females in his childhood, he was, however, anything but indifferent to the opposite sex. He had a great desire to see naked various girls and women of his acquaintance, and, even up to his eleventh or twelfth year, he had many highly colored erotic fancies concerning some of his female relatives. In his relations with his father he showed the mixture of love and hate so typical of compulsion neurotics. Though throughout his childhood he was unusually active sexually and no true latency period was established, yet, from the time of puberty up to his engagement period, he rather tended in the opposite direction. During his whole life he made only two or three attempts at intercourse. At none of these attempts was he successful, for, though he had no difficulty in getting an erection, emission each time occurred before his penis entered the vagina. He never had any true impotence, for fondling different girls always gave him an erection and sometimes resulted in

involuntary seminal ejaculation. Without going any further at this point into the personal history of the patient I may say that, as already indicated, the analysis showed that in the direction of both homosexuality and heterosexuality his early psychosexual life was very active. With this history and the following analysis of a fragment of one of his dreams, one may gain some insight into the meaning of his symptoms.

In his dream he imagined that he met his fiancée who, instead of appearing as she ordinarily would, seemed to be a *negress*. In analyzing the dream I asked the patient, "What occurs to you about negroes?" and his associations were as follows: "I think of their lack of morality. There's nothing they won't do. They have no scruples." After a few moments' pause he continued: "I've always been interested in the original meanings of words. The word 'scruple' comes from the Latin *scrupulus*, a sharp little stone. To have scruples really means to have sharp little stones." I saw the significance of these associations immediately, but did not interrupt the patient. He continued: "Thinking of negroes now brings to my mind something that happened when I was about five or six years old. I was playing with a little negro girl of about my own age and I wanted to see her 'penis.' She was not unwilling that I should, so I took her into the toilet and lifted her clothes. She giggled a good deal and did not give me a very good look at her privates, and, as a result, I received the impression that she had a very small, wormlike penis of a dried up and crumpled appearance. It did not occur to me that this difference between her organs and mine was due to her being a girl. I thought she was different because she was a negro. I knew that negroes had hard luck in so many things that I thought it not at all surprising that they should be unfortunate in regard to the penis also. A year or two later I happened to be in my mother's room while she was sitting on a chamber vessel. I began to wonder why women had to sit down to urinate instead of standing up as men do. It then suddenly occurred to me that the reason for this must be that women had much smaller penises than men."

The foregoing history and the associations to this dream are enough, I think, to bring out the points I wish to make in the case. It is perfectly evident that as a small boy this patient had the theory that normally the penis is possessed by members of both sexes (there were no girls in the immediate family). It is also evident that he clung to this theory in spite of the contrary evidence furnished by his examination of the little negress. Even when he made the important observation that women had to sit down to urinate he missed the correct conclusion, and, instead of guessing the truth and abandoning the penis theory, he merely modified this theory to fit the facts at his command by deciding, not that women had no penises, but that they had small ones. It is clear, therefore, that in his earlier erotic imaginations all females must have been represented as equipped with a penis, and that any fantasy of heterosexual activities must have been shaped according to this conception of female anatomy. From this it necessarily follows that his early conception of the ideal female corresponded more nearly to an effeminate male than to a normal female; that any wish he may have had for sexual relations with a female was really a wish for activities more nearly resembling those of inverts than of normal males. On this account it is not at all surprising that he was easily led into homosexual practices and that he found them all too satisfactory. The effect of these homosexual activities was to reinforce the penis theory in directing the patient's libido toward penis bearing individuals. Hence, when he did learn that females possessed not a penis, but a vagina, this in-

<sup>2</sup>These symptoms, as well as certain other features of the case, point to the suspicion that it was one of dementia praecox.

formation tended to diminish rather than to increase his interest in the opposite sex, and served to strengthen his already formed homosexual complex.

A fairly complete repression of this complex took place about the time of puberty or shortly thereafter, and this repression remained successful until after the patient became engaged. The neurosis which then broke out represents a return of the homosexual tendencies to consciousness in the disguised form of obsessions. I shall not attempt to discuss the outer circumstances which were the exciting causes of the neurosis, further than to say that various matters connected with the engagement had served to arouse considerable hostility on the part of the patient toward his father, while another series of circumstances had caused similar, but partially repressed, sentiments to exist toward the young lady. In other words, the patient was not altogether satisfied with his love choice, and, without fully realizing it, was of two minds as to the desirability of marriage. The hostile conception of the young lady we see expressed in the patient's dream.<sup>2</sup> She is there represented as a negro, and, as shown in his associations, this means that the patient thinks of her as being like the little negro girl of his childhood, i. e., her "penis" is "dried up and crumpled"; she has no "scruples," no "little stones" or testicles.

The fact that the young woman lacked these anatomical structures, which in the patient's subconsciousness were regarded as the *sine qua non* of the sexual object, was, without doubt, one of the important reasons for his deferring his marriage by falling sick. One might say that there existed in his subconsciousness the thought, "We cannot make a satisfactory match, for one penis is lacking." But to this there were added thoughts about castration as a punishment for masturbation and for certain fantasies of a highly objectionable sort, so that there came to his consciousness only the idea, "It must be my genitals that are defective." This obsessive idea also corresponds to homosexual fancies in which he takes the part of the female, and, again, it represents an attempt to correct his hostility toward his father. ("If I were a girl I would get along better with my father"—"girl" is equivalent to having a small penis or no penis.)

At one time the patient had heard of using serums for various illnesses, and this led him to conceive the idea that if he were to receive an injection of an emulsion of testicles he would get well and be able to have children. This idea, though by no means entirely illogical, bore all the earmarks of an obsessive craving, and concealed a homo-

sexual fancy of receiving the semen of another male. It also represents an effort to compensate for one of the supposed defects of the patient's fiancée. Certain things had given him the opinion that she would be unable to bear children. The emulsion scheme, then, presents the comforting thought, "If she cannot bear children perhaps I can," a thing which was conceivable according to one of the infantile sexual theories. The history and interpretation of the case which I have here given of course represents only a very small part of the analysis. Though a complete report might be of interest, I shall not attempt it, as it would have no further bearing upon the subject in hand.

CASE II. Though this history does not concern a sick person, it may, however, be of interest. A normal young man had a marked dislike of small children,—the younger the child the greater the dislike. In their presence he invariably felt embarrassment and a sort of disgust, while the thought of any physical contact with them was very disagreeable.

An attempt to analyze this peculiarity promptly brought out various associations concerning the lack of sphincter control found among infants and the possibility of their soiling any person who handled or held them. This was, no doubt, a partial explanation of the trouble, but a deeper origin became evident when it was discovered that in his early years this individual possessed a well developed interest in the processes and products of excretion. He had formed the "birth by rectum theory," and, therefore, a small baby was to him an analogue to feces, since, according to that hypothesis, they both came from the same place. The symptom, if it may be so called, represents an overcompensation for his long repressed coprophilic interest. The early curiosity about such matters had been replaced in consciousness by the reactionary feeling of disgust, and this reaction was awakened not only by dejecta but by analogous objects, such as a baby, however clean it might be. Following this explanation the symptoms disappeared.

CASE III. In April, 1911, I read before this society a paper consisting of the analysis of the following case (9): A young unmarried woman had suffered for four years from depression of compulsive symptoms, chief among which was an imperative desire to make herself sick either by taking drugs, or by contracting typhoid. The only conscious explanation which the patient could give for these peculiar cravings was that she felt if she could become very sick, almost die, but then recover, she would be entirely free from all her troubles. Why she had this strange belief she could not say.

In my analysis I explained her desire to be sick as a symptom depending mainly on a strong masochistic complex. Her preference for typhoid to all other illnesses appeared to be based upon her knowledge that if, as occasionally happens, an attack of typhoid causes the patient's hair to fall out, the hair may then grow in again of a new color. The typhoid compulsion really concealed a wish to have hair of a different color (blonde), but this wish was merely a surrogate for a repressed desire to be in the place of a certain blonde rival. The result of my analysis was very satisfactory, for, from its close in February, 1911, until December, 1913, the patient was in apparently perfect health. But she then returned to me with the report that for a week or ten days she had been subject to depression and the old desire to make herself sick with drugs had to some extent returned. To this slight recurrence I am indebted for the opportunity to complete my analysis by discovering a still deeper determinant for this symptom. This required only two hours, and the patient has been entirely well ever since. That she herself had a certain understanding of the meaning of her symptom was disclosed by her exclaiming, almost as soon as she entered

<sup>2</sup>This dream is also determined by two other factors. First, as a small boy the patient was told that his penis would be cut off if he played with it. On this account the sight of what he called the "black expression" of the female genital he weakened in his subconsciousness the border collected with the idea of masturbation. At the same time, the hostility toward his father who he supposed would perform this operation. Secondly, in the town where this patient lived in his very early childhood practically all the servants were either negroes or mulattoes. At that time he expressed strong dislikes of servants belonged to the same race—that they were all negroes (the Swedish, the German, the African, black ones). This view was strengthened when he heard an old negro "mammy" say to his father, "See kin to you," while from this remark there was born a suspicion that perhaps his father was a negro of the white variety. Though, of course, this white negro theory lasted only a short time, it furnished terms, nevertheless, which he could employ in dreams or symptoms to express insults against others and reproaches toward himself. For instance, one of his obsessive ideas was, "My hair doesn't seem real hair." This idea really, "I am afraid my hair is like a negro's" (i. e., woolly) expresses in one term a slur upon his ancestry and the thought that he himself had certain objectionable tendencies ordinarily attributed to the blacks.



my office: "I know what made the trouble! It was those infernal babies!" She had been called upon to take entire charge of them on account of the unexpected illness of their mother. This work she considered no hardship, however, for she was extremely fond of children and took great delight in caring for them. But the experience soon awoke her natural desire to have children of her own to such a degree as to be almost a torment. She then became depressed, her old desire to make herself sick returned, and she gave way to it in so far that on four occasions she took large doses of aromatic spirits of ammonia and, at another time, headache powders.

In view of all these circumstances I could quite agree with the patient that contact with children had caused the return of her compulsion. And since the symptom returned at a time when her desire to have children was strongly aroused, I concluded that it must represent, symbolically, a fulfillment of that desire. Having reached this conclusion, I found the rest of the analysis very simple. As a child the patient had not failed to see a correlation between certain seemingly serious illnesses of her mother and the coincident arrival of a small brother or sister. After having realized this connection she then began to wonder what caused the malady having such remarkable sequelae. She finally concluded that her mother had made herself sick by taking some peculiar sort of medicine furnished by the druggist. But, if the mother could get babies in that way, so could the child; all she needed was the proper drug. It was this long forgotten theory that was at the bottom of the sickness compulsion,—the taking of drugs represented insemination; the resulting illness meant pregnancy. When, after puberty, the patient learned of the existence of the spermatozoa (which she looked upon as "germs"), this new knowledge was assimilated with the old, and thus germ diseases became symbolic of pregnancy. Typhoid is a particularly good symbol since, as the patient was aware, it may be contracted by kissing, and hemorrhage is a prominent complication. (Its other significance we have spoken of already.) The patient's peculiar idea, before mentioned, that a serious illness would make her well, we can now interpret as, "If I had a baby I would be perfectly happy."

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1 WEST EIGHTY-THIRD STREET.

## OCULAR VERTIGO.

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By ocular vertigo we mean that condition in which the sense of equilibrium is temporarily disturbed, so as to make objects that are ordinarily fixed in space appear to move in a wheellike fashion, and which is caused by some ocular disturbance. To have actual vertigo (not an ordinary

dizziness) there must be a disturbance of objective as well as subjective orientation, which interferes with our sense of security in space.

Normally, we have acquired the sense of appreciation of the relationship of objects in space to one another, and we are able to ascribe them to the place they actually belong, by means of the law of projection of the retinal image outward. This is known as objective orientation, and depends upon a purely physical basis, upon the place of the retinal image, that is, its relation to the fovea centralis. This, however, would be insufficient to establish our sense of security in space. In order to possess perfect physical poise, or the sense of security, we must also have a definite relation of our body in space and the relationship of our body to objects that surround us. This knowledge we obtain from the muscular sense of our extrinsic and intrinsic ocular muscles in their state of activity. This we call subjective orientation. Thus our sense of security in space depends largely (if not altogether) upon the knowledge of the relationship of objects to one another and the relationship of our own body to the objects surrounding us.

The sense of security in space is probably a psychic problem, but, like all other psychic phenomena, it depends upon a physical sensation. Appreciation of light, recognition of form, perception of depth, determination of dimensions—all these complicated psychic phenomena are probably essential to our sense of security in space. Our position in space necessarily depends upon our visiomuscular apparatus. It may be conjectured that all vertiges, or vertiginous spells, are the direct result of some ocular disturbance, although the ocular disturbance may not be a primary condition, but a secondary phenomenon (perhaps temporary) caused by some organic or functional disturbance, or some toxic substance elsewhere in the body that directly or indirectly acts upon the muscular or accommodative apparatus of the eye. The semicircular canals, if they play any part in our sense of security in space, are only accessory elements, but not primal factors. The chief causal element of vertigo, therefore, must be found in a disturbance of our oculomotor apparatus. Delusion of space, of depth, of distance, of dimension may under certain circumstances temporarily destroy our relation to objects that surround us, interfere with our power of fixation, unbalance our equilibrium, disturb our objective and subjective orientation, and give rise to vertigo.

## CAUSES OF OCULAR VERTIGO.

The causes of ocular vertigo may be tabulated in the following way:

- |  |   |
|--|---|
|  | (a) Paralysis of the external ocular muscles. |
| 1. Disturbance of motility.                                  | (b) Spasm of the external ocular muscles.     |
|  | { Simple.                                     |
|  | { Compound.                                   |
|  | { Mixed.                                      |
| 2. Refractive astigmatism.                                   |   |
| 3. Accommodative.  | { Spasm of the ciliary muscles.               |
|  | { Paresis of the ciliary muscles.             |
| 4. Disturbed relation between accommodation and convergence. |   |

## DISTURBANCE OF MOTILITY.

It is a known fact that the external ocular muscles play an important part in subjective orientation. Binocular single vision necessitates binocular proper fixation. In order to appreciate binocular single vision, the objects sighted must be fixed so that rays emanating from it shall fall upon a definite point on the retina, to wit, the fovea centralis. This can only be accomplished by the harmonious activity of the external ocular muscles. If these muscles by reason of paralysis or spasm do not act conjointly, binocular fixation is either difficult or altogether impossible, depending entirely upon the degree of the muscular deviation. When binocular single vision is entirely impossible because of faulty fixation, the result is a diplopia which causes a confusion in the perception and a disturbance in the equilibrium, which in turn gives rise to vertigo. This is often observed in cases of paralysis of some of the external muscles of the eye, especially when our attention is drawn in the direction of the paralyzed muscle. Usually the man with a paralyzed extrinsic muscle of the eye learns to compensate for the failure of muscular strength by posture of the head, or overcomes the diplopia by closing one eye. When these compensatory efforts are not employed and diplopia is present vertigo may be the result.

Any attempt to overcome the muscular deficiency by an increase in nerve force only complicates matters, for the excessive nerve force not being able to influence the paralyzed muscle increases the activity of the antagonistic or associated muscles, enlarging the angle of deviation. The false projection resulting from a paralytic condition of the extrinsic ocular muscles must be considered a cause of the diplopia and the vertigo. But vertigo may be present even without diplopia. To avoid double vision one only has to close one eye, no matter which one is closed, but to avoid vertigo one must close the paralyzed eye and fix with the normal eye. When the paralyzed eye is used for fixation (the good eye being excluded) there is no diplopia, but vertigo may still result. The attempt to fix an object with the paralyzed eye in the direction of the paralyzed muscle is not infrequently followed by sudden apparent movements of objects around us, and this causes the vertigo. Thus vertigo from paralysis of the extrinsic ocular muscles may be excited in two ways, first, by the diplopia, and secondly, by an effort at fixation with the paralyzed eye in the direction of the normal action of the paralyzed muscles.

Partial paralysis or paresis of an ocular muscle, may, of course, also give rise to vertigo. Paralysis of the extrinsic ocular muscles is usually caused by some constitutional disease, such as syphilis, diabetes, nephritis, rheumatism, tumors of the brain, etc., which the ophthalmologist must bear in mind, so that the ocular vertigo of this type is primarily of constitutional origin.

## SPASM OF EXTERNAL OCULAR MUSCLES.

Temporary spasmodic contractions of the ocular muscles, may also give rise to vertigo. Practically the same conditions prevail here as in a paralytic case. We have the deviation of the fixation point in some direction, that is, in the normal direction of

the spasmodic muscle. We have a manifest or a latent diplopia and above all we have false projection. Patients with spasmodic conditions of the ocular muscle in reaching out for an object will invariably undershoot the mark. The patient usually underestimates the distance that the eye travels, because of the overacting muscle that requires less effort than is normally required. As a result of this underestimation, or delusion of distance, an apparent movement of objects looked at may be produced and thus produce vertigo. Vertigo may be produced by the diplopia, and the apparent movement of objects as a result of false projection. When the spasm is permanent and results in contracture of the muscle there is no more diplopia present, for one eye has been excluded entirely from the act of vision. Even the false projection has been overcome by a reeducation of the muscular sense. In these cases vertigo is rare. Permanent spastic conditions of one of the ocular muscles may be observed in long standing cases of paralysis of the ocular muscle where the antagonistic muscles become contracted secondarily. As a matter of fact, probably all cases of spasm of the extrinsic muscles are secondary to some paresis; primary spasm of the ocular muscles is rare, although it may be observed in irritative conditions of the brain, in meningitis, or in reflex action from some dental irritation.

## DISTURBANCE OF ACCOMMODATION.

Vertigo results not only from disturbances of the extrinsic ocular muscles, but may also result from a disturbance of the intrinsic ocular muscles, especially in cases of spasm of accommodation. Spasm of the ciliary muscles gives rise to a chain of symptoms among which vertigo is not uncommon.

Spasm of accommodation causes changes in the refractive status of the eye, reducing it considerably. It may convert an emmetropic or even a hypermetropic eye into a myopic, which fact can easily be determined by the instillation of atropine. It will give rise to macropsia, where objects will appear larger. It may also produce an irregular astigmatism, with difficulty of fusing images, that will result in a latent diplopia, or an overlapping of images. Delusion of space, distance, and size may result from ciliary spasm, giving rise to headache, dizziness, and vertigo. Vertigo results mostly when the spasm is not of a tonic, but rather of a clonic nature. When the period of relaxation is followed again by a spasmodic contraction of ciliary muscles, vertigo may be present, for the difference in the refractive status of the eye may cause a confusion, with a temporarily apparent movement of objects that surround us and thus produce vertigo.

Paralysis of the accommodation rarely, if ever, produces vertigo unless it is also complicated with paresis of one of the branches of the third nerve. I have never observed vertigo as a result of a simple paralysis of accommodation, but have seen several cases of vertigo as a symptomatic expression of the spasm of the ciliary muscles. There is usually a constitutional condition underlying the spasm of the ciliary muscles, and in treating these conditions one must bear in mind the constitutional aspect as an etiological factor. The disturbed relation between accommodation and convergence must also be borne

in mind. This will be discussed under a special heading.

#### REFRACTIVE ERRORS.

Errors of refraction are often responsible for a chain of symptoms as a result of eye strain. Vertigo not infrequently is one of the symptomatic expressions of asthenopia. Among the various forms of refractive errors, it is the astigmatic type that usually is of etiological moment. Astigmatism simple, compound, hyperopic, myopic, or mixed, all may give rise to vertigo.

There are at least two ways in which astigmatism may give rise to vertigo. First, as a result of the accommodative effort of the ciliary muscles. It must be remembered that in many forms of astigmatism objects appear somewhat distorted, and also elongated. The astigmatic cannot see all lines distinctly. He can only appreciate, for instance, part of letter, but he learns often to interpret the whole letter by the part he sees distinctly. In some forms of astigmatism, especially where there exists an anisometropia (an unequal refraction in the two eyes), there is probably a latent diplopia, caused by the unequal refractive status of the eyes, which produces images of different sizes in the two eyes. This delusion of size the ciliary muscles try to overcome. There is thus an unconscious effort of an unequal attempt at accommodation, which only increases the difficulty, causing a confusion, and a disturbance in the equilibrium, resulting in vertigo. Secondly, through the efforts of the external ocular muscles. During the attempt at accommodation to overcome the astigmatic aberration there is a simultaneous corresponding attempt at convergence. These two causes combine to interfere with proper fixation, which interference gives rise to vertigo. According to Duane (Fuchs, p. 781) "objects appear in apparent motion, wheellike figures appearing to revolve and check patterns seeming to dance." This causes asthenopia and vertigo. Every ophthalmologist has some such cases on record. I have several cases of vertigo on record caused by astigmatism which had given a chain of symptoms simulating brain tumor. I have also observed double vision as a result of astigmatism, which of course may produce diplopia.

#### DISTURBED RELATION BETWEEN ACCOMMODATION AND CONVERGENCE.

Probably all cases of ocular vertigo are to be attributed to some disturbance of motility, regardless of the primary cause of the disturbance. The primary etiological factor may be a toxemia from some constitutional disease, an error of refraction, or a disturbance in the accommodation, which acts on the motor apparatus of the eye, producing a temporarily active or latent diplopia. Proper fixation is essential for the maintenance of a balanced equilibrium. Anything that interferes with perfect fixation may occasionally give rise to vertigo. An apparent movement of objects round us is observed in rapid locomotion, as on a railway train, where perfect fixation as a result of speed is not possible.

There is a well established relation between fixation and accommodation, as well as pupillary reaction. While to some extent an independence of these two motor functions may occasionally be

noticed, and may even be artificially produced, yet no one can disprove the fact that there exists to a large extent an association of the two phenomena. Whenever a marked disturbance between the two functions is present, there is an interference in fixation, and objects appear to move in space. A sudden effort at accommodation, say, to overcome some difficult refractive error accompanied by a simultaneous jerky movement of the external ocular muscles, in cases where there is an abnormal relation between the activity of the intrinsic and extrinsic ocular muscles, may cause objects to appear to move about. This may be noticed where a sudden jerky movement of the head and neck produces the same condition. I have often observed this condition in myself, and explained it on the ground that the action of the external ocular muscles was not able to focus during the rapid movement of the head.

Axiomatically, one may say with sufficient amount of certainty that ocular vertigo, whether due to astigmatism, paralysis of the extrinsic muscles, or accommodative difficulties, is the direct result of the disturbed relation between the ciliary muscles and the external motor muscles of the eye. This disturbed relation gives rise to false projection, improper fixation, interference with orientation, active or latent diplopia, unequal retinal images, difficulties in fusing images, delusion in space, size, depth, and dimension, disturbed equilibrium and an apparent movement of objects in space, and subsequently vertigo.

#### INHIBITORY OCULOMOTOR CENTRE.

In considering the relation of accommodation and convergence, one is, of course, confronted with the fact that it is possible to accommodate one or two dioptries without any visible effect of convergence. Thus, for instance, in fixing a near point where the eyes converge to a certain angle, and then placing a minus two lens before the eyes, there will be a temporary blurring of the object fixed, which, however, will soon be overcome by the effort of accommodation, the eye remaining fixed at the same angle. This may be explained, however, by the assumption of the presence of an inhibitory centre, regulating the relation of the accommodation to convergence whenever it becomes necessary to accommodate without a corresponding convergence. Experimentally, one cannot demonstrate the existence of such a centre, but clinically I assume this to be correct and possible. The human eye is thus provided with an association centre for accommodation and convergence, as well as an inhibitory centre for accommodation without convergence. Convergence without accommodation is not very probable. It is true that in old age the act of convergence is not accompanied by any accommodative results, but this is because the ciliary muscles no longer respond to the nerve impulse, so that even in old age the act of convergence gives rise to a simultaneous stimulus for accommodation; but the muscles, no longer able to respond to the impulse, do not produce any visible result.

Ocular vertigo in the aged, where the accommodation is at absolute rest, is due to an interference with fixation, delusion of size and distance, differ-



ences in the retinal images of the two eyes, but not as a result of accommodative effort, except, perhaps, in this way. The presbyope may attempt to accommodate, but the ciliary muscles do not respond to his will, for they are not able to change the curvature of the lens, while the extraocular muscles through the association centre governing the relation between accommodation and convergence do respond quickly to this extra nerve impulse, and this strong effort at accommodation by the ciliary muscles that no longer respond produces a quick response and an overaction of the extrinsic ocular muscles which may cause an apparent movement of objects and vertigo.

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## VINULA PRÆTERITORUM.

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The sage injunction, "Let the dead past bury its dead," is no more heeded by the doctors than the lawyers. The latter, obviously, in the absence of a past would have no future, for all the snaky twists turns, intricacies, and intervolutions of their bewildering ratiocinations are absolutely dependent upon precedent. It is their purpose and business to make the present conform to the past. The fate of John Smith to-day is determined by the fate of that other John Smith at the hands of some English judge three hundred years ago. Precedent is the supreme arbiter of justice. So for the lawyers there is no dead past, and there is no dead for it to bury. For them the past is vital. It is the storehouse of their energy. It is the magazine of all their fulminations. But why should medicine, ever seeking, ever striving to improve the health of man, suffer itself to be ruled from the grave, in stupid deference to precedent? It will be objected that this condition does not exist, as demonstrated by the tremendous advances made in surgery and bacteriology within a double decade. What did our forebears know of laparotomy? What hint had they of the tubercle bacillus and the *Spirochate pallida*? In their most vain imaginings, did they ever soar to an x ray, a Wassermann reaction, to a diphtheria antitoxine, or a vaccine against typhoid fever? All these marvels exist to-day, and yet we are guilty of the absurd declaration that this magnificently progressive science is bound up with the dead past! Is hampered and o'erswayed by precedent! On calm investigation this glaring absurdity is seen to be only apparent. Along some special lines great strides have been taken. Even in the law the same thing has occurred. The "Question" is no longer put through the medium of the thumbscrews, the "boot" and the rack. Within the confines of civilization, imprisonment for debt, honestly contracted, is no longer tolerated. Trivial offenses are no longer punished by hanging. State religions and the courts, to quote our old friend Barkis, "have been put in sunders" and men are no longer burned for heresy. But, despite these admittedly great reformatations it

is nevertheless undeniable and undenied, that the lawyers cling to and build upon precedent to the exclusion of almost every other consideration. It is the "habit" of mind that is at fault. Let us who boast of our wonderful secession from the past and our dizzy flight into the empyrean of progressive science, examine our pretensions candidly and determine if we have outstripped the lawyers who admit the dominance of precedent. It is a glorious achievement to have saved thousands of lives from the ravages of diphtheria; is it not something to have rescued thousands from the stake? Will not the abolition of legal torture compare favorably with the discovery of anesthesia? Will not the principle of arbitration, preventing war, do as much for the preservation of human life as the antityphoid vaccination of the fighting man? What is the ultimate economic difference between his succumbing to the typhoid bacillus or the bullets of the enemy? Has not the abolition of indiscriminate hanging contributed to the lengthening of the term of life quite as effectually as the scientific percentage feeding of infants? It were economic waste to save the infant for the hangman. The point is made, and we hope sustained, that changes in the method of administering justice have contributed to the health and longevity of the people in a manner comparing very favorably with the changes in the practice of medicine. Yet the legal fraternity frankly admit their dependence on the past, whereas the medical fraternity, just as tightly bound by habit of thought, *vinulis præteritorum*, vaingloriously proclaim their emancipation therefrom, and the setting of their faces toward the rising of the sun.

We have discovered the pneumococcus; have we discovered any way of limiting its activity? In the treatment of pneumonia, what is the dominant practice to-day? By the extreme antiquarians the external application of heat; by the neoantiquarians the external application of cold; by both, stimulation. The same old ingrained idea of limiting the progress of the disease by stimulating or inhibiting the cutaneous nerves in its vicinity.

We have discovered the tubercle bacillus; have we discovered any way to destroy it in the living subject? Or, do we rely as of yore upon the restraining influence of ozone and supernutrition?

We have discovered the gonococcus; have we discovered any infallible method of combating its ravages? We have argyrol instead of silver nitrate. We have the urethroscope to locate persistent patches of granulation. And we have the same old gonorrhœa running about the same old course, and we give the same old balsams, just as our remote ancestors did.

It is not my purpose to multiply illustrations drawn from the general practice of medicine, although the temptation is great and the opportunities limitless; I wish more particularly to point the moral in the narrower but more familiar field of dermatology.

In another place I have tried to show that dermatology is a most important aid to the physician in the diagnosis of systemic disorders. In deprecating now our adhesion to antiquated ideas and methods of treatment, I have no notion of minimizing the truth of that contention. Dermatologists, let

us see in what conspicuous particulars we have distanced our predecessors. We have the *lepra bacillus*, it is true, and we still have leprosy. We have the *Bacillus anthracis*, and still have anthrax. We have the tubercle bacillus and still have lupus. We have the streptococcus and still have erysipelas and, except in the case of the last mentioned, the management of these diseases has not been altered by the identification of the cause. Coley's fluid is occasionally used with good results, but is usually ignored. But what of eczema, what of psoriasis, what of the lichens, what of dermatitis exfoliativa, what of dermatitis herpetiformis, what of ichthyosis, what of plain, ordinary, plebeian urticaria? Except in some distinctions as to type, what has been accomplished in the elucidation of these affections? What single thing do we know of the etiology of psoriasis more than our quite remote ancestors? And in its treatment, how slavishly we adhere to their methods of procedure!

Twenty-five years ago, Edward L. Keyes declared that the treatment of eczema resolved itself into the application of zinc to acute and tar to chronic cases. Has there been any material alteration during this quarter of a century? Of its etiology nothing was known then and nothing is known now. Why there should be the determination of a vesicular dermatitis to one man's skin and not to another's, when both were subjected to the same influences, is a mystery to which we have absolutely no clue. Surmise is rife, but evidence is coy. Relative power of resistance is the favorite refuge of those who do not like to admit their ignorance of the cause. We leave you to decide what that may mean. To us it simply means that one man gets it and another does not. With our faces turned squarely to the past, we go right on plastering the patients with messy salves, which sometimes suppress but do not cure the disease, flushing the bowels with nauseous cathartics, thus lending temporary aid to struggling nature in the labor of elimination; and compounding dietaries that are frequently haphazard shots at the cause that we cannot define. What solitary idea has been advanced, within the memory of the oldest practitioner, which has illuminated in the slightest degree the etiology of eczema? *En passant*, it may be postulated that there is the glimmering of a discovery in the suggestion that the nervous system having control of all the trophic elements is logically responsible for all the dystrophies. It is conceded that an exciting cause is always at work in the production of an eczema. This may be within reach of our eyes and remediable. Or it may be beyond our ken and irremediable. Whatever that cause may be it operates through its influence on the trophic nerves. How it does so we are at present utterly unable to understand. Why it operates on one series of exposed individuals and not on another is equally inexplicable. Yet it would seem to be along that line of investigation that illumination must ultimately come. Instead, however, of bending all our energies in this direction we are as busy as beavers doing the palliative things originated in the hazy conceptions of our ancestors.

Dermatitis herpetiformis described by Duhring, and ascribed to some aberration of the nervous sys-

tem, has not had one scintilla of light shed upon it since its famous author rescued it from the confusion of the eczemas. What pathological factor so disturbs the function of the nerves as to bring into existence the lesions of this torturing disease? Here we are brought up standing. We have no answer to the question. The differentiation of the various factors operating through the nervous system for the production of eczema, dermatitis herpetiformis, urticaria, erythema multiforme, et al. is, *a fortiori*, utterly impossible. Therapeutically we plaster and palliate, with inherited persistence.

In acne and furunculosis a distinct departure has been achieved in the production of an effective vaccine. This only serves to emphasize our dull adhesion to ancient usage in so many other conditions. We raise a tremendous fanfare of self-laudation over the "discovery" of the poisons generated in the pestilent intestinal tract, and feverishly attribute thereunto the causation of all our nosological puzzles, from shingles to senility. We prate incessantly of skatol, indoxyl, and indol, as though the separating and labeling of these egregious malefactors had disposed of the whole problem of autointoxication. In the midst of our swelling pride let us not forget, that with the single exception of the cacophonous titles, the whole proposition was perfectly understood, *ex omni seculorum memoria*. Purgation has been the commonest therapeutic resource of which we have any information. The ancients had no knowledge of bacteria or of the definite noxious reactions occurring in a disordered intestine, but they had a perfectly clear appreciation of its pathogenic influence on the human organism and of the necessity of sweeping it clean of all offending materials. So as an antidote to our overweening selfcomplacency, let us consider that in this particular nosological connection we are looking backward with a vengeance. Likewise in regard to the "latest" treatment of intestinal putrefaction, namely the administration of the lactic acid bacillus, we are harking back to a custom of the Bulgars running through the centuries. They are a people of unusual robustness and longevity and their vitality is attributed to drinking sour milk. Perhaps they could not describe the *modus operandi* of their panacea; probably they would be amazed to learn that we harbor within us such pests as skatol, indol, and indoxyl; but they had come, by accident, most likely, into possession of a great truth, which we have greedily appropriated, with many flourishes at our own astuteness. Let us tarry for a moment over plain ordinary urticaria. It is probable that we treat it in about the same way as did the ancient Assyrians, by cutting out meretricious pabula, and eliminating that already ingested. Yet the pretty problem of the production of the wheal is as great a mystery to us as it must have been to them. Why should the particular dietary indiscretion (indulgence in crabs, lobster, pork, veal, strawberries, bananas, et al.) precipitate an angioneurosis resulting in the sudden dilatation of the vessels in one or several sharply circumscribed localities, with solid effusion into the lymph spaces? What sort of toxine attacks the nerves, and what determines the selection of particular nerves? Furthermore, what determines the

production of papules in some instances, and vesicles or bullæ in others? What answer have we to these questions? None. Frankly we know about as much on this subject as any of the peoples of antiquity whom we might select for purposes of comparison. With so much to arouse our scientific interest we go on dully oblivious of our opportunity, and supinely subservient to precedent.

Erythema multiforme is an analogous condition, with the exhibition of lesions similar to those just described, but differing from urticaria in the absence of itching. What determines the toxine to omit the itching? What determines it to form a papule with a central depression? Illustrations might be cited at very much greater length, but *sufficit diæ malum ejus*. It has been shown that with us doctors the dead past has not buried its dead.

Not one word of disparagement is intended for those indefatigable souls that have fought their way into the future against the pressure of the custom-ridden past. We grant them full meed of praise. We exempt them from the indictment found against our fraternity, for inertia, plagiarism, and a spineless surrender to inherited misconceptions. If we could be brought as a class to emulate the example of these illustrious pioneers, we would quickly emerge from the slough of confusion on to the firm ground of scientific precision. If every time we see a case of eczema, instead of yielding to the atavistic impulse to besmear him with variously offensive ointments, we should strive to discover the cause of his disorder and the manner in which it acts through his impressionable nervous system, we should soon begin to make progress of a substantial character. But not we! If one salve does not serve we try another. If that fails we try a third and we keep up a blind groping for a possible hit in the dark with a perverse persistence limited only by the patient's endurance. After we have exhausted the expedients of one authority we rush to another. Poorly requited there we make another essay, and another, and another, always looking backward and never for a moment seeking within ourselves the explanation of the pathological phenomenon we are confronting. Exactly like the lawyers, we rely upon "decisions" which are usually compilation of previous decisions. What does Hebra say? What does Unna say? What does Sabouraud say? What is Kaposi's opinion? What does Crocker suggest? What is the attitude of Stelwagon, Montgomery, Hyde, Jackson, Walker, and the others who have collected the opinions in vogue at the time in which they wrote, and set them before us as the law in all cases made and provided.

As an illustration of how this reverence for the "authorities" devitalizes the practice of medicine let us consider for a moment varicose ulcer of the leg. If a physician had read nothing about this condition and had to use his wits to find a remedy, he would quickly reach the conclusion that, venous circulation being faulty and arterial circulation increased by motion of the limb (thereby still further overtaxing the engorged veins), the logical remedy would be to support the venous and reduce the arterial circulation. He would note that the whole proposition was one of physics. If practicable he

would put the patient to bed and apply a bandage from the toes to the knee. In any event he would apply the bandage and thus effect at least half his purpose. But having been educated with a profound reverence for the "authorities," he immediately turns to them for guidance, with the result that he is impressed with the particular efficacy of some local application, and loses sight of the main element of treatment. This application failing, he tries another "authority" and another salve. Nothing daunted by his second ill success, he continues his reverential quest, and the patient enters on his long pilgrimage to the different temples of Esculapius. We have all seen them; we have all had them to treat, great thickened fibrous excavations, at this stage resisting every effort at restoration. Watch the routine management of these cases in the dispensaries. Observe the constant procession of salves, the senseless therapy of the surface when the depths are "out of joint." Note the slovenly bandaging, with no pretense of accomplishing anything but the retention of an impotent ointment. Time and again, I have seen the nurses start a bandage at the ankle, run it to the knee, and tie it in the middle of the leg! Time and again I have seen the clinician direct a change of treatment and ignore this technical monstrosity.

Had his mind been on the right track, he would have seen that what he put under the bandage was of little consequence compared with the proper application of the bandage itself.

Many years ago Beverly Robinson told his class, of which I was one, that he could exhaust all he knew in two hours' talk on the throat and nose. Yet he had written a large book upon the subject, because it was necessary to incorporate in it all that "Tom said, and Dick said, and Harry said." That is the crux of the whole proposition. "What Tom, Dick, and Harry said" must be rehearsed even if the author disagrees with them, and their opinions are handed down, and their errors perpetuated, and sanctified by time until the reader is hypnotized by these voices from the grave. Recently I read an article published in the *Journal of the American Medical Association* on "new" diagnostic criteria of incipient tuberculosis, and (barring the one factor of the x ray) every single solitary idea had been taught by James R. Leaming, who is now dead twenty-five years. What's the odds, you say, if both told the truth? None. But how about our pretense of getting upward and onward, with a retrograde movement like that?

In the same journal of a later issue appeared an article by Ravogli, of Cincinnati, upsetting Colles's and Profeta's law. He establishes the contention that there is no immunity to syphilis except actually existing syphilis; that the mother who brings forth a syphilitic child while she is apparently healthy, and who escapes infection from the mouth of her blighted nursling, is in reality already affected herself. If Colles's law holds good in so far that the mothers of syphilitic children are not infected by their babies' mouths, and if it is true as Ravogli says that there is no immunity to syphilis except by means of existing syphilis then it follows positively that the mothers of syphilitic children are always infected, and *mirabile dictu* the position of Keyes, enunciated a quarter of a century ago, is



sustained, namely that the father can only transmit the disease to his offspring by previously infecting the mother. Which is another beautiful illustration of *sartor resartus, mortuus rediit, historia sese repetens, vieux vin en bouteilles nouvelles*, second time on earth, or any other familiar formula by which one seeks to convey the impression of an old idea revamped.

Across the world of modern medicine came a trumpet blast of triumph from out the city of the greatest living seropathologist. "Syphilis is cured!" Ehrlich hath said it! One injection of his marvelous discovery and the scourge of civilization is no more! The most tremendous achievement since Jenner stayed the ravages of its reputed congener, the smallpox! A wave of delirious enthusiasm swept o'er the medical fraternity, matched only by that of the carnal voluptuary who welcomed such an easy means of dodging the wages of sin. Throughout the reaches of civilization and especially in our own beloved country a feverish activity to put this marvel to the proof was instantly aroused. Synchronously thousands of expert hands were eagerly at work. Speedily their hopes were verified. Did not lesions melt before this magic golden liquid, like snow before the sun. Banzai! Great is Ehrlich! He has found a means to sterilize the blood of these infected patients. It was reasonably safe at that. There were a few deaths directly traceable to the injections, but these were airily attributed to other causes, and did not dampen the overmastering jubilation. But now bitterer than death itself came whisperings of failure here and there, of relapses hard to be accounted for, if the patient's blood were sterilized as we had been assured. Faced with this the prophet of the new dispensation declared that some of the spirochetes must have been hidden in the glands and so escaped destruction. He advised more injections to root them out. It was finally decided that four injections constituted the proper dose for their ultimate and complete extinction. There the case might have rested to everybody's satisfaction, if the pestilent spirochetes would run according to form and drop dead when directed. But obstinate ones persisted in disconcerting resurrections, until it was certain that further measures must be employed. With what wonderful skill and courage did the masterly discoverer meet this emergency! Think of it! Could any one but a genius have devised such a plan! Could any one but a mighty heart have dared to promulgate it! Listen now with bated breath to the pregnant words of wisdom falling from his lips. "Give your four injections of salvarsan, and then *put your patient on mercury for two years!*" In which direction are we looking now? Forward, or backward? And has this worldwide touted, worldwide patented instantaneous annihilator of Gargantuan lues resolved itself into anything better than a cosmetic or emergency remedy admittedly effective in cleaning up surface manifestations? I know men who use it only because it pays to do so. They say they do not know what will be the ultimate result on brain, and cord, and kidney, and that if they themselves were the victims of lues they would not submit to the administration of salvarsan. Other men are of the opinion that the time consumed in the preliminary

salvarsan treatment is a serious detriment to the patient as long as he has to get down to the mercury treatment in the end. These opinions are privately delivered. In public print and lecture they fall in step with the prevailing trend. The only point I seek to make from all this is that after salvarsan comes mercury (for two years or more), and that despite the resounding din of gratulation over this marvelous advance we are still in *vin-culis prateritibus*.

Great and original minds resist the domination of entailed antiquities and accepting what is positive, and doubting what is problematical, press forward in restless quest of scientific certitude. But by the majority new ideas are looked on askance, unless bizarre and recondite, and advertised with brazen clamor. What should be obvious has to be hammered into our dull comprehension. We oppose the novel, because it does violence to our self esteem, showing wherein we have been remiss; because inertia fights against the labor of leaving the beaten track: and, most especially, because we are shackled by the blighting habit of retrospective inspiration.

Having paid our respects to the past in the preceding manner, let us not forget that it is the fossilization of our mental processes that we decry and not the work performed by our forbears. Mighty intellects have existed in all ages and performed miracles with the opportunities at their command. They made diagnoses, without an x ray, without a Widal, without a Wassermann, without a lumbar puncture, without a sputum examination, and without a blood count, and made them early and accurately too. Men like Lewis A. Sayre needed no skiagraph to detect a tuberculous joint. Men like Bumstead and Keyes could demonstrate lues as certainly as the Wassermann. Men like Delafield, Flint, and Leaming, by the acuity of their observation and the cogency of their reasoning, were just as brilliant internists as any of the present generation fortified by all the newer methods of precision. Janeway would not falter at a diagnosis of meningitis in the absence of a lumbar puncture. I have seen Joseph E. Winters strike with brilliant accuracy in the tuberculous phase of that dread disease, and seek no laboratory aid. No discredit is sought to be cast on these various methods of confirming diagnosis, but to have them supplant entirely the older and equally effective methods is a distinct step in the wrong direction. Reliance on these "methods of precision" is causing students to disregard the other ways of reaching a conclusion, and the valuable art of diagnosis is retrograding into the hands of the photographer and serologist. We are producing a class of men, who, ceasing to be clinicians, will become brokers for the laboratories.

As an afterword, to obviate any apparent inconsistency in these pages, I beg leave to epitomize in this wise: Along certain lines distinct advances have been made. Along others, especially noticeable in the domain of dermatology, progress has been painfully slow. This is due to the ingrained habit of reverting to the past, and doing things because they were done before. This mental attitude, unfortunately, seizes not only upon the vital and enduring truth, but upon much that is "flat,

stale, and unprofitable." In many ways in the great problem of the conservation of human life, we have stolen the thunder of our grandfathers and branded it as our very own. In many other ways, we have paralleled their achievements, and because our technic was a little different from theirs we have raised a great shout of admiration at our splendid superiority. In most ways, however, our minds have been ruled and our progress stayed, by the influences emanating from the past. This we in our pride do not often admit, but an impartial consideration of the many errors still accepted by the majority of the profession will convince the vainest that we are still "in vinculis præteritorum."

317 WEST FOURTEENTH STREET.

## LABORATORY STUDIES OF THE MANIC DEPRESSIVE GROUP.

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The following examinations were made as a general routine measure of the general admissions to the Central Indiana and Philadelphia Hospitals for the Insane, without any particular object in view other than the findings. I wish to briefly discuss the urinary findings, gastric analyses, examination of the feces, blood examination, blood pressure, and the autopsy findings.

**Urinalyses.** Over three hundred cases of the urinary findings of the various psychoses have been studied and the most prominent constant finding was indican. This was positive in seventeen per cent. of all the cases examined.

**Manic depressive group:** Twenty-four per cent. of the total number examined. Indican positive in twenty-five per cent. of these cases.

**Involuntal psychoses:** Thirteen per cent. of the total number examined. Indican positive in fourteen per cent. of these cases.

**Organic psychoses:** Twelve per cent. of the total number examined. Indican positive in twenty per cent. of these cases.

**Paresis:** Eleven per cent. of the total number examined. Indican positive in ten per cent. of these cases.

**Paranoia:** Six per cent. of the total number examined. Indican positive in nine per cent. of these cases.

**Psychoneuroses:** Seven per cent. of the total number examined. Indican positive in twelve per cent. of these cases.

**Exhaustion psychoses:** Two per cent. of the total number examined. Indican positive in twelve per cent. of these cases.

**Dementia præcox:** Eight per cent. of the total number examined. Indican positive in eighteen per cent. of these cases.

**Toxic psychoses:** Seven per cent. of the total number examined. Indican positive in eleven per cent. of these cases.

Albumin and casts were found in six per cent. of the cases of the manic depressive group, which was a higher percentage than the findings in the other psychoses. Bile, leucocytes, and epithelial

cells were found in a very small amount. More detailed examinations as to the elimination of urea, acetone, and diacetic acid were not made.

**Gastric Analyses.** I shall simply mention, in passing, the examinations of the gastric contents as only a few were made; the findings were not constant and the number was not sufficient to warrant any conclusion.

**Examination of the Feces.** Thirty-three cases of the manic depressive group were examined by Doctor Rosenberger and Doctor Terrell for the presence of occult blood and amœbæ. Fifty-five per cent. of the manic depressive group showed occult blood, while sixty per cent. of these cases showed the presence of amœbæ. The relation between the presence of amœbæ and occult blood was not constant. Doctor Rosenberger and Doctor Terrell were of the opinion that the presence of amœbæ did not play any part in the etiology of the disease. They also suggested that the presence of occult blood was due to a toxic substance which caused a relaxation of the vessel walls and a subsequent leakage of blood into the intestinal tract. The writer, however, would venture to suggest that this reaction is possibly due to a toxic substance or chemical changes in the gastrointestinal tract giving a positive blood reaction.

**Blood Examinations.** The blood picture of the manic depressive group showed no special characteristic other than the changes which were due to some secondary condition such as lymphocytosis in tuberculosis, secondary anemia, and marked anemic conditions dependent upon physical disease, and leucocytosis in the presence of pus infections. It has been my own observation that paresis is the only psychosis which presents a blood picture almost characteristic, namely, a diminution of the polynuclear cells with an increase of the small lymphocytes.

**Blood Pressure.** Dr. Leonard Raftery, at my request, has been studying the blood pressure of the manic depressive group during periods of excitement and periods of depression. His findings coincide with the findings of Craig, of London, namely, that in periods of excitement the blood pressure is lower than normal and in periods of depression it is higher than normal, the two conditions varying from ten to fifteen millimetres below and ten to fifteen millimetres above normal.

**Pathological Findings.** In studying the pathological findings of more than two hundred cases, I have noted particularly the fibrous changes in the most important viscera, such as the heart, liver, and kidneys. My object in doing so was the possible view that the manic depressive group was dependent upon a low grade toxemia which in turn produced a mild low grade fibroid change throughout the entire system. Of the first fifty-one cases studied, thirty-one per cent. were cases of the manic depressive group.

**Atheromatous changes were noted in:** Twelve per cent. of the total number, twenty-five per cent. of the manic depressive group, twelve per cent. of the remaining psychoses.

**Chronic interstitial myocarditis in:** Twelve per cent. of the total number, thirty-one per cent. of the manic depressive group, three per cent. of the remaining psychoses.

*Cirrhosis of the liver in:* Twenty per cent. of the total number, twenty-five per cent. of the manic depressive group, eleven per cent. of the remaining psychoses.

*Renal changes in:* Thirty-five per cent. of the total number, thirty-eight per cent. of the manic depressive group, thirty-four per cent. of the remaining psychoses.

The higher percentage of fibroid changes in the manic depressive group in comparison with the other psychoses rather supported this view until a further study of forty-three cases was made.

Of these forty-three cases, sixty per cent. were cases of the manic depressive group.

*Chronic myocardial changes were noted in:* Eighteen per cent. of the total number, twenty-three per cent. of the manic depressive group, twelve per cent. of the remaining psychoses.

*Cirrhosis of the liver noted in:* Thirty-seven per cent. of the total number, thirty-eight per cent. of the manic depressive group, thirty-five per cent. of the remaining psychoses.

*Renal changes noted in:* Forty-nine per cent. of the total number, fifty per cent. of the manic depressive group, forty-eight per cent. of the remaining psychoses.

These findings showed that there was possibly a higher percentage of involvement of the manic depressive group than the other psychoses. Not convinced, however, I then studied a group of one hundred and forty-seven cases, forty-three per cent. of which were cases of the manic depressive group.

*Atheromatous changes were noted in:* Fifty per cent. of the manic depressive group, forty per cent. of the remaining psychoses.

*Chronic myocardial changes noted in:* Eleven per cent. of the total number, twenty-two per cent. of the manic depressive group, fifteen per cent. of the remaining psychoses.

*Cirrhosis of the liver noted in:* Twenty-two per cent. of the total number, thirty-three per cent. of the manic depressive group, twenty-five per cent. of the remaining psychoses.

*Renal changes noted in:* Eighty-five per cent. of the total number, ninety-two per cent. of the manic depressive group, eighty per cent. of the remaining psychoses.

*Uterine changes noted in:* Thirty-two per cent. of the total number, thirty-three per cent. of the manic depressive group, thirty-one per cent. of the remaining psychoses.

In the study of over two hundred cases, fibroid changes seemed to be more of a constant finding in the manic depressive group than in the remaining psychoses. This percentage was reduced, however, as the total number of the cases studied was increased. I do not consider these fibroid changes of any particular importance from the standpoint of etiology on account of the fact that patients of the manic depressive group live a longer period than those of the other psychoses and the fibroid changes in many of these cases were concomitant with or secondary to old age.

#### GENERAL SUMMARY

So far as I have been able to demonstrate, there are only a few findings of clinical significance. In-

dicanuria is a more frequent finding in the manic depressive group than in any other psychosis. Whether this finding is due to a toxemia which acts upon an already predisposed nervous system and produces the manic depressive insanity or whether it is due to an autointoxication as a result of the manic depressive insanity is open for conjecture and further study. It is true that physiological chemists have been able to demonstrate the presence of indican in a relatively high percentage of supposedly normal individuals. These persons, however, may be suffering from autointoxication with no definite clinical manifestations, and I do not think that this fact should exclude the value of the finding of indican in the manic depressive group, for it is a well known fact that certain individuals possess a natural immunity to certain toxic substances, such as bacteria and the chemical products, and they are constantly eliminating them from the system without any noticeable pathological change.

The gastric examinations, blood examinations, and examinations of the feces have little clinical significance.

The positive reaction of occult blood in the feces opens a very interesting subject for future study. If it is blood, its etiology would be indeed interesting. If it is some unknown chemical substance, found especially in the feces of the insane, which gives this positive reaction for occult blood, it is certainly an unlimited field for the physiological chemist. If such unknown substance could be definitely demonstrated, most likely we would have a more definite understanding of the etiology of the various psychoses.

Blood pressure is certainly of value in the study of the manic depressive group.

Changes in the scalp, skull, cerebrospinal fluid, brain cells, and so on are not constant and are of little value in determining the exact pathology or the etiology of the manic depressive group.

The changes in the other viscera are not pathognomonic of any particular psychosis, as variations in the findings can be attributed to secondary changes due to old age, disease, and so on.

Those of us, however, who have stood by the bedside and studied clinically these patients, who showed the fetid breath, the dry, parched skin, etc., and have seen these conditions clearing up under the judicious use of purgatives and eliminative treatment, cannot help but be inclined to regard the etiology as a toxic condition acting upon an already predisposed nervous system. This fact, however, has not been demonstrated by clinical and pathological findings.

THIRTY-FOURTH AND PINE STREETS.

#### CHARITY: SOME THOUGHTS ON ITS USE AND ABUSE.

By H. E. TOMPKINS, M. D., D. D. S.,

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"We are bound to thank God always for you, brethren, as it is meet, because that your faith groweth exceedingly and the charity of every one of you all toward each other aboundeth." (2 Thess. I: 3.)



"But speak thou the things which become sound doctrine, that the aged men be sober, grave, temperate, sound in faith, in charity, in patience." (Titus, II: 1-2.)

"But the end of all things is at hand, be ye therefore sober and watch unto prayer and above all things have fervent charity among yourselves, for charity shall cover a multitude of sins." (1 Peter, IV: 7-8-9.)

"These are spots in your feasts of charity, when they feast with you, feeding themselves without fear, . . ." (Jude, XII.)

"I know thy works, and thy charity, and service, and faith, and thy works; and the last to be more than the first." (Rev., II: 19.)

In the work of dispensary charity, the apostolic words quoted above form a story in themselves. The story, of course, is not as complete as it should be for the reason that it is not up to date and that the several writers had more faith in *humanity* than we of this day. They did not realize the uses and abuses of the medical and dental dispensaries by the twentieth century mendacious pseudo-mendicant. It is evident from the excerpts that charity was extant in early times. It probably has been practised from the very beginning of the world. Its aim is and was to assist the worthy poor to conditions above those which they enjoy, be it in health or wealth. There is no doubt that promiscuous charity is responsible for the present system of mendicancy, allied or associated beggary, as found in Europe and Asia. It gave rise to the profession of beggary, to the formation of the bands of "yeggmen." By asking aid in times of real need men found the public to be gullible and the fruits of beggary to be greater than those of legitimate employment and so a "what the devil do I care here comes another succor" spirit was fostered and engendered. That allied beggary is a fact is evidenced by the fraternal spirit demonstrated by tramps who by code signs classify each house at which they ask alms. Promiscuous and ill advised charity begets a display of pauperism designed to instill pity that the appeals may be more effective. It inspires the beggar to contort his body to inconceivable shapes, to dissemble the appearance of the loss of a leg or arm which is very much present, to bandage a part as though an injury were present, to exhibit the thousand and one abnormalities which add to the play upon the sentiment of the unsuspecting giver.

Some years ago beggary become so prevalent, so persistent, so arrogant, and so much of a nuisance that the Poor Laws of England could not cope with the pernicious array. It was not until 1869 that any control was gained of the menace when drastic laws were passed and enforced. At this time, too, the first charity organization for systematic almsgiving was formed. Following this organized charity was established in the larger cities of the western world and professional beggary was thus held in check until about six or seven years ago. Since 1907, however, the increase of beggars not only has been noticeable but it is becoming alarming. This condition is more noticeable in the medical and dental dispensaries than in any other place. Unless it is checked, it

will be found that the horde of charity seekers will be greater even than in the days of the Poor Law.

General charity and medical charity are not afflicted with the same elements to any great degree. The professional beggar seeks for money. When in illness, he employs the best medical talent he can get. Medical charity appeals to two classes: the worthy poor, who dislike to seek charity and who do not take an unseemly advantage of the kindness offered, and the unworthy rich, who revel in that to which they are not entitled. The unworthy rich deems it far below his standard of decency to beg money. He reasons that to do so tends to place him in almost the criminal class, in a stratum of society in which he does not care to move. Indeed, it would be a high crime against his pride to stoop so low as to ask for money.

As evidence of the growth of the evil, look for an instant at the statistics for the years 1907 and 1912. In 1907 there were 99 hospitals and 107 dispensaries in New York City at which there were 2,800,000 consultations. In 1912 there were 119 hospitals and 212 dispensaries at which there were over 4,000,000 consultations. When it is remembered that New York's population is something like 5,300,000, it would seem that a large proportion of the population availed itself of the institutions.

While it is true that a large number of the inhabitants of this city are living lies or "hall rooms" (as far as their financial condition is concerned), it must be admitted that a great many, less than four fifths, of the inhabitants are unable to pay a reasonable fee for medical attention. I do not believe that this, the richest and greatest city in the world, has more than one tenth of its population so poor that it cannot pay for this service. If you think all dispensary patients are poor and deserving, read on. A child, while playing on the stairs leading to the 145th Street elevated station, fell and broke his arm. His mother took him to the dispensary of the J. Hood Wright Hospital (now called Knickerbocker) for treatment. The mother tells the story thus: "I took him to the Hood Wright Hospital and had him fixed, and all it cost me was one dollar for a picture and seventy-five cents for something else." This woman, I am told, owns the property situated at 311 West 145th Street, which is probably worth about \$40,000.

This same child, it was found by the school inspection, has adenoids which require removal. The mother, well able to pay, says she will take the child to the same place.

A woman living on MacCombs Place had some trouble with her ear. She visited and was visited by a physician somewhere on Washington Heights. She boasts of the fact that she had to pay him from one to five dollars a visit and obtained no relief. She went to the Harlem Eye and Ear Infirmary where the condition was treated and cured, and all it cost was about a dollar. This woman is in good financial condition and could pay, and pay well.

I know of patient after patient who came to me at the Calvary Church Dispensary who were well able to pay for services. I am free to say that I saw

to it that they did pay or they did not get treatment. For instance, the child of a waiter, at one of the downtown restaurants, earning from forty to fifty dollars a week, came for treatment which ninety per cent. of the medical men in New York would be happy to give for no more than ten dollars.

The wife of an insurance man earning about \$2,500 to \$3,000 a year applied for dental treatment which could be had almost anywhere for fifteen dollars.

A woman, owning a confectionery store (a nice one, too) on Eighth Avenue applied for treatment for rheumatism. She, in confidence, told a friend that business was very bad for she could not put more than \$175 in the savings bank that month (note that savings bank). This woman later went to Mount Clemens for treatment.

A few cases of this sort leads one to agree with the apostle when he says, "for charity shall cover a multitude of sins."

This great army of unworthy rich has been created by the dispensaries themselves or by the physician who likes to be considered popular and who works for a large and unwieldy class. The managing force in each dispensary strives to make the record of his institution larger than that of the others by practically inviting anyone and everyone to come to that infirmary. Indeed, some men of whom I know beg the class members to bring a friend the next time. Smatters just a little of the Baxter Street methods of a few years ago, doesn't it?

Why are there so many dispensaries? There are two reasons: first, some misguided mortal feels that charity in the shape of medical services is needed; second, one or more physicians feel that they must have some place where they can practice on patients or where they can add to their practice by weaning some of the patients from the dispensary idea or where they can give their services freely to the unfortunate worthy.

Is it necessary that there be so many or more dispensaries so the men may get more training? I do not think so. Pick up your journal and look over the "want ads." You will find one or more requests for men to attend upon some hospital or sanatorium for which fair pay is offered. You don't want that; then go to almost any of the dispensaries already established; it is easy to secure an appointment. This desire for more training is commendable, it shows a true spirit of progressiveness, but let us be like the "aged men . . . sober, grave, temperate. . ."

The patients who can be added to one's practice are few and even after they have been added they do not make good patients, for they are unreliable and not productive of good nor even reasonable fees. They are thankless, lacking in appreciation, gratitude, and loyalty, for at the slightest provocation they drop from sight, being neither "sound in faith, in charity, in patience."

The desire to do for suffering humanity is laudable. It is almost divine, for does not the Good Book say, "It is more blessed to give than to receive"? The feeling of satisfaction is great and

wonderfully pleasing that results from the giving. But, unless the giving is done in a systematic manner, unless the recipient is investigated and found worthy, unless the giving is surrounded by enough "red tape" to make it almost impossible for the undeserving to benefit, the giving will soon become a curse.

What does the foundation of new dispensaries mean? It means that an appeal is to be made for more patients, made in any way that will be productive of numbers, for no dispensary can exist (city institutions excepted) unless it is supported by a large number of patients. Dental dispensaries of which six new ones are being established, are particularly pernicious, for they are attended mostly by children. Many of the children are those of people well able to pay for services. The children are told in the school inspection that the teeth need attention. They tell their parents who advise the kids to go to the place recommended by the inspector which is invariably the dispensary. The moral influence of sending the children to these places is bad, very bad. For they find that their teeth will be treated practically free and since every one is willing to be given and to accept that which is given, they go, from force of circumstances and parents, to the institutions, to breed a new army of supplicants, becoming "spots in your feasts of charity, when they feast with you, feeding themselves without fear."

How can the curse be mitigated? Investigation of applicants seems to be the only real solution. But the task of investigating is far too great for the numbers of workers connected with the institutions. It has been suggested that the city be divided into districts, each to be served by a dispensary within its limits, all applicants from outside the district served are to be referred to the institution provided for them in their own districts.

This arrangement will not satisfy nor tend to correct the evil, for members of the district, in fair circumstances, will still take advantage of the kindness of the institution. The arrangement can be made more effective if a census of each district is taken, noting the home conditions, the occupations and weekly or monthly salary of the working members of the families and the number and names of members of the family; then an index system which is accurate and reliable will be had to which reference can be made upon the application of a patient. With this information at hand, the clerk can give or refuse a patient a card of admission with a degree of certainty and assurance that he is right. By this addition the falsifying applicants can be exposed and turned away from the institution or he can be charged a good fee which can be divided between the physician and the institution. This addition will stop the migration of the more daring applicants by forcing them to remain in their own districts.

Perhaps a new family moves into the district. Why not give palliative treatment until an investigation can be made? Now this can do no harm for the average dispensary patient is not dangerously ill for if he were he would not, or could not, go to the institution for treatment. You must admit that few patients die or become even danger-

ously ill from the conditions that bring them to the infirmary.

The indexed district plan is the right way of aborting the evil. A second plan is that the physicians can refuse to serve at the dispensaries. This would mean that the institutions must close for with none to treat the patients, patients will not come. This method has one serious objection, the really poor and needy person will suffer and be neglected. That is not fair. As I say, the only serviceable method is to index the districts, treat the worthy poor free and charge the richer fakers the regular office fee in addition to a regular prescription charge. Then and only then can the admonition of Titus be followed, "But speak thou the things which become sound doctrine, that the aged men be sober, grave, temperate, sound in faith, in charity, in patience."

What is the effect of this ill advised charity? I grant you that business and ethics do not mix well, but there are times when business must be considered. This subject furnishes one of the times when we must look at the business side of the profession.

The establishment of, and the request for attendance at, dispensaries for and by the public tends to suggest, that few but the rich and foolish should think of going to a private practitioner for treatment. It suggests the thought—Why should I pay for such service when I can get it for nothing? Such thoughts when put into practice mean that *your* fees will be lowered and lessened. It means that the already low yearly average income of the physician will be brought so low that many will not be able to live. That many will be brought to the point where *they* must seek charity to provide a home and a livelihood for themselves and their families. They must become victims of the very evil which they in the goodness of their hearts sought to build up and thereby benefit humanity. Should such things occur? Understand me! I do not think that dispensaries should be abolished nor do I think treatment should be refused in emergency cases nor in cases of the deserving poor. I do think, though, that treatment should be refused where there is any evidence whatever that the person can afford to pay or, if it is not refused, that a fee equal to the office fee of the attending physician should be charged. Then it can be truly said: "I know thy works, and thy charity, and service, and faith, and thy patience, and thy works; and the last to be more than the first."

2105 SEVENTH AVENUE.

## BLOOD LETTING APPARATUS.

By ELLIOTT C. BURROWS, M. D.,  
New York.

In 15,000 personally observed cases where blood was obtained for Wassermann or gonorrheal complement fixation tests, or other serological examinations, the need of a blood letting apparatus has been amply demonstrated. This apparatus<sup>1</sup> is especially applicable in the case of very young infants,

or in older subjects where a vein is not visible, its greatest utility, however, being in infants. The apparatus is simple, compact, inexpensive and can be thoroughly sterilized in a few minutes.

The infant is held face down across the lap of the nurse and the skin rendered surgically aseptic in



Blood letting apparatus, showing the glass cup which is placed against the patient's back, a glass tube for receiving the blood, and a suction pump.

the scapular region; with a broad Hagedorn needle make six to ten punctures, place the glass cup over the punctured area and manipulate the suction pump.

40 EAST SIXTY-SECOND STREET.

## CLINICAL OBSERVATIONS ON CANCER; ITS TREATMENT AND CURE BY CHEMICALS ALONE.

By KENNETH F. JUNOR, M. D.,  
Brooklyn, N. Y.

We speak of the exact sciences, but Nature's processes alone are exact. Experience teaches that to advance in our knowledge of any science, either theoretically or practically, the more closely we follow Nature the greater our advancement.

The physician's first and best work is to find out what is obstructing Nature in disease. Its removal marks his ability and skill. We are learning rapidly that the entire range of Nature's processes have a chemical basis. The power behind the mechanical in the body and among the planets, is chemical. The final distinction between male and female, will be found to be chemical. Who knows,

<sup>1</sup>Manufactured by W. F. Ford & Co., New York.



at present, how much of speech is attributable solely to chemical changes?

The human body is a perfectly equipped laboratory for the production of chemical combinations, either for nutritive, protective, or curative purposes. When this equipment becomes disordered, or its perfect action is interfered with, what we call disease results. To keep this equipment in order, remove impediments to its perfect operation, supply deficiencies, and repair injuries to its mechanism, is the Herculean task of the physician. Simply to conceive of it, is staggering. It is plain, however, that in the curing of disease, the greatest problems are chemical ones. In such a presence, what a commentary on the curative methods as taught in our medical schools during the last fifty years, in which no attention worth counting has been given to therapeutics or physiological chemistry. No wonder the profession rushed to the mechanical refuges of surgery, and the general practice of medicine has become almost a byword and a shame.

The chemical combinations in the body are constantly undergoing molecular changes. This is why medicine cannot be an exact science, until the complexity of these changes is thoroughly understood. For that very reason, its demand for keener powers of well balanced judgment, on the part of the physician, is greater than that of any other profession. Since it deals with human life, its responsibilities are proportionately greater. Indeed it was the deep sense of this great responsibility, by the profession, that led to the practice of vivisection, without which exact knowledge in physiological chemistry would be impossible, and the practice of medicine little else than empirical, but slightly removed from the Indian medicine man.

Under the great advances in physiology and especially chemistry, medicine is advancing toward the knowledge of not only what must be done, but why it should be done. So that the medicine of the future will in its nature be more chemical than surgical, more constructive than destructive, as too much of it now is. The physician of the future will be trained in biology, therapeutics, physiology, and chemistry. Of these, medicine has known next to nothing in the past. How much more will the physician be able to help humanity, by an exact knowledge of body metabolism. The methods of Nature will be his *vade mecum*. He will study them more profoundly and imitate them more closely, as revealed in the laboratory of the body. Everybody realizes the marvelous advance in the treatment, along these lines, of diphtheria for example.

The ignorant cry against chemicals of late years has been due, partly to lack of skill in preparation, partly to ignorance of how to use them, and largely to adulteration. In using them the physician obtained either no result or a bad one, to his own and his patient's disgust and, worst of all, to the loss of his own and his patient's confidence. There is not a shadow of doubt that the trend of scientific investigation, to-day, for the cure of disease, is physiological and chemical, and on the lines of Nature's methods.

In fact an entirely "new medicine" is well under way whose dominant tendencies are (1), the

close study and imitation of Nature's methods; (2), it will be constructive, not destructive, prophylactic and preventive. Scientists are only now beginning to appreciate the wonders of the human body, and to see that it is the most marvelous thing in the physical universe. The greatest of its marvels is that all its powers, mechanical, emotional, and even intellectual, are moulded and maintained in operation, if not directly brought into being, by chemical agents.

Properly to appreciate their wonders, and their possibilities, in the cure of disease, it is only necessary to compare the long and tedious processes through which human science produces diphtheria antitoxine, for instance, with the instantaneous production, in the body, by the Divine chemist, of a more perfect product, the instant the bacillus emits its poisonous toxine. Even if it be a new toxine, historically, this marvelous mechanism will instantly manufacture a new antitoxine to meet and destroy it. Its limitations in protecting us completely from attacks of disease are, in all probability, caused by our ignorance of the laws of healthful living. Thus by ignorance or sin, the vital powers are lowered, our resisting ability is destroyed, the toxic elements increase and overwhelm the antitoxine, the patient succumbs. It is one of the marvels of science that we are able to cause the production of these antitoxine elements in another animal, extract them from its blood, inject them into the dying human subject, and save his life. This is high science, but after all it is only *discovering* what Nature can do, not *doing* it. The mechanism, the manipulation, the elements, these are all there. This is the real marvel, revealing itself to the present age—the mysteries of body metabolism. It is the vision of this science, higher than any thing human, that distinguishes such a scientist as Sir Oliver Lodge who, while others watch the flash of the gun, fixes his attention on the man behind it. This is the true scientific spirit. Through such men and such achievements, this age is inspired to a new and confident hope and assurance that a new knowledge of life and its meaning, are imminent. A new hygiene, a new prophylaxis, a new protective medicine has materialized. Human metabolism is becoming an open book. Disease is being conquered, and by Nature's own lytic methods. Dr. Carrell has shown us that science, again by imitation, can actually promote the growth of new tissue *extra vitam*. Few would have believed this a year ago. Last year the writer had the temerity to prophesy the near accomplishment of this great feat, in a paper to be read before a medical society. When I read this paragraph to some friendly critics, I was advised to strike it out as it might awaken unfriendly criticism, and I omitted it. I believe the new medicine will save and restore much that in our ignorance we have handed over to surgery to destroy. The writer believes that the major part of present surgery will become only a memory, a horrid nightmare, and be forgiven on the justifiable plea of former ignorance.

Physiological chemists have discovered that the peristaltic action of the intestines is established and maintained by a subtle chemical agent, which they designate a "hormon." It is manufactured in the ductless glands and then issued to this local organ

to operate it, as steam operates an engine. Not only this, but the chemist has isolated this element, and put it on the market, so that the modern physician can administer it to his patient and restore that action, so necessary to life, if from any cause, as atony, or operation, it has become impaired, or is destroyed. And so of other "hormons." Such discoveries as these throw into absolute shadow the most brilliant achievements of modern surgery, because it is treading in the very footsteps of Nature, and is science of the very highest type.

#### THE WRITER'S CONJECTURE AS TO THE CAUSE OF CANCER.

**Etiology.** A year ago, observing the local and systemic peculiarities of cancer, the systemic birth and local destinations of these subtle hormones, and the remarkable effect of the chemicals I was using on cancers—chemicals chosen specifically because of their well known systemic and local action—I conjectured that, possibly the cause of cancer might lie in some derangement of, or interference with some one or more of these hormones. It was only a passing thought, until last August, it was cabled from London that Doctor Bashford, the secretary of the Million Dollar Cancer Research Fund, had stated, before the International Medical Congress, as his opinion, after ten years of research, that these hormones might be found to be a cause of cancer. This of course gratified me very much, for his conclusion was reached in the laboratory, on animals; mine, in the office, at the bedside, and with human subjects.

**Treatment.** It is now over ten years ago that, moved by the above considerations, and an inherent desire to attempt the solution of unsolved problems, I ventured to enter upon the task of the treatment of cancer by chemical agents. I selected the following agents: An animal extract, potassium, calcium, sparteine, and a tissue stain. I have treated some sixty cases, a part hypodermically, and the rest by internal medication; four of them were presumably tuberculous, and the rest presumably cancer. Eighteen were, by microscopical examination, proved to be cancer; in the remainder the diagnosis was made from the external gross appearance and history. In the majority, however, the diagnoses were made by eminent men. Coming to me to avoid the knife, it was naturally difficult to secure microscopic confirmation. Some had been operated upon as many as six times by eminent surgeons. Eight were malignant epitheliomas or sarcomas. Three only were in good physical condition. None but were exhausted financially from many treatments, all of which had failed. Some were absolutely hopeless cases, before reaching me; but in no case, save one, did the treatment fail to have a favorable effect. This last was a case of epithelioma of the external genitals, in a lady eighty-five years of age. The treatment had to be abandoned by me, because I was financially unable to carry more than a few patients without remuneration. Ten were internal, in the sense that they were not skin cases. In ten cases the hygienic and other conditions were most unfavorable. One patient, aged seventy-five years, had an x ray

cancer, malignant epithelioma, on the cheek, coming while under treatment for an epithelioma in the eye, in one of our hospitals. The epithelioma in the eye was a chronic one of five years' growth; the new one grew to the size of a walnut in three or four weeks, and was cyanotic. Both were cured. In sixteen cases all manifestations of the cancers were removed.

This treatment, which is a treatment and nothing more, when all the conditions are considered, presents a very high proportion of cures; using that term in the general sense of the disappearance of the disease. Using it in Doctor Abbe's sense, which is the true one, namely, "curing the disease instead of the patient," it is exactly what it seems to do. It is therefore almost entirely scientific. Its only scientific lack is in its control; and this is common to all medical practice.

I here I offer an explanation as to why the surgical extirpation of cancer is *sometimes* followed by the actual cure of the disease itself, but far more frequently (probably eighty per cent.) by recurrence. When cancer has advanced to the point when it has overwhelmed Nature's protective powers, which have undoubtedly been assailing it from the moment of its entrance into the body, and its surgical removal is undertaken, if recovery results it is because Nature's curative powers are already in the ascendant. In the majority of cases, however, the shock, the injuries to the normal tissues, the irritation to the abnormal tissue, and the indeterminate amount of cancerous infection, necessarily left behind, despite the highest surgical skill, all prove too much for Nature's exhausted forces, and the cancerous infection resumes its destructive sway.

If this be a scientific explanation, then surgery must still be kept where it belongs, an aid in necessity; no more a cure of cancer than the setting of a broken bone is the cure of a broken leg.

Until the chemicals used are tested out in a laboratory, as to their chemical relations with each other, with the cancer cell, with the normal cell, and with the chemical metabolism of the body, it will be impossible to determine their full efficiency, their best combination, their control, or the principles of their operation. Only in a laboratory can this be done. Till then its control must be learned from clinical observation. Since, however, well known chemicals are used, this can be successfully done.

If the above described conditions as to body metabolism and the trend of modern scientific investigation are correctly stated, then the lines of reasoning in regard to the treatment of cancer by the surgical action of the medical world have no sufficient basis in science, as they certainly have not, according to the facts. Its conclusion is "more surgery; earlier and more of it." While no one can deny to surgery the very highest meed of praise for its splendid achievements, still the conditions in cancer, and in modern science, point an entirely different way.

It may of course be a mere coincidence, that, during the last two decades an enormous increase in surgery was accompanied by a phenomenal increase in cancer, but in these two facts there is

much food for thought. At the same time there are some very significant opinions and facts which completely undermine the basis of any assumed scientific justification for "more surgery."

Dr. Robert Abbe, of this city, is quoted as saying at the late International Congress in London: "Surgery has expended its utmost force in cutting out every vestige of disease, or in destroying by caustic, cautery, or freezing. These occasionally cure the patient but they never cure the disease; they only remove it. We must look to forces like organic chemistry, biochemistry, Röntgen rays, or radium."

Why is it that the great research genius, Paul Ehrlich, and his companion Wassermann, have, since the discovery of the great chemical remedy salvarsan, turned their skill and magnificent resources to a search for a chemical cure for cancer? They have evidently abandoned all hopes in surgery, vaccines, *et al.* There could be nothing more significant as to the trend of world science.

Dr. John B. Murphy, of Chicago, one of our greatest surgeons, stated last year at Rochester "that we had made little, if any, progress in our treatment of cancer, during the last twenty-five years," and we all know that this treatment has been almost exclusively surgical.

Now on returning from the International Congress in London he declares "that perhaps the most hopeful discovery of the last fifty years regarding cancer, is the possible immunization of a certain variety of Japanese mice." This statement speaks volumes for the honesty and great courage of this great surgeon, but points out the slight probability of any future triumph in store for surgery, with regard to cancer. No! Surgery is war! often necessary, often purifying, often just, but, nevertheless, war!

Is it not clearly recognized that blows, pressure, irritations (among which surgery must be classed), often act as a secondary, if not the primary cause of cancerous growth? So also that seemingly benign tumors, after operation, recur as malignant. And in operation it is utterly impossible to tell whether or not all the infected cell tissue has been removed. Then there are really few surgeons with sufficient skill, or with suitable environment, for the extirpation of cancer. Further, and this is of the utmost importance to the whole world, especially to its sufferers, the surgical treatment of cancer can never be anything but institutional. It can therefore hold out only the most meager hope of relief to the multitudes whom no institutional treatment can ever reach, save at great cost and inconvenience; whereas, if some simple, easily available remedies such as these can be administered by the family physician, how many thousands of lives may be saved. While the work of the laboratory and the institution has its place, and an admittedly large one, yet the work of the family physician, in the office and at the bedside, must necessarily cover nine tenths of human needs in disease.

Moreover, we believe that institutional treatment is not the most desirable. It tends to eliminate the humane elements from medicine, a vital necessity to its best work. The writer thinks it a most dangerous tendency for medicine, that millions of

money are poured out for institutions, without being accompanied with even more millions for improving the efficiency and opportunity of the ordinary family physician. To lower the standard and standing of the family doctor, or to diminish his own sense of honor or the respect of the community for him, is a fatal mistake. That mistake has been gradually growing, largely through institutional methods, hence discontent within the ranks, and much contempt outside are more and more imminent. Concentration in the practice of medicine is suicidal to the best interests of the community.

The great advances of modern science are emphasizing the importance of the relations between the individual, the community, and the government. Medicine, because of its intimate and intricate relations with all three must take first rank in the settlement of these relations. As between institutional and private practice, the former stands to win, in the earlier rounds, for institutional interests are strong, the public ignorance as to the importance of the problems is very great, the institution is nearer to the ear of the State, and governments are proverbially deaf to persons and things more remote. The work of the family physician is of infinitely more importance to both the public and the government, than that of any or all of our medical institutions combined. This, without depreciating for an instant or a fraction the vital importance of the laboratory, the hospital and the clinic. The well equipped family physician is the State's greatest asset. At the strategic points of the community's battle with disease he stands. In epidemics he is a city of refuge, and in prevention a needed counsellor. Institutional and costly practice, as a rule, reach two classes, the rich and the poor, often pauperizing the latter to a dangerous degree, breeding distrust in the average practitioner, and filling his own heart with jealousy. The care of the family as a group, by the general practitioner, is of infinitely more importance to the State and the community than the care of the individual, in the institution by the specialist. Only a minimum, at best, could our institutions accommodate in widely spread infections; and only a few, under the tendencies of specialism, can retain that breadth and wide sympathy, which so often does, and always should, characterize the family physician. If the State and the public shall permit the specialist and the institution to usurp the place, or lower the standing of the physician in the family, the dangerous and suicidal attempt will be made to care for the head by cutting off the limbs.

#### CONCLUSIONS.

Regarding the physiological action of this treatment, as far as laboratory tests have been available it acts powerfully on the white cells of the blood, more especially the large mononuclear leucocytes, increasing their number several hundred per cent. in a few days. This seems in line with Nature's own method of attack upon disease. The cancerous tissue is gradually destroyed, without injury to the patient. In my earlier treatments, patients lost flesh rapidly, and I had some difficulties with high pulse. These difficulties I have, however, eliminated, and the patient's general physical condition



is not interfered with. Of course in many cases intercurrent diseases have to be watched as well. One patient with pulmonary tuberculosis (diagnosis made by an officer of the Board of Health) lived constantly under such unsanitary conditions as to be really appalling, had a cancer on the nose and cheek, penetrating the eye. This was cured, and for several months I received negative reports from the Board of Health as to the presence of bacilli. The patient, for the last two years, apparently free from both diseases, is hard at work from day to day, when he can get it, though sixty-eight years of age.

Surely this treatment must powerfully stimulate the white cells in the blood to the production of antibodies and must possess specific qualities of high potentiality; if it will inhibit the growth of a microscopically determined malignant sarcomatous tumor, attaining the dimensions of half a goose egg in a few weeks, and accomplish its disappearance. All of this it has done.

Notwithstanding our marvelous advances in science, we have as yet only scraped the surface of the possibilities of the human body. Its secrets are the deepest secrets; and when we have pierced the physical ones we will see greater things within and beyond.

458 EAST TWENTY-NINTH STREET.

### Abstracts and Reviews.

#### THE AIR AS A VEHICLE OF INFECTION.\*

BY CHARLES V. CHAPIN, M.D.,

Superintendent, Health Department, Providence.

Until very recent years the air has been generally considered the chief vehicle of infection. Such diseases as malaria, typhoid, typhus, cholera, etc., were believed to be spread by aerial convection. Sewer air was considered an almost certain carrier of typhoid, cholera, and dysentery, and it was even believed that the old water courses of New York could be traced by the prevalence of disease. Open streets, ditches, and the like were confidently believed to give rise to epidemics of typhoid fever and malaria. The carbolized sheet and the saucer of chlorides were thought to be powerful means of preventing the spread of infectious disease, and, even at the present time, are fairly widely used for this purpose.

The earlier work on the bacteria seemed to lend considerable support to the belief in the air transmission of disease, since it was easy to think of the minute organisms being carried in the air. The resistance which certain bacteria showed toward drying was demonstrated by Pasteur, and added further support to the possibility of their being carried in the air. After Koch proved the nature of tuberculosis, a number of observers, among whom the names of Cornet and Pflügge are prominent, showed that guinea pigs could be infected by the spray of coughing persons who were affected with pulmonary tuberculosis. All of these

observations, and many others beside, seemed to establish the fact that the air was the great vehicle of transmission of disease from man to man.

It was the laboratory which first gave scientific support to the theory of air convection, and it was the laboratory again which first gave grounds for the disproof of this theory. The work of Winslow with sewer air, in which he demonstrated that bacteria were very rarely present even in this confined air, gave almost the first conclusive evidence against the air as a vehicle of infection. He found no pathogenic bacteria in sewer air except the colon bacillus, and in two hundred one litre samples this organism was present in only four. He showed that its presence in these four samples could be accounted for on the basis of droplet infection, the samples having been taken from regions in the sewers in which there was splashing of the water. This work also brought out the fact that even in the infected samples of air the number of organisms was extremely small. By actual comparison of results it was shown that the bacteria in the total amount of air needed by a person in a day were less than where found in ten c. c. of New York city water. As it is usual for a person to drink about a litre of this water each day, and, as no ill results follow this consumption of bacteria, it was unreasonable to suppose that the extremely small numbers of organisms present in the air could have any detrimental influence on a normal person.

This work first brought out the fact that the element of dose was of prime importance in the consideration of the transmission of disease by the air. The acidforming mouth streptococci are not found in air unless human being are present. Studies of the air in school rooms revealed this organism in the proportion of six cocci to each one hundred cubic feet of air. The dose of these organisms received from this source in a school day was therefore insignificant.

It must be borne in mind that, in considering the air as an agent in the spread of disease, the presence of bacteria in dust is no criterion of the presence of these organisms in the circulating air, for their concentration in dust may be considerable while the amount of dust in the air is relatively so small that the concentration of the bacteria is reduced to an extremely small figure.

As already mentioned, typhoid fever was long thought to be spread by the medium of the air. Painsstaking epidemiological studies; the discovery of the organism in water and foods; the occurrence of carriers; and the absence of its transmission from one person to another in hospitals, except by contact infection, have removed this from among the diseases believed to be air borne. The same may be said of cholera, dysentery, and summer diarrhea, all of which are now known to be transmitted by other means than the air.

In the early days of aseptic surgery the sterilization of the air was considered the most important preventive measure, and a surgeon would not hesitate to pick up an instrument which had fallen to the floor and continue to use it. Studies of the bacterial content of the air in operating rooms have shown the presence of pus germs, but we all know now that an infection of the operation wound is

\*Summary of a lecture delivered before the Harvey Society, at the Academy of Medicine, November 1, 1913.

almost invariably traceable to some direct contact, and never to the deposition of the air organisms. Here, again, it is a question of dose of the infecting bacteria.

Much evidence was brought forward to prove that typhus fever was air borne; and this belief was well established. It, however, was destined to fall before the hand of science, and it has been shown that the body louse is probably the sole means by which this disease is transmitted. This discovery throws much light upon the epidemiology of the disease, for the incidence of the disease, its regional prevalence, and its seasonal occurrence agree precisely with the habits of the body louse.

Smallpox students argued for the air transmission of this disease, and showed its prevalence to be greatest in the region of smallpox hospitals, infected ships, and the like, diminishing proportionately with the distance from these centres. Other facts were adduced to prove the air convection of the disease. Further studies have shown, however, that the prevalence of smallpox is explicable on the basis of contact infection, and the disease has been shown not to spread through the air in hospitals, but solely by contact. Bubonic plague has fallen out of the group of air borne diseases since the discovery of the rat flea as an agent of transfer. Even pneumonic plague, which has been shown to be transmissible from man to animals through the droplets from coughing, is probably not air borne, for the dose of bacteria in the air immediately in front of the mouth of a coughing person is in no way comparable to the minute dose that might be present a few feet away. Strong and Teague have shown that the air expired during quiet breathing does not contain the plague bacilli. It is almost certain that when we know more of the disease we will find that contact infection will account for the great ease of transmission of pneumonic plague.

Mediterranean fever is now known to be spread by goats' milk, and influenza, which has long been believed to be carried long distances in the air, is now known to be spread solely by contact, or by means of droplet infection. Pneumonia has not yet yielded up the secret of its mode of transmission, but the fact that it can be cared for in the general hospital wards without its spread to the other patients, and the constant presence of the pneumococcus in the mouths of a large proportion of healthy individuals both point away from the air as the vehicle of its transmission.

Turning now to the more distinctly "contagious" diseases—scarlet fever, diphtheria, measles, whooping cough, etc.—we again find the accumulation of evidence leading us toward the view that they are not air borne. In scarlet fever the idea that the desquamated cuticle carried the infectious agent fell in with the air transmission of the disease. The fact that the Klebs-Loeffler bacillus is very resistant to drying was believed to confirm the view of the air spread of diphtheria. But it is now known that the desquamated skin from scarlet fever patients does not carry the virus, and diphtheria has been proved to be spread by contact almost exclusively. In many hospitals these diseases are all cared for in the same ward, each class being housed in a separate cubicle. The walls of the cubicles do not extend to the ceiling, so that there is free air com-

munication between the patients ill with the several diseases. Yet the diseases are not spread from one patient to another under these conditions. We may go further, for in a number of hospitals these diseases are not even separated by the partitions of cubicles, but are nursed in adjacent beds in a common ward. The only precaution is the observance of strict asepsis on the part of the attendants. A case of one type is "barriered" from a case of another type of infectious disease merely by the presence of a characteristic card on the bed to indicate to the nurse that she is to observe strict aseptic precautions in passing from the care of one to the other. Under these conditions, where there is no isolation except through the prevention of contact transmission, we find that the diseases do not spread from one patient to another, thus conclusively ruling out the air as a means of their transmission.

The same statements may be made concerning the transmission of rubella and chicken pox as have been made in connection with scarlet fever, measles, diphtheria, and whooping cough. The spread of all is certainly almost exclusively through contact.

Pulmonary tuberculosis belongs in a class by itself in this consideration. It is too chronic for accurate observation in man. The fact that it is located in the lungs; that the bacillus is resistant to drying; that the bacilli are expelled in very large numbers in the sputum; that droplet transmission to animals is easy; that the bacilli are abundant in the dust of rooms inhabited by tuberculous persons; all go to make a fairly strong case for the possible air transmission of this disease. But we must recall that the conditions of the infection of animals by holding them directly before the face of a coughing consumptive, or through the medium of the dust collected from an infected room, are probably seldom existent so far as man is concerned. It is yet to be demonstrated that the bacilli are present in the air in sufficient numbers to provide an infecting dose through inhalation.

Anthrax is certainly often contracted without contact, but it is almost certain that the dust to which the wool sorters are exposed is sufficiently abundant to account for the transmission of the disease. Of poliomyelitis we know little, but there is not much reason to believe that air infection plays any material part in its spread.

The question of the air transmission of disease may be stated briefly in the following sentences: Most of the important infectious diseases are not air borne. For tuberculosis alone is there valid evidence in favor of possible air transmission. Dust is not a factor of very great importance. The sewer gas bogey is dead.

**Sedative Drops for Use in Gastric Disturbances.**—See, in *Paris médical* for April 5, 1913, is credited with the following combination for administration in dyspepsias associated with pain, and in cancer of the stomach:

R Tincture hyoscyami, } .....āā 3iiss (10 grammes);  
Tincture coni, } .....  
Tincture gentiane, .....Mlxxv (5 grammes);  
Olei anisi, .....gtt. x.  
M. Sig.: Ten to thirty drops with each meal.

## Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXXXIA.—How do you treat chancrelids? (Answers closed October 15th.)

CXL.—How do you treat the symptoms of senility, without organic disease, but showing approaching dissolution? (Answers due not later than November 15th.)

CXLI.—How do you treat frostbite? (Answers due not later than December 15th.)

CXLII.—How do you treat chronic constipation? (Answers due not later than January 15, 1914.)

CXLIII.—How do you treat gallstone colic? (Answers due not later than February 16, 1914.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The prize of \$25 for the best essay submitted in answer to Question CXXXVIII was awarded to Dr. Arthur S. Kisser, of Blackwell, Oklahoma, whose article appeared on page 871.

## PRIZE QUESTION NO. CXXXVIII. THE TREATMENT OF INSOMNIA.

(Concluded from page 923.)

Dr. Harold S. Gloster, of Wheeling, W. Va., says:

Whenever a deviation from health occurs we have, practically in every case, some disturbance of sleep and perhaps the most common of these is insomnia, which in my mind is but a symptomatic condition attended by the patient's inability to sleep the usual required length of time. The treatment of this symptom, insomnia, naturally implies the management of the basic condition of which it is a manifestation.

All the hereditary, digestive, toxic, circulatory, nervous, and reflex causes must be thoroughly and systematically investigated before the treatment is begun. Very frequently modes of living must be corrected, and the general physical condition of the patient brought up to par before any hope for recovery is to be had. Attention should be given to hygiene, both personal and general, and proper diet and exercises prescribed. Therapeutic measures are to be employed, not as a routine measure, but as they best fit the individual case.

In the hereditary cases I believe measures such as the warm bath taken at bedtime, but not followed by stimulating friction is conducive to sleep. Absolute quiet and the elimination of light are important aids.

In the cases where the cause can be traced to digestive disturbances we should try to ascertain the exact character of the derangement and seek to

correct the same. The stomach should not be empty, neither should it be overloaded, but sufficiently full to help decongest the head.

As regards cases where insomnia is of toxic origin we must rid the system of the poison as best we can. In this category, constipation acting as a cause of autotoxemia is the most important. Personally I do not believe in drugging the system for constipation, but rather to stimulate the intestinal walls to peristalsis by a simple soap suds enema given hot.

In the circulatory cases attended with insomnia it is obvious that we must treat the underlying condition whether it be organic, or functional, or both, before we can hope to benefit the patient.

Nervous and reflex causes of insomnia should be treated as each case calls for. Seek out the cause and do not treat symptoms only. I do not mean to say that we should treat the cause alone and not regard the insomnia, for in some cases we must relieve the patient temporarily.

To me any drug that can sufficiently master the organism to produce sleep belongs preeminently to the domain of dangerous drugs, and should be used with great caution and as a last resort. Chloral perhaps is our best weapon for combating insomnia, but in some cases sodium bromide acts sufficiently well. To me morphine, hyoscine and other habit forming drugs should be our last resort. I have used a simple combination of trional, five grains, and sulphonal, three grains, successfully in treating insomnia regardless of the cause. I give this in powder two hours before bedtime, and again fifteen minutes before retiring, usually in a glass of hot milk.

In the treatment of this symptom let us remember that we are ever to be scientific, we must diligently search out the cause and correct it if possible, and only in cases of absolute necessity and then only with great caution should we resort to narcotics.

Dr. Morris Markowitz, of Philadelphia, Pa., says:

The treatment of insomnia requires a systematic investigation of any deviation from health, and this may be found to be due to any of the following causes:

1. Organic or functional diseases of the nervous system—in which hysteria and neurasthenia are predominant.

2. Deranged condition of other organs, causing a toxic state of the blood—from infectious diseases, gout, lithemia, and such intoxicants as alcohol, tea, coffee, or tobacco.

3. Diseases of the heart and bloodvessels.

4. The so called simple insomnia—apparently unrelated to any other disease—will be found usually to be due to abnormal habits of life, such as regards diet, working hours, exercise and rest.

The treatment therefore is that of the cause whenever it can be ascertained.

The following adjuncts to the treatment of insomnia will usually be found to be satisfactory:

Correcting the habits and mode of life of the patient, prescribing proper diet, and exercise, rest and hygiene. Where insomnia is traceable to indigestion, no food should be taken during the last few



hours before sleeping time, or if this is not advantageous the food should be of the lightest description. The use of alcohol, tea, coffee, or tobacco should be limited as far as possible, and especially abstained from late in the day or evening. A short period of rest by lying down—relaxation without sleep—after the midday meal, and a relatively early hour for retiring is recommended.

Often, the following measures used before retiring to sleep will answer well: A hot drink, such as a glass of milk, bouillon, or lemonade; a warm bath, not followed by stimulating friction, or simply a hot foot bath may induce refreshing sleep. When the feet are persistently cold and not relieved by hot applications, placing the feet in cold water, followed by friction until they are red, will have a good effect.

In many cases a change of scene such as a sea voyage or a season of camping will prove efficient.

**Medicinal treatment.** In most cases the use of drugs will have to be resorted to. Their use, however, should be only temporary. The dose at the beginning should be sufficient to produce several nights of sleep in succession, and after apparent rest of body and mind the drug should be reduced in quantity, and finally withdrawn. If necessary to use for any length of time, the kind of drug should be frequently changed. The following hypnotics are most commonly used: Veronal (five to eight grains), or trional (twenty to thirty grains), best given one or two hours before retiring. Chloral hydrate (five to ten grains) may be used in suitable cases.

The bromides may be combined with any of these drugs, and where gout or rheumatism exists they may be used in combination with the salicylates. Opium and its derivatives (codeine and morphine) should only be used when insomnia is associated with pain. In the same manner hyoscyamus may be used. In the use of drugs the age of the patient is not to be lost sight of.

Finally, to avoid habit formation, it will be necessary to prevent the patient from knowing the particular drug used. In many cases the use of a "placebo" may give the patient a good night's sleep.

*Dr. S. J. Wright, of Akron, Ohio, says:*

Remove the cause. Muscular fatigue, as in a woodchopper, causes sleep. Nerve exhaustion, as in a professional man of sedentary habits, is productive of wakefulness. Detritus from the nervous system irritates the brain. It must be eliminated. Simple insomnia in an otherwise healthy person is best treated by elimination, and especially by increased oxidation. For this purpose the inhalation of ozone, filtered through oil of pine needles and eucalyptol, for half an hour, in the latter part of the day, is curative. An aid is the application of a glass vacuum electrode to the closed eyes for five minutes daily. The static effluve directed to the body below the head for twenty minutes, is useful. Use the positive pole, place the patient on an insulated platform. In lieu of this muscular fatigue may be incurred in a game out of doors, or one may ride in the open air for an hour daily.

In an emergency one finds great relief by lying

on the floor with a blanket and pillow for a few minutes, then going again to the bed.

It is well to habitually lie on all sides—front, back, right, left, for the relief following change of position.

Avoid tea and coffee during the afternoon. Retire early, rise in eight hours. Keep a clear conscience, recall pleasant hours.

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### Therapeutic Notes.

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**Treatment of Digestive Disturbances in Young Children.**—R. St.-Philippe is credited, in *Gazette médicale belge* for May 15, 1913, with a discussion of the treatment of a group of disturbances occurring not infrequently in children eighteen months to three and even four or more years old, and including constipation, anorexia, faulty gastric secretion, etc., with resultant intoxication, anemia, poor nutrition, and defective development. Ultimately anorexia and irregular evacuation of mucomembranous material are typically seen, and these conditions are often kept up by inappropriate treatment. Attempts at gastrointestinal antiseptics and alteration of the media to restrict bacterial pullulation yield but temporary benefit. The author has found them due in large measure to imperfect hepatic functioning, and that the best results are obtained by the administration of cholagogues, and in particular, of ipecacuanha. This drug should be given in the form of the tincture, in doses at first small, then progressively increased; its use should be continued, in conjunction with careful regulation of the diet, until recovery is complete.

**Emetine in the Treatment of Hemoptysis.**—C. Flandin and E. Joltrain, in *Bulletins et Mémoires de la Société médicale des Hôpitaux de Paris*, Ap il 11, 1913, state that they were induced to try the effect of emetine in hemoptysis through the time honored recommendation of ipecac in this condition and owing to the antihemorrhagic of emetine recently observed in cases of dysenteric liver abscess, in which the pus was found to lose its bloody appearance after the very first injection of emetine. A young man was taken rather suddenly with a paroxysm of coughing during which a bowlful of blood was expectorated. In spite of rest, ice, and calcium chloride the hemoptysis continued, less abundantly, on the following day, and on the third day, when the patient attempted to rise from bed, more blood was brought up. Dyspnea became marked, and the temperature rose to 40° C. (104° F.). The same measures as had been employed before, together with ergot, brought some relief, but in the evening of the next day another abundant evacuation of blood took place, causing asphyxial phenomena and leaving the patient very pale. A subcutaneous injection of 0.04 gramme (two thirds of a grain) of emetine hydrochloride was given, and all other measures stopped. Bloody expectoration ceased completely and permanently, the temperature remained low, and the general condition improved. While the authors cannot definitely affirm that there was not a coincidence in this case, they point out that it is exceptional for a copious

hemoptysis to cease abruptly and for the sputum to be entirely free of blood in the days succeeding its arrest. The emetine treatment would appear to be worthy of further trial in this condition.

**Treatment of Senile Neurasthenia.**—R. Oppenheim, in *Progrès médical* for April 12, 1913, states that neurasthenia in the elderly or aged is most frequently dependent upon intoxications, including autointoxications, upon arteriosclerosis, and upon renal insufficiency. It is not enough, however, to place an old arteriosclerotic or nephritic patient upon a milk diet or a salt free vegetarian diet, if the physical asthenia, mental discouragement, excessive nervous irritability, and insomnia are to be relieved. The treatment directed against the cause of the condition must be supplemented by certain special measures. Thus, the anorexia often existing with these patients should be overcome and care taken that they ingest sufficient food. If necessary, to arouse the appetite, the following mixture may be ordered:

R Tincture condurango, ..... 5ss (15 grammes);  
Tincture genniana, ..... ʒi (30 grammes);  
Tincture columbae, ..... ʒi (30 grammes).

M. Sig.: Twenty drops in water a quarter of an hour before each meal.

Or,

R Tincture condurango, ..... ʒi (30 grammes);  
Syrup aurantii, ..... ʒi (30 grammes).

M. Sig.: One tablespoonful in half a tumblerful of water before meals.

Insomnia should be overcome, if practicable, by simple measures alone, such as light evening meals, lukewarm affusions or hot partial baths (avoiding full baths in arteriosclerotics especially). If such means fail, some of the least harmful sedative drugs will have to be tried, e. g.:

R Zinc oxid, ..... ʒi (30 grammes);  
Valeriana, ..... ʒi (30 grammes);  
Extracti hyoscyami, ..... ʒi (30 grammes).

Ft. in pilulæ No. i.

M. Sig.: One pill before supper and another two hours after.

Once or twice weekly, a cachet containing trional and perhaps heroine hydrochloride may be substituted for the second pill in the evening.

Nerve tonics should be used to combat the patient's general asthenia. Lecithin in doses of one and a half to seven and a half grains (0.1 to 0.5 gramme), either in pills or in granulated form, may be administered; or, injections of oil containing lecithin may be given:

R Lecithini, ..... 5ss (2 grammes);  
Oleï olivæ (washed with alcohol  
and sterilized), ..... 3x (40 grammes).

Ft. in ampullæ No. xx.

M. Sig.: Contents of one ampule to be injected every day

**Treatment of Lymphosarcoma.**—D. F. D. Turner, in a recent issue of *Archives of the Röntgen Ray*, reports a case of recurrent small celled lymphosarcoma in a man aged sixty-five, in which radium treatment resulted in apparent cure, already of one year's standing at the time of writing. The recurrence took the form of a swelling somewhat deeply placed below the left clavicle, and of enlarged glands in the neck, forming a mass of about the size of a small orange. A glass tube in an aluminum case containing twenty milligrammes

of radium bromide was inserted into the mass below the clavicle, and a capsule containing forty milligrammes was applied daily for four hours to the glands above, and for four hours to the swelling below. A screen of silver one half millimetre thick was interposed to protect the skin from the alpha and soft beta rays. After a week the internal tube was drawn out a little by its attached thread to expose fresh tissues to its influence, and after thirteen days more, was removed altogether. Both enlargements then diminished in size. A deep glandular mass remained, however, beneath the clavicle. This was excised under anesthesia, and a tube of radium was left in the cavity for one week. Three months later no trace of the disease could be found, and the patient had resumed his ordinary avocation.

**Treatment of Furunculosis of the External Auditory Meatus.**—G. Laurens, in *Nouveaux Remèdes* for June 24, 1913, advises that a small, flexible wick of gauze be inserted in the canal and the patient be required to drop upon it every two hours a few drops of the following fluid, previously warmed:

R Hydrargyri chloridi corrosivi, gr. ʒi (0.025 gramme);  
Alcoholis, ..... ʒi (30 grammes);  
Aque destillate, ..... ʒi (30 grammes);  
Glycerini, ..... ʒi (30 grammes).

Misce.

The gauze wick should be changed daily.

Hot moist compresses should also be ordered, to be placed over the whole auricular region and be renewed eight to ten times a day.

**Treatment of Acute Phlebitis.**—Joly, in *La Clinique* for March 14, 1913, asserts that the application of ice yields good results, especially in the presence of periphlebitis, in inflammation of the venous walls already thickened through chronic disease, and in varicose phlebitis. Its efficacy is the greater, the earlier it can be brought into use after the onset of the acute inflammation; it may even abort the latter. As a receptacle for the ice the author uses a piece of rubber inner tube from a bicycle tire, sealed at one extremity and closed at the other with a large cork. This is placed along the course of the inflamed vein, undue pressure being avoided by suspending it from the hoops supporting the bedclothes, and immediate contact prevented by interposition of dry flannel. The rest of the extremity should be completely covered with cotton wool. Indications as to how long the ice should be allowed to remain are furnished by the effects of its temporary removal, viz., it should be reapplied whenever a painful reaction is observed to result from its withdrawal. When the local disturbance shows signs of recession, it may be left on only in the daytime, then only for a few hours several times in the course of the day.

Rectal irrigation with boiled water, cooled to 25° or 20° C. (77° or 68° F.), and with the container but slightly elevated, is also recommended by the author in these cases. The blood pressure should, however, be kept under watch. If it rises considerably, tepid or hot irrigations—30° to 40° C. (86° to 104° F.)—should be substituted for the cold.

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### TREATMENT OF HEART BLOCK AND OF THE STOKES-ADAMS SYNDROME.

Heart block, we may recall, is due to interference with the transmission of contractile impulses from the auricles to the ventricles. Among the causes which have been recorded, rheumatic affections of the heart, infectious diseases which tend to poison the myocardium, acute lobar pneumonia, typhoid fever, diphtheria, influenza, atheroma of the bundle of His, gumma or ulceration of this structure, and streptococcus endocarditis, occupy a prominent place. Of great clinical importance, however, in view of the freedom with which digitalis is used in practice, and the large doses that some internists advocate, is that this agent is a prolific cause of heart block. So prominent a position does digitalis occupy in the etiology of this condition in fact, that Meyer (*Deutsches Archiv für klinische Medizin*, civ. Nos. 1 and 2) was led to conclude through experience gained in personal cases that as compared to organic lesions such as the above mentioned, digitalis was seldom the cause of heart block. This emphasizes, besides the need of care and watchfulness in the use of digitalis, the importance of establishing clearly whether true heart block is present in a given case or whether the patient is suffering in addition from

the phenomena which make up the Stokes-Adams syndrome, for while digitalis is useless and may prove harmful in the former disorder, it is sometimes of great benefit in the latter.

A clinical distinction between the two conditions in point thus becomes necessary. Roughly speaking, while heart block manifests itself by prolongation of the interval between the auricular and ventricular systoles, dropping of an auricular systole, or of every second, third, or fourth beat, or again by complete dissociation between the auricular and ventricular beats—all with slowed pulse, sometimes down to 30 and lower in threatening cases or complete heart block—the Stokes-Adams syndrome includes among its more salient phenomena, besides the slow pulse, vertigo, loss of consciousness of heart block: epileptoid attacks and visible auricular pulsation of the cervical veins. With Lewis, therefore, we should recognize that heart block and the Stokes-Adams syndrome are not synonymous terms—as taught in some textbooks—the main distinctive feature of the latter being epileptoid attacks.

In simple heart block, then, we should avoid digitalis and place our confidence in atropine which is often effective in counteracting the block by paralyzing the vagal terminals. Where syphilis is suspected as a cause, mercury or the iodides should be tried, the salicylates in rheumatic cases, the iodides when arteriosclerosis prevails, etc. Briefly, the cause should be carefully sought and removed where possible. Overexertion and violent emotion are very dangerous in such cases. In the Stokes-Adams syndrome, the myocardium seems, on the other hand, to demand additional tone. This is best met, in addition to treatment of the original cause, by means of strychnine. In some cases, particularly when there is dilatation, digitalis in moderate doses, or a good fluid extract of cactus grandiflorus, in thirty drop doses, as advised by Wilcox, is to be preferred. Sodium citrate and sodium iodide have been found beneficial by some observers. Hypodermoclysis and the intravenous use of saline solution—but without epinephrin, which would aggravate the block—suggest themselves as valuable aids in the treatment of threatening cases, owing to the diminished viscosity and the enhanced osmotic properties of the blood it would insure.

### NITROGENURIC DIABETES.

Although this affection, termed by the French *diabète azoturique*, was first described by Willis (in 1838), it has received but little attention except from the French, among whom the names of Lancereaux, Bouchard, Lecorché, Demange, and Richardière



may be mentioned. Cases of it are liable to be met with occasionally, however, by all practitioners of extended experience, and it is therefore deserving of serious attention. It appears to be a special and extremely grave variety of diabetes insipidus, and its characteristic feature is the excessive amount of urea, as well as of uric acid and nitrogenous extractive substances, excreted in the very abundant urine. It is generally described as a disease of adult life, though, according to Lecorché and others, it occasionally occurs in childhood. In this country cases are sometimes met with, especially in children, in which the azoturia alternates with glycosuria; an occurrence to which none of the French writers seem to refer. In some instances also albuminuria is noted, and cases of this kind have been mistaken for Bright's disease. Richardière mentions one case in which the patient, in the last days of life, had an intense albuminuria and succumbed to uremia.

The urine is markedly acid in reaction, and the amount of urea excreted in the twenty-four hours varies from forty to 150 grammes. The urinary salts, the chlorides and phosphates, are also increased, and the extractive matters to an enormous extent. On standing, the urine is apt to quickly assume an ammoniacal odor. In regard to some of its other characteristics writers seem to differ. Thus, Richardière states that it is of a dark (*foncé*) yellow, with a specific gravity which often exceeds 1.040, or even 1.050; while Jeanselme reports it as generally pale. Probably the color and density vary greatly in different instances and at different times, and it may be mentioned that observers here have sometimes found the specific gravity extremely low. The onset of the malady is abrupt in some cases and insidious in others. Once established, it for the most part presents a clinical picture quite similar to that met with in fatal diabetes mellitus. The general symptoms, the complications, and the progress of the disease are almost identical in the two affections, though Jeanselme asserts that the thirst, pronounced as it is, is less intense than in glycosuric diabetes. In all the patients observed by a prominent clinician here there was also an absence of itching.

The prognosis is invariably bad, as death is the regular termination of the disease. It should be noted, however, that Bouchard is said to have observed certain instances of chronic azoturia, without polyuria, in which the prognosis was less grave, and recovery frequent. As to the etiology, nothing definite is known. Leparquois says that azoturic diabetes implies a nervous predisposition and almost always *une cause occasionelle émotive*, such as mental distress of any kind. In some cases alcohol has been thought to be responsible for the trouble

and in others, repeated pregnancies, while cerebral tumors and other lesions, as well as those of the cerebellum and medulla, have sometimes been credited with a direct causal agency. In a few instances recovery is said to have resulted from the effect of intercurrent febrile diseases, but such a happy outcome must be too rare to be seriously considered, and in general an acute febrile disease would be much more likely to snuff out the patient's life than it would be to cure him.

While the French have principally studied this affection, and certain English observers have devoted some attention to it, the first contribution to the subject by a writer in the Western hemisphere is a paper which was read by Dr. Anthony Bassler at the last meeting of the Medical Association of the Greater City of New York, a report of which will be found in our Proceedings on page 990. Doctor Bassler discards the term diabetes in this connection, preferring to use the word azoturia alone, and suggests the following classification: 1. Physiologic azoturia. 2. Azoturia simplex. 3. Azoturia gravis.

We would suggest, however, that the French word *azote* means nitrogen, and that the equivalent for *diabète azoturique*, therefore, is "nitrogenuric diabetes," the term used in our heading.

#### TUBERCULIN AS A CURE OF PROGRESSIVE PARALYSIS.

The complex processes in human pathology now and again receive fresh emphasis when a remedy employed empirically and apparently against all reason happens to modify certain pathological conditions. From our knowledge of the nature of mental diseases we should fail to understand how typhoid fever, smallpox, pneumonia, pleurisy, scarlet fever, and other acute infections can so modify the pathological changes in the insane as to bring about recovery in some cases, and marked improvement in others. Yet such results have been reported by careful clinicians, as Kelp, Girara, Holler, Sponholz, Wagner, Leidesdorf, Fiedler, Weber, Krafft-Ebing, and others. Urman reported three cases of the tabetic form of progressive paralysis in which a lasting remission followed a local supuration. Omorokoff reported four cases of insanity permanently improved, two while afflicted with pulmonary tuberculosis, and the others following an attack of typhoid fever. In view of the apparent favorable effect of infectious diseases on nervous and mental disorders, Wagner, of Vienna, attempted to treat progressive paralysis with bacterial toxins. At first he employed the toxins of

the pyocyaneus bacillus, but it proved unsatisfactory, owing to the uncertain dose and severe reactions in some cases. The use of old tuberculin proved very much safer and more effective. The results he and his followers obtained are really remarkable, considering the hopelessness of the affection. Thus Pilcz reported eighty-six cases of paralysis with improvement in 23.2 per cent., marked improvement in 10.44 per cent. and recovery in 26.92 per cent. Since 1911, N. A. Zhukoff (*Roussky Vrach*, June 15, 1913) employed tuberculin in sixty-four cases of progressive paralysis and obtained improvement in 26.55 per cent. and very marked improvement, amounting in some cases to recovery, in 26.56 per cent. Just how the toxins act in these cases we do not know. Evidently, some profound impression is made on metabolism, affecting the nervous system. It is quite certain that, like drugs, toxins exert a double action, a direct specific action on the cells concerned in the production of specific immunity and a general action on the system. Whether it is the latter effect that is productive of favorable results in certain nervous conditions is still a matter of conjecture. At any rate, it is an interesting observation in neuropathology and therapeutics and should be subjected to further study.

### QUININE AND RABIES.

That rabies can be prevented by the administration of the Pasteur treatment is a well recognized fact. But it has certain weak points. It must be employed before the infective agent of rabies has had opportunity to develop. Then, too, it requires some days before protection can occur in the inoculated person. If the patient has already developed symptoms of the disease nothing is gained by using Pasteur's method.

Inasmuch as rabies is an infectious disease, a living agent of some description must be present. By many observers this is thought to be protozoan in character. With this as the basis of his work, Moon tried out the action of quinine on dogs that were inoculated with rabid brain material and were allowed to develop active symptoms of rabies. Quinine was then administered internally in large doses, equivalent to from twelve to eighteen grammes daily for an average man. The medication was pushed to the limit to secure the full physiological effect, one bordering on the toxic. As a result three untreated animals died, while the three treated ones recovered. Report also comes that this method has been employed successfully in one case of a human being.

As announced in our issue of September 20th, Noguchi obtained from animals, infected with rabies, what appear to be cultures of an organism that, in the test tube, give rise to bodies resembling protozoa, and similar to those found in the brain of the rabid animals. It would seem that such reports from these two different sources tend to support quite firmly the theory, that the Negri bodies are the infecting agent and are a form of protozoa.

### THE EXPERIENCE OF THE MEDICAL PROFESSION OF TORONTO IN THE TREATMENT OF SYPHILIS WITH SALVARSAN.

In the course of this article, D. King-Smith refers, in the *Journal of Cutaneous Diseases* for September, to the interesting work done by George S. Strathy, at the Sick Children's Hospital, on congenital syphilis. His observations are as follows: 1. A negative history in a mother is of little value. 2. In the smallest babies blood may be obtained for a Wassermann test by puncturing the median basilic or cephalic vein, or if they cannot be located, then use the external jugular vein. 3. In nursing babies indifferent results are obtained by treating them through the mother. Small doses of either salvarsan or neosalvarsan may be injected into the jugular vein. These small doses are repeated twice a week until a negative reaction is obtained. In babies better results are obtained by salvarsan and neosalvarsan than by mercury. 4. In children salvarsan is to be preferred to neosalvarsan. 5. In children, at first, the dose of salvarsan should be reckoned according to body weight, using as a standard 0.6 gramme of the drug for each 150 pounds of body weight. 6. In late congenital syphilis, those cases showing interstitial keratitis, etc., it is much more difficult to obtain a negative reaction.

### THE DOCTOR IN COURT.

J. J. A. O'Reilly, in *American Medicine* for September, 1913, in concluding the second article of a series on this subject, sums up in these words: Let us, then, as members of this sacred profession of ours, seek to develop a personality which will win the respectful attention of the people and the courts; let us try to realize and fulfil our duty to judges, juries, and parties, as well as to the State; let us by every means possible amplify our knowledge and experience, and use these instruments honestly and fearlessly in our analysis of all medicolegal propositions, and let us at all times be on the watch for the danger signs which beset our own path. Finally, let no unworthy interpretation of a "code of ethics" prevent our alliance with justice in an effort to restore to our profession the respect and dignity which belongs to it in this highly important branch of its application, the giving of expert testimony.

# Obituary.

CHARLES MCBURNEY, M.A., M.D.,  
of New York.

Dr. Charles McBurney died on November 7, 1913, at the age of sixty-eight years. He was graduated from Harvard University in 1866, and from the College of Physicians and Surgeons, of New York, in 1869. After studying abroad he joined the staff of the College of Physicians and Surgeons in 1872, becoming professor of surgery in 1889, and retired in 1907 on account of ill health.

The death of Dr. Charles McBurney removes from the medical profession of the United States a man who during his active career did as much to develop the science and art of surgery as anyone of his time in America. He was one of the first to adopt aseptic methods and to improve and simplify them. The aseptic operative technic devised and practised by him in the Roosevelt Hospital of this city was, and is, a model which has scarcely been improved upon during the last thirteen years since he left that institution.

The details of the modern steam sterilizer, now in general use with but slight modifications, were worked out in the Roosevelt Hospital by him and by Dr. Frank Hartley. Mr. Sprague was the engineer who furnished the mechanical skill to accomplish the object in view.

Dr. William S. Halstead had urged the use of rubber gloves in operations; but much credit is due to McBurney in this regard, who, by painstaking experiments, showed to the world that rubber gloves were not only advisable, but necessary for the surgeon and for the entire personnel of the operating room who handled anything which might come in contact with the wound. His method of sterilization and the use of dry gloves, with arm-lets, has now become general, though not until many years after he demonstrated the advantages of that method.

Doctor McBurney's fame among the laity seems to rest chiefly on a few things. First upon his so-

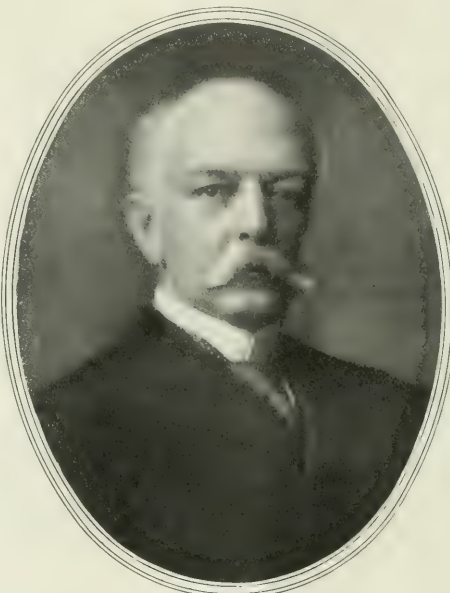
called "point" in the diagnosis of acute appendicitis and his skill in operating for that disease. Upon the latter he really prided himself, and very justly too. Less well known to the general profession was the devising of the intermuscular incision for removing the vermiform appendix. A third impression, derived I know not how, seems to be that his greatest skill lay in the treatment of accident cases. The most important part of his work in relation to appendicitis is perhaps not so well appreciated, namely, what he did to convince the medical profession that acute appendicitis was purely a surgical affection requiring immediate

surgical care, and this he did by constant effort in his clinics, "precept upon precept, line upon line." It may not be generally known that, clever though his intermuscular incision was in its conception and execution, he for many years feared to use it in acute cases, lest drainage be imperfect, and only after its efficiency for nearly all cases had been demonstrated by other surgeons did he adopt it in his own work, except in the simpler forms of the disease.

The man was, however, a much broader, wiser, and more skilful surgeon than those who knew him only by reputation thought. He was a surgical diagnostician whose equal I have scarcely met.

and yet his methods of examining cases were simplicity itself. His judgment as to when and how to operate I have never seen equaled. His operative technic was painstaking, accurate, and remarkable. In that the least possible injury was done to the tissues in order to accomplish the desired result. Each step was orderly and progressive. *Nulla vestigia retrorsum* was a prominent characteristic. No field nor procedure was gone over twice. As a consequence, the convalescence of his patients was unusually rapid, and they suffered a minimum of shock.

McBurney's intellect was quite superior to that of the average surgeon. When confronted by a difficult surgical problem, he was able to devise on the instant some new and entirely original procedure for overcoming the obstacle, and many were



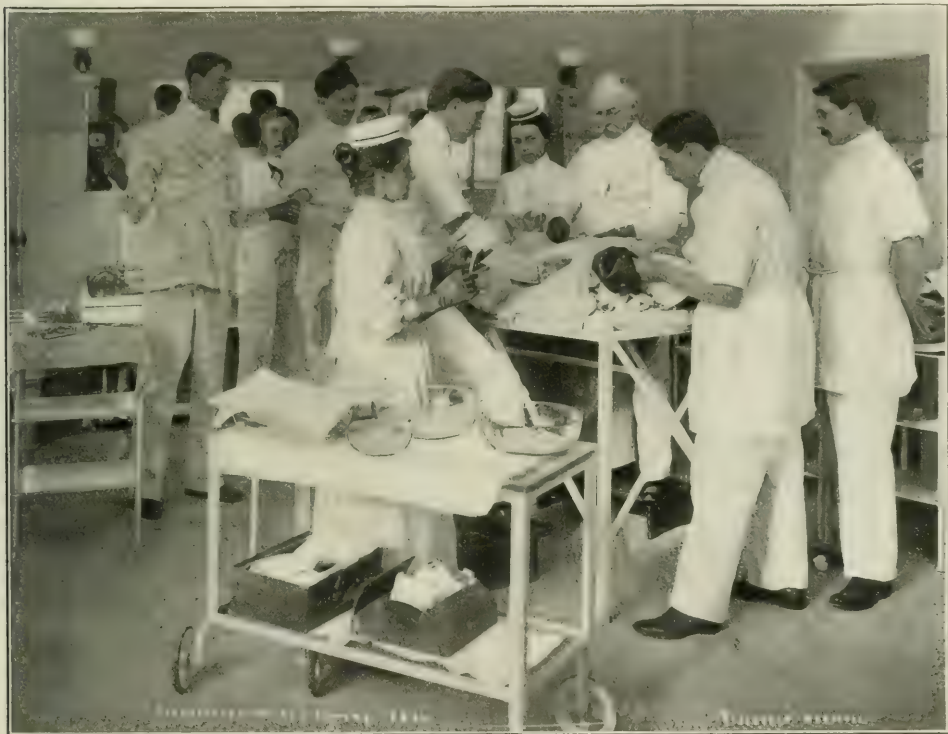
CHARLES MCBURNEY, M.D.



the permanent advances in surgical technique he made at the operating table. Many of these have become permanent and valuable standard methods. To mention only a few: A small transperitoneal incision for the purpose of compression of the common iliac artery by the fingers of an assistant during disarticulation at the hip joint; McBurney's transduodenal method of removing stone from the common bile duct in certain cases; McBurney's hooks for skin grafting; McBurney's tractor or hook for the reduction of fracture dislocation at

quite simple operations and to repeat them frequently. Among his favorite operations were amputation of the breast for carcinoma, hernia, and resection of the knee for tuberculosis. The more difficult and rarer cases were often operated upon on days when the public were not expected to be present.

In his relations with the house staff of the hospital he was always absolute master. His slightest hint was a command not to be disobeyed. The younger men regarded him almost as a superior



DOCTOR MCBURNEY OPERATING IN ROOSEVELT HOSPITAL IN 1900.

the shoulder joint; McBurney's staff, with a combined gorget and knife for rapid perineal section. This list might be greatly lengthened, but will suffice to indicate some of the characters and the readiness of his splendid intellect.

As a teacher and lecturer, McBurney was simple, clear, and eminently practical. He believed that in his clinical teaching it was better to speak of a few common and important things, and to teach them thoroughly, rather than to operate upon and discuss in public the rarer conditions and the more difficult procedures such as most of his hearers would never themselves undertake. As a consequence, in his public clinics, he often elected to do

being, and if they did their work well he treated them with the utmost kindness.

To his patients he was gentle, self sacrificing, sparing himself not at all. His manner was always charming, and I have never seen a sweeter smile on any human face than he did show. He inspired absolute confidence in those under his care. His winning manner, absolute devotion to duty, and superior intelligence aroused in those who worked with him professionally the highest admiration, affection, and esteem.

"He was a man, take him for all in all.  
I shall not look upon his like again."

ALEXANDER B. JOHNSON.

## News Items.

**Changes of Address.**—Dr. Nathan S. Rawdin, to 1000 Lenox Street, the Bronx, New York, N. Y.

**Personal.**—Dr. H. Sheridan Baketel, of New York, and Dr. Robert I. Bull and Dr. Philip M. Schaffner, of Brooklyn, have been appointed instructors in genitourinary surgery at the Long Island College Hospital, Brooklyn.

Dr. E. Davis Friedman, Dr. John H. Wyckoff, and Miss C. Sturtevant have been appointed instructors in medicine at the University and Bellevue Hospital Medical College.

**Dedication of New Medical College in Omaha.**—The new \$250,000 home of the University of Nebraska College of Medicine was formally opened on Thursday, October 16th. Dr. Howard A. Kelly, professor of gynecology at Johns Hopkins University, delivered the principal address.

**Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.**—Monday, November 17th, Philadelphia Clinical Association, Medical Society of the Woman's Hospital, and the Episcopal Hospital Clinical Society; Tuesday, November 18th, West Branch of the Philadelphia County Medical Society and the Laryngological Society; Wednesday, November 19th, Section in Otology and Laryngology of the College of Physicians; Thursday, November 20th, Section in Ophthalmology of the College of Physicians, Northeast Branch of the Philadelphia County Medical Society, and the Pathological Society; Friday, November 21st, Southeast Branch of the Philadelphia County Medical Society.

**Pellagra in Pennsylvania.**—Physicians throughout the State of Pennsylvania are much interested in a case of pellagra, which caused the death of a woman in Chester on Friday, October 31st, and in another case recently reported in Lancaster. According to health reports of the State Department of Health, thirteen cases have been reported throughout the State, as compared with three in Massachusetts, three in New York, and one in New Jersey. These are the first cases of pellagra reported in Pennsylvania in ten years, and physicians are much mystified as to the cause of the sudden outbreak. An investigation is being conducted and nothing will be left undone to check the further spread of the disease.

**Medical Association of the Greater City of New York.**—A stated meeting of this association will be held in Du Bois Hall, New York Academy of Medicine, on Monday evening, November 17th, at 8:30 o'clock. The programme will include the following papers: The Importance of Early Recognition of Myopathies by the General Practitioner, by Dr. Francis A. Scratchley; Why Electricity Does Not Cure, by Dr. Albert C. Geyser; X Ray Diagnosis, by Dr. Joseph Friedman. Doctor Geyser's paper will be discussed by Dr. William B. Pritchard, Dr. Frank W. Robertson, Dr. David E. Hoag, Dr. William Van Pelt Garretson, and Dr. J. Victor Haberman. Doctor Friedman's paper will be illustrated by lantern slides.

**Southern Medical Association.**—The seventh annual meeting of this association will be held in Lexington, Ky., on Tuesday, Wednesday, and Thursday, November 18th, 19th, and 20th, under the presidency of Dr. Frank A. Jones, of Memphis, Tenn. An excellent programme has been prepared, which includes symposiums on the cancer problem, vaccine therapy, malaria, pellagra, the milk question, uncinariasis, vital statistics, and the negro in relation to public health. Among the special features of the meeting will be the organization of the Southern Association of Railway Surgeons, and the first annual conference of the public health officials of the sixteen Southern States. An elaborate programme of entertainments has also been arranged, and the meeting gives promise of being of more than ordinary interest. It is expected that over a thousand physicians will be in attendance. The officers of the association are: President, Dr. Frank A. Jones, of Memphis, Tenn.; first vice-president, Dr. Stuart McGuire, of Richmond, Va.; second vice-president, Dr. J. D. Love, of Jacksonville, Fla.; secretary-treasurer, Dr. Seale Harris, of Mobile, Ala. The chairman of the four sections are as follows: Section in Medicine, Dr. Graham E. Henson, of Jacksonville, Fla.; Section in Surgery, Dr. W. A. Bryan, of Nashville, Tenn.; Section in Ophthalmology, Dr. U. S. Bird, of Tampa, Fla.; Section in Hygiene and Preventive Medicine, Dr. J. Y. Porter, of Jacksonville, Fla.

**American Academy of Ophthalmology and Otolaryngology.**—At the annual meeting of this association, held in Chattanooga, Tenn., recently, under the presidency of Dr. John W. Murphy, of Cincinnati, the following officers were elected: President, Dr. J. M. Ray, of Louisville, Ky.; first vice-president, Dr. J. M. Ingersoll, of Cleveland, Ohio; second vice-president, Dr. C. B. Wylie, of Morgantown, W. Va.; third vice-president, Dr. D. C. Loughery, of Clarksburg, W. Va.; secretary, Dr. L. M. Francis, of Buffalo, N. Y.; treasurer, Dr. S. H. Large, of Cleveland, Ohio; councilors, Dr. Allen Greenwood, of Boston, and Dr. Samuel Inglauger, of Cincinnati. Next year's meeting will be held in Boston.

**New York Academy of Medicine.**—The following programme has been arranged for a meeting of the Section in Medicine of the New York Academy of Medicine, to be held on Tuesday evening, November 18th: Dr. E. C. Rosenow, of Chicago, will read a paper on the Relation of the Lesions Produced by the Members of the Streptococcus Group, with Special Reference to Endocarditis and Rheumatism, which will be followed by a demonstration of specimens. Dr. E. Libman, of New York, will present a paper on the Clinical Feature of Subacute Bacterial Endocarditis (Chronic Malignant Endocarditis, Endocarditis Lenta) in the Bacterial Stage, and will exhibit specimens of the various forms of endocarditis. These papers will be discussed by Dr. Rufus I. Cole, Dr. E. M. Evans, Dr. L. A. Conner, Dr. N. E. Brill, Dr. Morris Manges, Dr. Augustus Wadsworth, Dr. W. Thalheimer, and Dr. P. Aschner. At the close of the meeting the nomination of officers for 1914 will be held. Dr. Linsly R. Williams is chairman of the section and Dr. Joseph C. Roper is secretary.

**Gettysburg Dinner of the Medical Reserve Corps.**—The annual dinner of the New York Division of the association of the Medical Reserve Corps, United States Army, was held at the Hotel Savoy, New York, on the evening of November 8th. Seventy-five officers were present, including the following officers of the regular corps: Colonel L. M. Maus, chief surgeon of the Eastern Department, Lieutenant Colonel A. E. Bradley, Major A. E. Truby, Major J. F. Russell, Major W. L. Little, Major H. H. Rutherford, and Major L. T. Hess. Lieutenant Henry C. Coe acted as toastmaster. Surgeon General Charles F. Stokes, United States Navy, responded for his branch of the Service, and explained the medical side of naval warfare, especially as it has to do with members of the Naval Medical Reserve Corps. Dr. Simon Baruch, late professor of hydrotherapy in the College of Physicians and Surgeons, Columbia University, and a surgeon in the Confederate Army, gave some delightful reminiscences of his experiences as a Civil War surgeon. Lieutenant Colonel Bradley compared the facilities of the medical officer of 1863 and 1913 and gave an enlightening picture of the army's medical department from 1775 to date. This dinner was in commemoration of the services of twenty-four members of the Medical Reserve Corps at the recent encampment in Gettysburg of Union and Confederate veterans, commemorating the fiftieth anniversary of the Battle of Gettysburg. In this connection, Lieutenant Thomas Darlington and Lieutenant Reynold Webb Wilcox gave their experiences as medical officers at the encampment. Major James E. Normoyle, of the Quartermaster Corps, who was chief quartermaster in charge of the encampment at Gettysburg, and who was also in charge of the commissary department in the relief work at Dayton during the floods last spring, gave a graphic description of the work of preparing the great encampment for the veterans, and paid high tribute to the efficiency of the fifty regular and reserve medical officers who were on duty there. The dinner was a delightful affair and demonstrated the strong position which the Medical Reserve Corps in New York has assumed. The officers present represented the medical faculties of the College of Physicians and Surgeons, University and Bellevue Hospital Medical College, Cornell Medical College, Long Island College Hospital, and the Post-Graduate and Polytechnic Medical Schools. The designation for officers for 1914 is as follows: President, Lieutenant Henry C. Coe; vice-president, Lieutenant Reynold Webb Wilcox; secretary, Lieutenant Harold Hays; treasurer, Lieutenant H. Sheridan Baketel; councilors, Lieutenant Howard Lilienthal, Lieutenant Howard Fox, Lieutenant W. M. Brickner, Lieutenant J. H. Lawson, and Lieutenant S. M. Strong.

## Pith of Progressive Literature.

## PARIS MÉDICAL.

October 11, 1913.

**Pathogenesis of Psoriasis.**—A. Leroy assigns to the subcutaneous membrane discovered by Bulkley in the lesions of psoriasis the role of a dialyzer, separating from the lymph and blood serum various dissociation products of the albumins and eliminating them in the form of a serous fluid. The foreign fats and lipoids described by Abderhalden in the blood may also be involved in such a process, and the author is convinced that the microorganismal theory of Unna and his followers should be abandoned in favor of the older theory of "peccant humors." Clinical and histological evidence is advanced in favor of this view. Oil of cade and similar drugs act by hardening and obstructing the dialyzing membrane.

**Treatment of Hemichorea.**—G. Ravarit reports a case of hysterical chorea limited to one side of the body, and another of similar hemichorea in a highly neurotic individual. Both patients were young girls. In each instance the ordering of a salt free diet, without the administration of drugs of any kind, appeared to play an important part in the patient's recovery.

## PRESSE MÉDICALE.

October 11, 1913.

**Appendicitis Claudicans.**—Rochard and Stern apply this denomination to three cases of chronic appendicitis recently observed in which there had been at no time any acute appendicular attack or abdominal pain, but which had presented in marked form two misleading symptoms, viz., pain referred by the patient to the right hip and intermittent claudication coming on after fatigue. The first case had been diagnosed as acute coxalgia and the patient was kept in bed with the right limb in an extension apparatus for three weeks; the second had spent three months in bed eight years before because of "sacrocoxalgia" and was supposed to be suffering from recurrence of that condition, while the third was also suspected of having some hip trouble. All these patients limped. Upon careful examination by the authors, however, percussion of the great trochanter, rectal palpation, and pressure on the ilium gave negative results; the patients could stoop readily, and there was no limitation of abduction, though in one case extension of the thigh was incomplete, probably because of reflex contraction of the psoas. The pain in these cases is ascribed to neuritis of the crural or abdominogenital nerves. Each patient was emaciated, of earthy color with subicteric conjunctivæ, and suffered from frequent nausea, capricious appetite, flatulence, and constipation interrupted by diarrheal attacks; there was also tenderness at McBurney's point. The only actual complaint, however, was of the claudication and pain in the right limb. Prompt recovery occurred in each instance after appendectomy, though in one case the appendix showed only a slight hemorrhagic folliculitis.

**Gastroenterostomy with the Aid of Jaboulay's Button.**—Huguier and Rigolot-Simonnot recommend the use of Jaboulay's button in all cases in which posterior gastroenterostomy is practised in association with another operation, such as pyloric exclusion or gastrectomy; where the patient's general condition demands brevity of operation; where the stomach can not well be delivered through the incision owing to adhesions or a tumor; and finally, where this organ cannot be satisfactorily evacuated, as in bleeding ulcers and in cases too cachectic to stand gastric lavage. Jaboulay's device differs from that of Murphy in that each of its halves is introduced into the corresponding viscus by a rotary motion through an opening only about eight millimetres long made with the thermocautery. No suturing of the button is required unless the incision has been made too long. Rapidity, asepsis, and perfect hemostasis are insured with this button, which, in the author's experience, has always proved wholly satisfactory except in a single case in which it remained in the stomach, without, indeed, the patient's experiencing any trouble therefrom. Fluids are allowed on the second day and a liquid diet subsequently until the tenth, when the button becomes detached. No vomiting takes place after operation, fluid in the stomach passing at once into the intestine.

## SEMAINE MÉDICALE.

October 8, 1913.

**Cobra Venom Activation Test in Mental Diseases.**—M. Klippel and M. P. Weil applied in mental diseases a test, already investigated in tuberculosis by Calmette and others, which demonstrates the presence or absence of lipoids or fatty acids in any fluid examined. To each of a series of five test tubes containing graded amounts—from 0.1 to 0.5 c. c.—of the serum of the patient under examination was added 0.5 c. c. of a one in 5,000 solution of cobra venom and 0.1 c. c. of a twenty-five per cent. emulsion of thrice washed and centrifugated red corpuscles of a rabbit. Saline solution was then added to bring the volume of fluid in each tube up to three c. c., control tubes without cobra venom prepared, and the whole series examined every five minutes for two hours and again at the end of twenty-four hours. In a positive test, hemolysis occurs, the hemolytic property of the cobra venom, otherwise not exercised, being activated by the lipid or fatty acid present in the fluid examined. The serum of twenty-two out of thirty-five cases of general paralysis, i. e., 62.8 per cent., and that of seventeen out of twenty-three cases of dementia præcox, i. e., 73.9 per cent., gave a positive reaction. The positive results are attributed to the disintegration of nerve tissue taking place in these cases. The negative reactions among the paretics were uniformly in patients already in an advanced stage of disease. Unfavorable prognostic significance is ascribed to a negative reaction in dementia præcox as well as in paresis, such a reaction signifying that the brain has already yielded to the blood all the lipoids it can dispose of. In alcoholic mania and Korsakow's syndrome



strongly positive reactions were noted, while in psychoses of depressive type negative results were the rule.

REVUE DE CHIRURGIE.

September, 1913.

**Freund's Theory and Operation in Pulmonary Emphysema.**—S. Roubachow considers Freund's work and views as to the relationship to lung emphysema of a rigid thorax with abnormally low expansibility of great import, but objects to that part of his theory which attributes this low expansibility exclusively to disease of the costal cartilages. In studies of the cartilages in 330 cadavers the author found that while among emphysematous subjects the percentage showing ossification of these cartilages is greater than in normal subjects of the same age, there is no histological difference between the cartilages in the two groups of individuals. Neither the location nor the extent of the ossification is characteristic of emphysema; contrary to Freund's statements, changes in the periphery of the rib cartilages are not typical of emphysema, occurring as well in non emphysematous old subjects. Measurements of the length of the cartilages—numbering 175—revealed no difference between the emphysematous and non emphysematous. Besides, the torsion of the cartilages and the widening of their angle with the sternum are not accounted for by the exclusively chondral theory of emphysema. In spite of all this, Roubachow strongly favors the performance of Freund's operation of cartilage resection in many cases of emphysema. Among eighty patients operated upon, twenty-five showed relief lasting a year or more, twenty-six were relieved but escaped from observation in less than a year, six were improved only temporarily, four were improved only after an interval had elapsed since the operation, six were unimproved, and nine died. From a study of the fatal cases the author considers as relative contraindications to the operation: Severe purulent bronchitis, bronchiectasis with profuse expectoration, lung tuberculosis, asthma, heart disease, very marked arteriosclerosis, and extreme old age. The presence of a dilated but not rigid thorax, or of a very advanced stage of emphysema, is an absolute contraindication. In other cases the operation is a safe one. Roubachow favors removal of large sections of cartilage—from four to six centimetres—and lays stress on the fact that to procure full benefit from the procedure mechanical respiratory gymnastics, Hofbauer's method of expiratory stimulation, etc., must follow.

**Primary Carcinoma of the Jejunum.**—A. Venot and A. Parcelier, in a study of thirty-six operated cases of cancer of the jejunum or ileum, found that in the ten cases in which resection of the diseased bowel was performed in the presence of obstruction the mortality was seventy per cent., while in sixteen cases in which the same procedure was carried out in the absence of obstruction it was only 18.7 per cent. Of the ten remaining patients, subjected to a palliative operation only, the high mortality, sixty per cent., is accounted for by the more serious condition of these patients. Resection is the operation of choice where obstruction does not exist, and yielded complete cures, confirmed by

subsequent autopsy, in two cases, as well as almost certainly in a third, under the care of Mikulicz, still living over seven years after the operation. Free excision beyond the diseased portion of the bowel should be practised, especially above. Adhesions rarely contraindicate resection. Multiple foci of disease contraindicate it where the length of gut to be excised would have to exceed three metres. Even where lymphatic involvement extends high up in the mesentery the operation need not be given up, as a wedge-shaped piece of mesentery can be removed, or even ganglia situated upon the spinal column taken out, as in the personal case of the authors. Diffuse malignancy contraindicates resection, but not the mere presence of nodules on the neighboring intestinal serosa or the mesentery. In cases with obstruction enteroanastomosis as a palliative operation is far superior to enterostomy, the employment of which should be restricted to patients whose general condition contraindicates all other measures. Enteroanastomosis has prolonged life for from a few to fourteen months.

**Surgery of Spinal Tumors.**—Potel and Veau-deau, concluding a detailed exposition of this subject begun in the May issue, assert that whereas the mortality of operation for spinal tumor only a few years ago averaged forty-five per cent. it is now only fifteen per cent. Statistics bearing on the last ten years show fifty-eight per cent. of recoveries. Recurrence of a spinal tumor is not as likely to occur as in other parts of the body, spinal sarcomata and fibro-sarcomata being relatively benign.

REVUE DE MÉDECINE.

September, 1913.

**Epileptic Dementia.**—R. Benon and A. Legal assert that this condition has not as yet been given sufficient consideration from the clinical standpoint by medical writers, and summarize the results of their personal studies as follows: True epileptic dementia is characterized by a more or less slowly progressing partial weakening of the intellect, affecting the memory, attention, imagination, and the powers of judgment and reasoning, and associated with affective changes and diminished general activity. Beside these primary mental deficiencies there are often observed delusions, periods of mental confusion, asthenia or hypersthenia, dysarthria, etc. The condition may be divided into several forms: 1. A common form; 2, special forms differing from the ordinary type as regards the course of the affection—rapid, slow, and remittent forms; 3, special forms based on certain symptoms—pseudoparalytic, asthenic, maniacal, paralytic, and spasmodic forms. Epileptic dementia must be clearly distinguished from the other psychic disturbances witnessed in epileptics. From the exclusive standpoint of dementia it must be differentiated from idiocy, imbecility, mental debility, dementia præcox, paralytic dementia, and senile dementia.

**Treatment of Tuberculosis.**—A. Krokiewicz reports the results obtained in a large series of tuberculous cases by the administration of pills and the subcutaneous injections of antiseptic drugs, alteratives, tuberculin in small amounts, etc. Of the pills used, two hundred were prepared from the following ingredients: Eucalyptol, two grammes;

magnesium oxide, 2.5 grammes; pure crystalline calcium chloride, 1.5 grammes; potassium guaiacolsulphonate, ten grammes; quinine hydrochloride and phenyl salicylate, of each five grammes; and menthol, one gramme. Two pills were given after each meal. The two solutions for hypodermic injection, of which two c. c. were given alternately at four day intervals, were as follows: (I) Thymol and sodium cinnamate, of each 0.02 gramme, dissolved in fifty grammes of hot water, to which, after cooling, are added novocaine and atoxyl, of each 0.25 gramme; gujasanol (diethylglycooll-guaiacol hydrochloride), five grammes; dry tuberculin, 0.0001 gramme; sodium chloride, 0.5 gramme, and sterile distilled water, enough to make 100 grammes (to be filtered). (II) Same as solution I, but with the gujasanol and tuberculin omitted. In 103 cases of lung tuberculosis in the second stage injections averaging twenty per patient were given, together with the pills. At the termination of the treatment fifty-eight per cent. showed marked improvement, which was maintained for two years; in ninety-four per cent. the pulmonary physical signs practically disappeared, and in seventy-four per cent. the patient gained weight. In 108 cases of lung tuberculosis in the third stage, similar treatment yielded marked improvement in nine per cent. and some improvement in forty-six per cent., while in the remainder the condition grew worse during treatment. In twenty-seven cases of tuberculosis involving serous membranes, two of glandular tuberculosis, and twelve of joint and bone tuberculosis, the treatment led to improvement in a majority of instances. Hemoptysis contraindicates the injections, which should be begun only from four to six weeks after cessation of hemorrhage. The injections were always well borne, and no albuminuria was observed.

**Congenital Malformations in Leprosy.**—G. Barbézieux reports from Indo-China deformities of the hands and feet observed in two children—brother and sister—the offspring of leprous parents. The hands are hook shaped, and the feet bifid, like the claws of a lobster. Neither case showed the bacilli in the nasal secretion. These and similar malformations are to be looked upon as inherited degenerative manifestations, dependent upon the leprosy in the parents, but not necessarily accompanied by leprous infection in the offspring.

#### BRITISH MEDICAL JOURNAL.

October 25, 1935.

**Effects of Emetine on Abscess of the Liver.**—R. L. Spittel's patient died as the result of the premature removal of drainage tubes after an operation to drain the abscess cavity in the liver. Prior to the operation, the patient had received emetine, and this was continued after the operation. After death it was found that the cavity, which had previously contained a pint and a half of purulent material, had been reduced to a capacity of only about four ounces. The striking feature was the extremely rapid and profuse proliferation of fibrotic tissue, which Spittel believes was attributable to the use of emetine.

**Experimental Observations on the Cause of Death in Acute Intestinal Obstruction.**—As the

result of extensive and painstaking experimental observations, D. P. D. Wilkie comes to the following conclusions:

1. Simple obstruction of the intestinal lumen, so long as it is clearly distinguished from strangulation. In the latter, death ensues long before the obstruction is the cause.
2. Simple obstruction high up in the intestine differs from that lower down, chiefly in the great loss of intestinal secretions by vomiting in the former, compared with the latter, where the secretions are reabsorbed above the obstruction.
3. Absorption of poisons from the content of the obstructed intestine is not the leading factor in producing the symptoms of acute ileus.
4. The danger of allowing the content pent up above an obstruction to flood the empty intestine below has probably been exaggerated.
5. Peritonitis plays no part in causing death in the majority of cases of simple intestinal obstruction; in cases of strangulation, however, it may undoubtedly be a factor in the latter stages.
6. In all varieties of intestinal obstruction the bowel content is highly infective.
7. Splanchnic paresis with depletion of the systemic circulation is the main factor in producing the symptom-complex of acute intestinal obstruction. In treating this factor, besides the operative relief of the obstruction, copious subcutaneous infusions of saline and dextrose solutions are of immense value. Clinically, the administration of pituitrin is found to be a valuable adjunct.
8. The prompt relief given by enterostomy in cases of simple obstruction of the small intestine in the human subject is to be explained, not so much by the relief from toxic absorption as by the breaking of a vicious circle, the intestinal distention causing a paresis of the splanchnic vessels, and *vice versa*. By relieving the intestinal distention the splanchnic vessels are allowed to regain their tone, and the depletion of the systemic circulation is arrested.
9. The operative treatment of intestinal obstruction should be as conservative as possible; only on imperative indication should the intestinal lumen be opened. The danger of a postoperative peritonitis from the slightest soiling is much greater than that of toxic absorption from a loaded bowel.

**Chronic Interstitial Enteritis.**—T. K. Dalziel reports upon seven cases of this hitherto undescribed condition. The symptoms are those of recurring attacks of most intense intestinal colic, associated with but slight rises of temperature, and accompanied with a boggy, puttylike feeling of the abdomen. The pathological findings were those of a chronic interstitial inflammatory process involving the mucosa and submucous tissue. The mesentery was but slightly involved, and the lymphoid tissue was almost free from abnormality. There were evidences of acute inflammation with infiltration in the earlier stages; cellular and fibrinous exudation characterized the next stage; in the late stages there was a deposit of fibrous tissue, granulation tissue, and an infiltration with mononuclear cells. No bacterial flora is constantly related to the lesions, the precise etiology remaining unknown. In cases in which the entire intestine is involved the condition is fatal. Where only a portion is affected, resection of this part of the intestine has cured the patient. Dalziel suggests a possible close relation between this disease and Johne's disease of cattle.

**Neuralgia of the Twelfth Dorsal Nerve.**—T. K. Dalziel says that this condition often closely simulates acute intraabdominal lesions, but can be differentiated therefrom by the absence of all the symptoms of such lesions except pain. The condition is associated with three points of tenderness: One immediately under the twelfth rib, near the outer border of the quadratus lumborum; one near the inner side of the anterior superior spine of the

ilium; and one above the outer side of the pubis. Section of the nerve near the spine cures the patient.

# LANCET.

October 25, 1913.

**Symmetrical Necrosis of the Cortex of the Kidneys.**—H. D. Rolleston adds one more case of this type to the ten which have been reported, bringing the total number of cases up to eleven. He analyzes the entire series. The ages varied from twenty-two to forty-eight years; all cases were in women; all were associated with pregnancy; in one only was there a live birth; in nine the patients were multigravida, one, only, was a primipara, and in the other no information was given. The clinical picture is closely similar to that of calculous obstruction of both ureters. There is usually nearly complete, if not absolute anuria, lasting from one and a half to eight days. Symptoms of uremia are usually present, but often they are only very slight. There is some evidence that there was an old renal lesion in the majority of the cases which had convulsions. Where anuria is not absolute the total amount of urine excreted is always very small. The morbid lesions are constant in so far as the renal necrosis is symmetrical, and associated with thrombosis of the vessels supplying the cortex. The vascular changes differ somewhat; some being confined to thrombosis of the interlobular arteries, some of the interlobular veins, and the rest showing thrombosis of both arteries and veins. It is not possible to state the cause of the thrombosis, and the precise relation between the cortical necrosis and the vascular lesion is still open to discussion. The fact that these cases do not have the severe uremic symptoms of extremely acute nephritis is possibly explained by the fact that the products of the degenerated renal epithelium are prevented from entering the general circulation by reason of the interference with the blood supply of the kidneys. These cases characteristically do not have edema, and when this condition is present it is due to a preexisting renal lesion.

**The Effect of Altitude on the Blood.**—Georges Dreyer and E. W. A. Walker adduce evidence to show that, in rabbits which have been taken from low country into regions of great altitude, there is a rise in the number of red cells and the hemoglobin content of the blood to an extent of ten per cent. or more within the first twenty-four hours. This is due to a concentration of the blood. The same response is encountered in man. After several weeks, the proportion of hemoglobin increases by about twenty-five per cent. Most of the later increase in hemoglobin is due to the formation of new hemoglobin, about half of the total being attributable to this cause. The blood volume is always decreased at great altitudes over the normal for the same animal, or for man, at lesser heights. The decrease in the blood volume was found to amount to over eight per cent. in rabbits. When these same animals are returned to the original lesser altitude from which they were taken, the blood volume increases, but not quite so rapidly as it decreased at the great height, returning to normal in about four days. The hemoglobin and the red cells also return to their former normal figures

for the lower region, requiring from fifteen to nineteen days for the return. The authors also find that the oxygen capacity of the blood runs exactly parallel with the changes in the percentage of the hemoglobin, being greatest when the hemoglobin is increased and vice versa. Several other interesting facts have been adduced by the authors. They find that the volume of blood for any warm blooded animal is proportional to the body surface. It may

be calculated by the formula:  $B = \frac{W^n}{k}$ , in which

B is the blood volume, W the weight of the animal in grammes, n is approximately 0.72, and k is a constant which has to be determined for each species. In cold blooded animals the blood volume is neither proportional to the weight nor to the body surface; in these the percentage volume of blood actually increases with increase in the weight of the animals as they grow older. The authors also find that the sectional area of the aorta just above the semilunar valves, and of the trachea, are proportional to the body surface. The ratio between the weight of the heart muscle and the total oxygen capacity of the blood is constant from species to species. The blood volume and sectional area of the aorta are rather smaller in the female than in the male, except during pregnancy when the blood volume increases. On the other hand, the sectional area of the trachea is rather greater in the female than in the male. Inhalation of an increased amount of CO<sub>2</sub> leads to a prompt dilution of the plasma and an increase in the blood volume. Oxygen, on the other hand, does not alter the normal blood volume. Active vasodilation is associated with an immediate dilution of the blood plasma and increase in the blood volume, so that it is not likely that dilating drugs can bring about any lasting reduction in the blood pressure.

**Veronal Poisoning.**—William H. Willcox gives a detailed discussion of poisoning by this drug in man. The symptoms after a single large dose are: Headache, drowsiness, ataxia, somnolence, coma, cyanosis, pulmonary congestion with symptoms of pneumonia, and often a fever of 103° F. or more. There may also be edema of the lungs, and death may ensue in less than twenty-four hours. Digestive disturbances often occur in persons who have acquired the veronal habit, but in the experience of the author the occurrence of rashes are far less common than is generally stated to be the case. In cases of chronic poisoning there is often a decided mental change, including hallucinations and delusions, speech is often disturbed, and there are tremors. The moral sense is as greatly impaired as is the case in morphine habitués. The fatal dose may be as low as fifteen grains, but this is probably only in the presence of an idiosyncrasy. About fifty grains may be considered a dangerous dose, but more than this has been survived. The treatment of the condition is early lavage of the stomach, if the patient be seen soon enough after the ingestion of the drug. Coffee and other stimulants should be administered, and a brisk cathartic should be given. There is no characteristic post mortem lesion, and toxicological analysis is difficult. It should be remembered that the drug is rapidly excreted through the urine.



**Experimental Transmission of Disseminated Sclerosis to Rabbits.**—W. E. Bullock has succeeded, in four out of five rabbits, in producing paralysis of the extremities and lesions of the spinal cord which are exactly similar to those seen in man by subcutaneous injection of spinal fluid derived from human cases of disseminated sclerosis. The fluid was removed under aseptic conditions, and in one or two instances was passed through a Berkefeld filter before injection. These results would seem to lend some evidence to the view that disseminated sclerosis is due to a filterable virus, for, not only was it possible to transmit the disease by means of the filtered fluid, but in no cases did the injected rabbits develop symptoms in less than fourteen days after inoculation.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

November 1, 1931.

**The Relation of Pathological Physiology to Internal Medicine,** by A. W. Hewlett.—See this JOURNAL for June 28th, p. 1370.

**Study of a Case of Congenital Hemolytic Jaundice,** by E. T. F. Richards and W. C. Johnson.—See this JOURNAL for June 28th, p. 1362.

**Importance of the Tuberculin Reaction in the Diagnosis of Early Pulmonary Tuberculosis,** by V. C. Vaughan, Jr.—See this JOURNAL for June 28th, p. 1360.

**Clinical and Laboratory Salvarsan Relapses and Their Remedy,** by M. L. Heidingsfeld.—See this JOURNAL for July 5th, p. 49.

**An Experimental Study of the Antiseptic Value in the Urine of the Internal Use of Hexamethylenamine,** by Frank Hinman.—See this JOURNAL for July 5th, p. 49.

**The Pseudodiphtheria Organism in the Urinary Tract,** by W. W. Townsend.—See this JOURNAL for July 5th, p. 49.

**Correction of Impediments of Speech in Our Public Schools.**—H. F. McBeath recommends a treatment consisting in bringing to a state of perfection, in the order named, the acts of respiration, phonation, and articulation. It having been ascertained that the patients will be benefited by the application of the principles advised, there is no reason why they may not be entrusted to a specially instructed teacher, as it does not require a mind with the technical training of the physician to comprehend these principles. That the stammerer can be successfully handled in the public school there is no question. What is needed is the cooperation of the medical profession in encouraging the installation of a department for the correction of impediments of speech, to see that teachers for such departments receive proper training, and to furnish school boards with information regarding the stammerer.

**The Surgery of Infantile Paralysis.**—E. W. Ryerson calls attention to some of the more useful operations applicable, which have stood the tests of time and experience, and expresses the opinion that in general far too little surgery is done in cases of infantile paralysis, and that nearly all cases can be improved by operations properly planned and executed.

**Acidosis as a Complication after Surgical Operations.**—W. B. Russ has collected the records of thirty-four cases, in seven of which a fatal issue resulted, and concludes that because of a marked reduction in the normal alkalinity of the blood, the result of some perversion of metabolism, many of the patients requiring surgical operations are unfit subjects for general anesthesia and the ordeal of an operation. The warning signs in such cases are (1) a history of unexplained headaches, vertigo, dyspnea, occasional nausea or vomiting, an unreasonable dread of the operation, and tachycardia and other nervous symptoms; (2) a peculiar sweetish odor to the breath, suggesting the smell of rotten apples—in some cases marked and unmistakable; (3) the presence of acetone bodies in the urine. A recognition of acidosis in time, with the institution of such measures as a carbohydrate diet of, say, from six to eight ounces of oatmeal and cream with lactose, the use of large quantities of carbonated alkaline water and colon flushings with an alkaline solution, and the internal administration daily of three or four drachms of sodium bicarbonate or citrate by the mouth, will be followed by the rapid disappearance of all or most of the unfavorable symptoms.

**A Case of Tumor of the Hypophysis Partially Removed by the Transfrontal Method of Approach.**—This case is reported by C. H. Frazier and J. H. Lloyd, and in concluding the account of the operation Doctor Frazier emphasizes the many advantages which the transfrontal operation has over the transphenoidal methods. The facility of exposure, the opportunity of determining with some degree of accuracy the extent of the tumor, the avoidance of such contaminating influence as the secretion of the nasal mucosa, the admirable cosmetic results; these and other minor considerations should, he believes, be given credit when any comparison of methods is made.

#### MEDICAL RECORD

November 1, 1931.

**Diagnosis and Treatment of Knee Lesions in the Adult.**—This paper, by V. P. Gibney, is largely made up of the reports of illustrative cases with remarks on their salient points. The diagnosis, he says, presupposes an intimate knowledge of the anatomy of the joint, deep as well as superficial. The history is of great importance, and his routine method in conducting the examination enables him to locate pretty accurately (1) the initial lameness; (2) whether pain is present when the patient is standing or walking only; (3) just where the pain is felt; (4) whether the pain persists after use and into the night. These points being established, there naturally follows a search for other factors in the etiology, such as excessive weight bearing and the strain on the muscles of the leg which would be induced by a falling arch or a poorly balanced shoe. Should no information be obtained by this investigation, a source of infection should be diligently sought out. Appropriate treatment for different conditions is described, and the author states that the lesions calling for arthrotoomy are varied—loose bodies, torn semilunar cartilages, and fatty fringes do not, as a rule, respond to any-

thing short of operation. In tuberculous knees in the adult a radical treatment, such as excision, is at present about the best for men and women who are obliged to earn a living.

**The Role of Physical Exercise in the Open Air in the Prophylaxis of Tuberculosis.**—J. M. Anders states that the amount of general muscular exercise required for the maintenance of sound health by a man of average build in the prime of life is equivalent to a daily walk of six miles on a level path, while growing lads and women require somewhat less. Obviously, this daily amount of exercise is needed by those whose employment is principally sedentary. On the other hand, an active outdoor life may diminish the six miles' walk considerably. It follows, therefore, that the details connected with the regulation of the muscular exercise will vary with the individual. He believes that well regulated physical exercise is one of the strongest safeguards we have for the maintenance of a national physique vital to the successful prevention of tuberculosis. In concluding he says he is ready to join with those who try to limit the abuses incident to competitive sports and training.

**Postoperative Intestinal Stasis and the Intra-abdominal Use of Oil.**—W. F. Burrows presents the following conclusions, based upon the peritoneal reaction to chemical irritation and upon the results of using neutral oil intraabdominally to control infection and effects of traumatism, both mechanical and chemical, as observed in guineapigs and dogs: 1. Iodine, mercuric chloride solution, phenol, alcohol, etc., applied to the peritoneum rapidly spread beyond the area intended, through capillary action and affinity for the tissues, destroy the endothelial cells, cause an excessive exudate, and tend to produce permanent adhesions. 2. Olive oil containing fatty acids and commercial liquid petrolatum, the impurities in which are acids, resins, fats, and oils, both animal and vegetable, produce inflammation of intact peritoneal surfaces, as is shown by a watery exudate, which differs, however, from that which takes place in the absence of oil in that agglutination and organization do not follow. 3. Bland, nonirritating oil, represented by a purified liquid petrolatum obtained from Russian oil, causes none of the changes occurring in the process of adhesion formation. It has no appreciable chemical action upon the tissues or deleterious effect upon the animal, and is slowly absorbed. 4. Oil, used intraabdominally in sufficient quantity, prevents, to a great extent, the formation or recurrence of adhesions. 5. Oil fills the lymphatic channels leading from spaces denuded of peritoneum or opened by incision, thus limiting septic absorption, and, through preserving the endothelial cells, prevents extension of destructive processes. 6. Oil is used to advantage, intraabdominally, in place of salt solution, upon abdominal pads, and to protect and lubricate the abdominal contents, thereby eliminating or minimizing postoperative intestinal stasis, vomiting, and abdominal pain.

**The Detection of Disturbances of the Digestive Tract by the Examination of the Feces.**—C. C. Sutter finds that probably the most neglected of all our modern methods of investigation is the ex-

amination of the feces. Discrepancies have occurred between clinical observation and laboratory findings, and this has led some to consider the latter of little value in their relation to gastrointestinal disturbances. Many of these discrepancies have arisen from faulty technic, from forming conclusions from a single specimen, and from the lack of proper interpretation of the laboratory findings. Persistent and routine examinations are often necessary to detect the real gastrointestinal conditions. No laboratory findings should be taken as conclusive without the aid of an examination of the gastric contents, the urine, the blood, or the sputum; nor without the aid of a careful anamnesis and a careful and complete physical examination of the patient.

## JOURNAL OF CUTANEOUS DISEASES.

September, 1913.

**Intense Bronzing with Cutaneous Tumors in a Case of Malignant Lymphoma (Hodgkin's Disease).**—John T. Bowen reports a case of a young woman, thirty-six years of age; whose family history is negative, except that her mother died of tuberculosis at the age of thirty. Her personal history was also negative except that in childhood she had had trouble with her sight. She came under observation on April 29, 1912. Her trouble started two years previously, when she was troubled with itching over the trunk, which was accompanied by a few dark spots over the lumbar regions. These grew until they occupied a large part of the body, including the face and head. Where the color was more dark the skin was thicker. As time went on the itching, pigmentation, and the thickening of the skin became more marked, and they were associated with loss of weight and weakness. The thickening of the skin and subcutaneous tissue was so marked in some places and so sharply bounded, so as to suggest formation tumor. These tumor formations were seen on the right side of the neck immediately below the ear, waist, buttock, left breast, and nipple. There were no lesions of the mucous membranes. Physical examination was negative. Blood, urine, and Wassermann test were negative. On August 20th, numerous glands were found enlarged. The spleen was also enlarged. On September 10th a papular eruption developed which in type, color, and duration resembled erythema multiforme. As time went on the glandular enlargement increased, as did also the pigmentation and thickening of the skin. The tumor formation was more noticeable. On December 5th the white blood count was 18,200; on January 12th, 30,000, with an increase of lymphocytes. The patient died February 5, 1913. The autopsy revealed a malignant lymphoma of the cervical, supraclavicular, axillary, retroperitoneal, and inguinal lymph glands. Infarcts of the spleen were found, but nothing abnormal in the adrenals. The author also dwells upon the possible relationship of mycosis fungoides to leucemia.

**The Leucocytes in Syphilis.**—The conclusions of H. H. Hazen are as follows: 1. In normal cases the average total count of leucocytes is 7,500. The polymorphonuclear leucocytes average fifty-five

per cent., and the lymphocytes count thirty three per cent. 2. In the untreated secondary cases there is a slight leucocytosis, an occasional case showing as high as 20,000 white blood cells. The neutrophils are absolutely and relatively increased. The percentage of eosinophiles is higher at this time than in control cases or in cases of late lues. Treatment causes a slight drop in the total count, with a slight actual and marked relative increase in lymphocytes. 3. Under treatment a secondary case may show a lymphocytosis as high as sixty-five per cent., a condition which may persist for many months, or that may tend to approach normal in from three to five months, even though treatment is continued. 4. Cases of tertiary syphilis very rarely show an increase in leucocytes. The differential count in untreated cases is usually not far from normal. Myelocytes are rarely formed, even with moderate anemia. Treatment usually, though not invariably, causes a rise in both the relative and absolute number of lymphocytes. 5. The cases with a large papular eruption, all in this series occurring in negroes, show a higher percentage of lymphocytes than do the other types of secondary eruptions. The average is forty-two per cent. 6. In cases of secondary syphilis, negroes show a higher lymphocytosis, thirty-five per cent., than do whites, twenty-six per cent. In the late cases there is not so marked a difference. 7. Males show a slightly greater increase in the total count than do females; females show a higher lymphocyte count than do males. 8. Age makes very little difference in the blood count. The very young tend to have a high neutrophile and a relatively low lymphocyte count. 9. Marked glandular enlargement does not mean a high lymphocytosis, in fact there seems to be very little relationship between glandular involvement and the small mononuclears in the circulating blood. 10. Severe cases of secondary syphilis show a higher actual and relative neutrophile count than do the milder cases. 11. All patients of secondary syphilis that did badly under treatment, showed before treatment, a high neutrophile and a low lymphocyte count; all patients that showed a low neutrophile and a high lymphocyte did well. 12. Cases of late hereditary syphilis do not necessarily show a high lymphocyte count. 13. Eosinophilia, in a case of skin eruption, speaks against syphilis. In this series one hundred and twenty-five cases were studied, and one hundred and seventy-five counts were made. The work was done by the same person and the same technic was employed.

**Salvarsan and Neosalvarsan in Syphilis; A Comparative Study.**—Henry H. Whitehouse and A. Schuyler Clark draw the following conclusions: 1. Healing is as prompt and sure after neosalvarsan as after salvarsan, whether the disease is primary, secondary, or tertiary. 2. If a given lesion fails to heal under repeated injections of either, it is in all probability not syphilitic. 3. Serologically and curatively both are more effective in primary and secondary cases, than in tertiary. 4. The combined method with mercury should be used with both, in all stages of syphilis. 5. Nearly twenty per cent. more permanently negative results were obtained in all stages by salvarsan, than by neosalvarsan. 6. Five doses of neosalvarsan would

seem to be required against four of salvarsan to attain the same end results. 7. Twenty per cent. of the cases under salvarsan showed reactions of some kind against eight per cent. under neosalvarsan, but twice as many are of the severe toxic type, as compared with those of the former. 8. There is less thrombosis and less inflammation of the tissues following leakage from neosalvarsan than from salvarsan.

#### LARYNGOSCOPE.

*Abstract, 1913.*

**Diagnosis of Rupture into the Lateral Ventricle and of Acute Internal Meningitis.**—Ruttin mentions the fact that the most fatal way that a brain abscess can lead to meningitis is by rupturing into the ventricles, causing thereby an instantaneous flooding of all cavities and recesses of the brain and a quick spreading of the suppuration to the meninges; statistics showing that such a complication is the most frequent cause of death in those cases associated with temporal lobe abscess. The author has observed a seemingly constant symptom in these cases of acute pycephalus internus, which is a very pronounced vertical nystagmus directed upward. Although he has observed this phenomena in several cases, his explanation is yet hypothetical; however, he believes that an irritation of the quadrigeminal region takes place.

#### NEW ORLEANS MEDICAL AND SURGICAL JOURNAL.

*September, 1913.*

**Sarcoma of the Small Intestine.**—E. M. Williams reports a case of this affection in which the patient, a negro eighteen years old, was operated upon on February 3, 1913, and at the time the paper was written was apparently perfectly well and had gained eighteen pounds in weight. Sarcoma of the small intestine, he states, is met with comparatively seldom, and it presents no pathognomonic symptoms. It rarely causes obstruction, and if constipation occurs it is intermittent. Diarrhea may occur, and in his case this was quite troublesome at times. It is not associated with the colicky pains present in cancer of the bowel, and as a rule the discharges are not of the dysenteric sort so frequently found in carcinoma. A symptom of very great importance is anemia, with rapidly developing cachexia. In cancer we usually have a tumor and symptoms pointing to a gradual intestinal occlusion before cachexia supervenes, while in sarcoma the reverse of this is true. It may be said that the early association of cachexia with abdominal tumor, the latter being of rapid growth, associated with fever, and without constipation, is strongly indicative of sarcoma; or, even further, that a rapidly developing cachexia with anemia, without local symptoms, and when the more common primary and secondary symptoms can be ruled out should suggest the possibility of this affection.

**The Treatment of Trifacial Neuralgia by the Intragastric Injection of Alcohol (Härtel's Method).**—Urban Maes states that the dangers of gasserectomy, with the frequency of relapse after the anatomical division of the sensory root, and even after the removal of the ganglion, have given way to the injection of alcohol in the treatment of



tic douloureux and other painful affections of the trigeminus. The alcohol injections into the nerve trunks at their exit from the skull is the most simple, certain, and satisfactory procedure for their relief. The final achievement in the treatment of tic douloureux is the alcoholization of the gasserian ganglion itself, a procedure which has found its ablest exponent in Härtel, of Berlin. It is not, however, without dangers, and after its employment the patient should be kept under observation for several days.

**The Serodiagnosis of Pregnancy.**—Chaillé Jamison and J. C. Cole, from a study based on the examination of fifty cases, express the opinion that the serodiagnosis of pregnancy is of definite value, that when proper controls of the serum and placenta are made it is as reliable as any other serodiagnostic method, such as the Wassermann or the Widal test, and that the modification suggested by Pearce and Williams (the boiling and filtration method) is simpler than the dilysis method, and just as accurate.

**Treatment of Diphtheria and Diphtheria Carriers.**—S. G. Wilson states that his article on this subject is based upon the treatment of some thirty cases of diphtheria as a disease and the handling of fifty carriers, among whom were transitory and permanent carriers, and the taking from the noses, throats, and in some instances ears, cultures numbering, in all, 3,000. In principle diphtheria antitoxine acts in two ways—first, by neutralization of the toxins already formed, and, second, by destruction of the false membrane, which has been shown to be the causal factor in toxine formation. The latter feature appears to be the more important, since as soon as the false membrane is checked or destroyed the patient improves. The best results in the treatment of diphtheria are obtained by large doses of concentrated antitoxine, 10,000 units, given intramuscularly, being the initial dose, with a period of twenty-four hours between doses; the membrane being the chief guide for repeating the dose, except in the laryngeal type, where the stenosis and cyanosis serve as guides. Diphtheria carriers are best treated by segregation, sunshine, and vaccine therapy. The wiping out of the disease is possible by segregating the carriers.

#### NEW YORK STATE JOURNAL OF MEDICINE.

*September, 1913.*

**The Wassermann Reaction in Hereditary Syphilis, Congenital Deformities, etc.**—L. Emmett Holt has studied the reaction in thirty-one cases of hereditary syphilis and in 178 children who were not regarded clinically as being syphilitic. The reaction has been tested by the Noguchi modification and in the laboratory of Noguchi himself, by one of his assistants, so that error in technic can be eliminated from the discussion. Holt comes to the following conclusions: The Wassermann reaction is almost invariably positive in hereditary syphilis, even when the patients have been treated previously by mercury, unless the treatment has been protracted and very thorough. The reaction disappears after the use of salvarsan very much more regularly and quickly than after mercury, but even so it usually requires repeated injections of salvarsan. One hundred and seventy-eight tests

were made in general hospital patients who showed no definite signs of syphilis and a positive reaction was obtained in only eleven, of whom five were subsequently shown to have been fairly clearly syphilitic. A large number of patients with congenital deformities was examined and not a single positive reaction was found in a series of fifty-six consecutive cases. Only five out of a group of sixty-two patients who were suffering from marasmus or malnutrition gave positive reactions. Nearly a third of these latter had very considerable enlargement of the liver or spleen and yet gave a negative reaction. Syphilis is, therefore, not to be regarded as a common cause of marasmus.

#### OPHTHALMIC RECORD.

*September, 1913.*

**The Management of Foreign Bodies in the Eye and Orbit.**—Edward Stieren asserts from an experience of 180 cases of proved foreign bodies in the eye and twenty-six in the orbit, that "given by x ray the exact location of a magnetic foreign body in the vitreous, we subject the eye to much less traumatism if we insert the cone shaped tip of the magnet in a scleral wound made with a sharp cataract knife at a point as nearly opposite the foreign body as possible, than to have the foreign body force its way through lens or ligament, iris, or ciliary body." He reports a case in which he removed a piece of steel from the vitreous with the recovery of normal vision. He is accustomed to supplement the surgical procedure with measures intended to promote absorption of retinal and vitreous hemorrhages and exudates, such as diaphoresis in the electric cabinet bath, salicylates and mercury, the latter in the form of gray oil hypodermically. Dionin and hot stupes to the eye are never omitted. Recently he has been using the galvanic current in vitreous opacities, and he thinks it has a beneficial effect in promoting their absorption. Foreign bodies in the orbit are well borne, unless they consist of brass or copper, but glass and wood will not remain quiet, wood having a tendency to create fistulous tracts, and glass to wander. The search for a foreign body in the orbit is difficult, even though it has been accurately localized, and much damage is apt to be done, so, unless there is an urgent demand for its removal, it is better to allow it to remain. When removal is necessary it should be done through a free incision in the skin, so as to get as good a field as possible in which to work.

**Cacodylate of Sodium in a Case of Keratitis Due to Lime Burn.**—Frank Allport and Alexander Rochester report a case of lime burn of the eye in which an intramuscular injection of seven grains of sodium cacodylate was given one week after the accident, followed by injections of half that dose at intervals of a few days. During this time the usual treatment for lime burn was maintained. The cornea began to clear gradually two or three days after the first injection, and continued to do so slowly and steadily until it became absolutely transparent. With his refractive error corrected his vision was 20/20. It is to be remembered that opacities due to lime burns are not simply scars, but contain deposits of calcium carbonate. Possibly, therefore, the sodium cacodylate, finding its way from the blood into the lymph channels

and finally into the cornea, brings about some chemical reaction with the deposits of calcium carbonate rendering them more soluble and more readily removed.

#### PENNSYLVANIA MEDICAL JOURNAL

September, 1913.

**The Effects of the Ingestion of Various Oils upon the Leucocytic Picture in Pulmonary Tuberculosis.**—Myer Solis-Cohen and Albert Strickler have employed the Arneth method of leucocyte enumeration in this study because they believe that the findings afford a fairly definite basis for determining whether or not a given therapeutic agent is benefiting a patient. They have found, in a long series of observations, that improvement in a tuberculous patient is usually associated with certain fairly definite changes in the leucocytic picture. These changes are an increase in the proportion of lymphocytes, and, less constantly, an increase in the proportion of polymorphonuclear leucocytes having one and two nuclei. The method has the great advantage of ruling out the uncertain element of the personal equation in the estimation of results, particularly as the one making the cell counts knew nothing of the treatment or progress of the patient from whom his specimen was obtained in any case. Thirteen patients were given oils of one or another variety and in eleven of these the first two classes of cells of the Arneth count were diminished; in the other two they were increased. The lymphocytes were increased in seven and decreased in six. All the patients receiving olive oil showed a diminution in the percentages of lymphocytes and of the polynuclears containing one and two nuclei. In all the patients taking codliver oil and cotton seed oil there was a decrease in the numbers of the first two Arneth classes of cells, and an increase in the percentage of the lymphocytes in all but one. Those on petroleum and those taking an emulsion of beef fat, butter fat, olive oil, lard, and peanut oil with proteids showed inconstant results. The authors remark that it is impossible to draw conclusions from thirteen cases, but that it would seem as though the ingestion of oils in itself has no decided effect on the blood picture so far as the proportion of lymphocytes is concerned, and hence upon the resistive power of the patient, for the proportion of lymphocytes may be taken as an index of this power. Oils, however, do seem to reduce the proportion of polynuclear cells of the first two classes of Arneth. This is regarded as a sign of improvement by most observers, but previous work by the authors does not incline them to this view. "It is suggestive that all the patients taking codliver oil and cotton seed oil showed an increase in the proportion of lymphocytes, with one exception, and a decrease in the first two classes of Arneth."

#### SOUTHERN MEDICAL JOURNAL.

September, 1913.

**A Case of General Sepsis following Peritonissillar Abscess.**—H. H. Martin reports this case, that of a young, healthy married woman with negative history, in which an indolent peritonissillar abscess was followed by a simultaneous infection of the right lung and of the pericardium, and later by two metastatic infections of the same indolent character as the first abscess.

He gives the following summary: Peritonissillar abscess can occur without preexistent or coexistent tonsillitis, and may be a local manifestation of a very serious general infection. Such infection may follow a peritonissillar abscess, either by direct infection of the bronchial mucous membrane through the larynx or trachea or indirectly by metastasis. The fact that a pathogenic organism cannot be demonstrated in the blood stream is of negative value in the diagnosis of general sepsis. An autogenous vaccine is of unquestionable value in a case of this kind. The question uppermost in the mind of the author is, was the peritonissillar abscess the first cause in this case, or was it simply the first local manifestation of a pre-existent general infection?

**Etiology, Prophylaxis, and General Management of Enterocolic Infections in Infants.**—E. P. deBellard states that two facts stand forth prominently in the light of our present knowledge. First, that there is no specific pathognomonic organism accountable for all cases of enterocolic infection; and, secondly, that the bacteria constituting the usual normal intestinal flora of babies are only infrequently the direct cause of the disease. He gives the following summary: 1. Intestinal toxicoes prevail epidemically in large cities every summer and are due to some predisposing factor plus infection. 2. The starting point of the disease can usually be traced to some previous metabolic or alimentary disturbance. 3. An average temperature of over 60° F. seems to be a prerequisite for the inception of an epidemic. 4. The conditions favoring the development of these diseases are readily created artificially, even in the winter time, by overheating, overclothing, and improper ventilation. 5. They are largely preventable by educating the public in health matters, and as the medical profession constitutes the legitimate channel through which this knowledge must be disseminated, we should all join in one great effort to accomplish the task and save the lives of thousands of infants who needlessly die every year.

**A Successful Method of Performing Shockless Operations Based on a Clinical Experience of Three Thousand Cases.**—The anoci association method of Crile has already been described in the JOURNAL (pp. 297 and 346). In the present paper, by that author, he summarizes as follows: The brain, being a tissue of surpassing delicacy, is damaged with wonderful facility by injury and by fear and worry. The good risk patient when operated upon by almost any method, by almost any surgeon of experience, will recover from his operation; but the delicate nervous organization is only too frequently shattered by the experience. We now understand why. Though the principle is clear, the technic demands to a certain extent the reeducation of the surgeon; it demands a certain amount of detail and precision; it demands far more consideration for the patient. But through anoci association the destiny of a patient is to a greater degree placed under the control of the surgeon, who through it is enabled to reduce both the morbidity and the mortality.

**Treatment of Cutaneous Epitheliomata.**—According to J. N. Edmondson, the first item for consideration in attacking this form of carcinoma is to

note its pathological character, whether of the tubulous or lobular type, as in the latter the tendency of the growth is downward and into the connective tissue, and therefore a more penetrating technic is indicated. The methods at present adopted in combating these new growths are, excision, curettement, caustics and caustic pastes, actual cautery, fulguration, carbon dioxide snow, radium, and Röntgen ray. Where it is necessary to remove the adjacent lymphatic glands he advocates the knife, but insists that an area very much larger than the lesion be incised, and a clean dissection be made of the surrounding lymphatics. In general, he regards the x ray the proper treatment for the following reasons: 1. Its freedom from pain; 2, its lack of scarring; 3, its thoroughness in covering the field surrounding the growth, as well as the attack on the growth proper; and, 4, by far the most important, the results obtained as compared to any other method.

### Proceedings of Societies.

#### THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, October 20, 1913.

The President, Dr. REYNOLD WEBB WILCOX, in the Chair.

**Tuberculosis Patients Treated by a Special Method and Control of Cure.**—Dr. C. AM ENDE said that the medicines prescribed by him were gelatin coated pills containing one grain of quinine sulphate, with one fifth of a grain of iodoform, and creosote, preferably in five drop doses, in capsules. For convenience, the creosote might be given in pill form, though pills containing more than three grains did not keep well. The dispensing of these remedies by the physician himself assured the advantage of control over patients, many of whom would not otherwise take them regularly. In making the early diagnosis of tuberculosis Doctor Am Ende employed, in preference to tuberculin injections, the Moro salve, containing equal parts of tuberculin and hydrous wool fat, which, when rubbed in at the pit of the stomach, produced within two days a characteristic efflorescence. Although the cases were comparatively few as yet, he stated, evidence as to the efficacy of his method was accumulating, and the improvement of patients under its use might perhaps establish it as a specific for tuberculosis. In the absence of complications the treatment was simple and free from danger. Originally it was based upon the principle of internal antiseptics, but this idea had to be changed, for the active agent in the production of the Moro reaction was tuberculin, a substance most probably elaborated by the body cells upon stimulation by a toxic material in the bodies of dead tubercle bacilli,—which substance was inimical to and destructive to the bacilli when living. The basic element, then, in this process was the dead bacilli; without these, immunizing tuberculin did not develop. With the chemicals mentioned, however, the process must differ. In the usually slowly advancing disease effective bacilli were ab-

sent; therefore their presence could have been brought about only by the chemicals which served to kill them. After that the two processes might well go on hand in hand, so to speak; immunization predominating over the killing, and *vice versa*. If this reasoning were correct, it might explain his unusual results. In conclusion, he said that if people in general could be made to comprehend that a person might have pulmonary tuberculosis entirely unknown to or unascertainable by himself or his friends, and thus be induced to consult their physicians concerning anything unusual in their state of health, considerable reduction in the mortality from this disease might result, to say nothing of the misery and expense which would thus be spared. In connection with these remarks he referred to several of his cases and presented three of the patients before the association. In addition to the pills and creosote, one patient, an adult male, was at present receiving injections of tuberculous vaccine. This had previously failed both in England and Germany when used by itself, but it was possible that in combination with the internal medication it might prove beneficial.

**The Theory and Treatment of Diabetes.**—This paper, by Dr. WILLIAM EDWARD FITCH, will be published in the JOURNAL.

**Diabète Azoturique of the French.**—Dr. ANTHONY BASSLER read this paper. The classification of azoturia which he makes, into physiological azoturia, azoturia simplex, and azoturia gravis, was briefly referred to in an editorial in the JOURNAL for November. In physiological azoturia Doctor Bassler said that for some reason an increased oxidation took place in the body and an increased output of nitrogen bearing substances in the urine was liable to occur. The causes included cold, excess of exercise, sometimes the emotions, physical pain, repeated pregnancies, prolonged digestion of protein foods, and the like. The term might also be applied to abnormal states of the body such as continued fever and some of the acute lesions and functional disturbances of the nervous system, but these were only relative. The characteristics of azoturia simplex were the absence of the constitutional symptoms, its more acute or limited course, the fact that polyuria was absent or of slight degree, and the output of urea and the phosphates only moderately above normal. It was met with in both children and adults, mostly the latter. Emotions, traumatism, suffering from painful affections, and excessive indulgence in food and alcohol might be factors in its production. A case of this simple form might continue for a considerable length of time, finally deepening into the grave type. In the majority of instances, however, if the condition was recognized and was properly treated, it subsided after some weeks. What might be considered a case of azoturia simplex should make one hesitant in the prognosis, for while the diagnosis of such a degree of the condition could be based only on the severity of the symptoms and the course under treatment, a progression might nevertheless take place. Azoturia gravis was the most important form. It was met with mostly in male adults between the ages of forty and forty-five and those suffering from lesions of the brain and spinal cord, syphilis, painful affec-



tions, the long continued use of alcohol, and overindulgence in nitrogenous foods. It was debatable whether the condition was brought about by a disturbance of the nervous system, as suggested by Bouchard, or a metabolic disturbance of the general organism. Argument was presented by the reader of the paper to show that the symptoms were due to constitutional causes, and that the nervous disturbance was consequential. He was of the opinion that the condition was of hepatic origin, and that the pancreas also played an important part, for we knew that the pancreas had to do with the transformation of the nitrogen bodies, as well as the carbohydrates. The symptoms were, progressive emaciation, exaggerated appetite and thirst, various neuralgias, disturbances of the special senses, abundant sweating, loss of muscular strength, hemorrhage of the retina and vitreous, and cachectic edema. An increased craving for food might alternate with complete anorexia, and as the case progressed anorexia might alternate with polyphagia. There was usually pain in one of the loins and legs; and boils, smaller than those met with in diabetes mellitus, might occur. The principal symptom upon which the diagnosis of this and the other forms was made was the azoturia, which required the examination of a twenty-four hour specimen of urine. The amount of urine excreted was usually about five litres, though sometimes running as high as twenty. It might be light or dark in color, was of a very pronounced acidity, and the specific gravity often exceeded 1.040, or even 1.050. There might, however, be a low specific gravity; in which case the symptoms were generally connected with the central nervous system, and were only mildly constitutional. The urine quickly became ammoniacal upon standing, because of the amount of nitrogen bearing substances being broken down by bacteria. There was no albumin or glucose in it, though an albuminuria might be noticed in the beginning. Its main feature was the azoturia present; by which was meant an excess of urea, uric acid, and nitrogenous extractive substances. In the course of twenty-four hours the urea output was between forty and 150 grammes (normal amount twenty-five grammes, although lately this had been considered too high, and sixteen grammes was now regarded as normal). The uric acid reached nine grammes (normal amount 0.7 gramme), and the nitrogenous extractives of creatinin and uroxyanthin reached and exceeded seventy grammes. The excess also involved the chlorides and phosphates, the former of which might be between fifteen and thirty grammes (normal about thirteen grammes), and the latter, represented in phosphoric acid, from five to six grammes (normal about three grammes). In the absence of facilities for making the nitrogen partition, urea might be taken as the diagnostic index of the condition. The accurate methods of analysis of Mörner-Sjoqvist and of Folin were, of course, advisable, but when these were not practicable the ordinary urinometer (multiplying the quantity of nitrogen obtained from one c. c. of urine by the number of cubic centimetres voided) was sufficient for clinical purposes. The presence of a moderately increased amount of urea suggested the simple form, while the presence of a large amount,

with the characteristic general symptoms, indicated the grave form. The Ehrlich aldehyde reaction, which was uniformly positive in azoturia, should also be noted. It was advisable that urea estimations should be made in all cases of diabetes mellitus, phosphatic diabetes, and even diabetes insipidus, for the particular case under observation might be a mixed one, and when present with glucose azoturia was much more serious.

Doctor Bassler went on to say that while diabetes mellitus was common, phosphatic diabetes (or, better, phosphaturia) was less common, and azoturic diabetes (or, better, azoturia in the forms he had classified) the rarest of all. It was important to keep in mind that azoturia might coexist with diabetes mellitus; in which case the prognosis was much worse than it would be in either affection alone. The treatment suggested that more estimations of urea should be made in a general routine way, for by this means all cases of the simpler forms would be recognized sufficiently early and successfully treated. The condition once established, the treatment consisted in a judicious management to prevent further mischief. Relinquishment of work was essential, and a sojourn in the country might be sufficient for the simpler forms without other treatment. The patient should rise late and go to bed early, so as to spare the nervous system, and the avoidance of movements and fatigue should be advised in order to limit the loss of urea. The bowels should be kept well open, and a tepid sea water bath or shower, followed by a good towelling, had been recommended by Ralfe. While care should be taken that the temperature should not be too low, it was important not to let the patient become relaxed from too hot rooms or too heavy clothing. While on the one hand it seemed advisable to restrict the amount of nitrogen in the food, on the other, this had not proved as serviceable as placing the patient on a general diet. The main point in the dietetic treatment was not so much to control the nitrogenous element as to regulate all quantities of food, so that the tissues should not be oversupplied, and the patient still be sufficiently nourished. This plan controlled the general symptoms, as well as the urinary ones; but fell somewhat short as regards repair of loss of tissue. If the patient recovered sufficiently, however, one was warranted in increasing the amount of nitrogen, as well as of carbohydrate and fats, which meant more food. There was some difference of opinion as to the value of different drugs, although most authorities agreed that valerian answered the best purpose. Bouchard employed it with good results in the form of the extract, in gradually increasing doses; beginning with eight grammes in fractional doses during the day, and later bringing the amount up to twenty or thirty grammes in the twenty-four hours. Others recommended arsenic, potassium bromide, belladonna, and hyoscyamus, but it was probable that the best drugs were valerian, opium, and arsenic. The prognosis in the different forms mentioned varied according to the degree and duration of the affection and the presence of complications. When properly treated all cases of the simple form were cured, while in the grave form the symptoms of most were relieved

and the patients enabled to live for a number of years. In the presence of complications, however, but little could be expected. This meant an extreme degree of breaking down of tissues, and usually marked the beginning of the end.

**Infantile and Juvenile Diabetes.**—Dr. LOUIS FISCHER read this paper, the principal points of which were as follows: Research had not yet enlightened the dark chapter of the etiology, for the origin and causation of infantile diabetes was still obscure. One teacher believed that the absence of the pancreatic ferment during an attack of pancreatitis caused diabetes. We knew that a disturbance of fat or carbohydrate metabolism was responsible for the glycosuria. That the internal secretions played an important rôle in influencing the metabolism of fat and casein and also the carbohydrates was recognized to-day. As the physiology of the adrenal system, with the thyroids and parathyroids, became better understood we would know more of the relationship which the internal secretion of the pancreas bears to the proper metabolism of sugar in the human economy. Diabetes was by no means rare in children. It occurred far more frequently than was commonly supposed, but the condition escaped detection because of the difficulty in procuring specimens of urine from infants. Pavy had reported 1,365 cases, among which eight were under ten years. Reden reported 1,003 cases; fifty were under ten years, 47 between ten and fifteen years. Saundby reported 2,011 cases, with fifteen below five years, fifty-eight below ten years. Haggback reported a series of seventy-seven cases, all of them under one year. Overtaxing the system with an excess of sugar, such as candy or honey, had frequently been recorded as an etiological factor in the causation of infantile diabetes. Acidosis was generally considered to be a result of the diabetic condition. It was very probable, however, that an acid condition might have much to do with the causation of diabetes. This condition had been termed acidemia—excessive acidity or, rather, decreased alkalinity of the blood. It had no connection with the term acidosis, this latter being considered as occurring only when oxybutyric acid or its congeners (acetone or diacetic acid) are present. Acidemia was an extremely common, every day occurrence and, unfortunately, it was all too often overlooked in routine work. A one sided dietary in which meats, fish, fats, etc., predominated produced organic acids, whereas a dietary of cereals, milk, vegetables, and fruits tended to maintain the normal alkaline condition, by reason of the food salts they contained in their best and most assimilable form. According to the theory of Naunyn and his school the diminution of the alkalinity of the blood and tissues was at the root of the essential nature of the diabetic intoxication. Glucose was not only found in the urine, but also in the blood. In addition to the excretion of sugar, there might be oxybutyric and diacetic acids; frequently also acetone and betaoxybutyric acid. The examination of the blood in juvenile diabetes showed frequently a lipemia. At Professor Ortner's clinic Dr. Erich Stoerk found this fatty condition of the blood in many cases of diabetes and called attention to the fact that the fundus of the

eye would show such a fatty condition of the blood when present. Klemperer and Umber found that the lipemia of diabetes was a lipoidemia.

To treat diabetes intelligently each and every case must be studied individually. The food tolerated by one might prove disastrous to another. The aim in treatment should be to procure a tolerance for the carbohydrates, notably sugars and starches. One should try fresh air, milk, oatmeal, potato, fresh fruits, and honey. Fresh fruits and honey both contained levulose; they would be well borne at times, and would not increase the sugar excretion, whereas they were contraindicated in many other cases and might do harm. Tomato, spinach, and watercress, soups, eggs, chicken, boiled beef, asparagus, cabbage, lettuce, and almonds should form the bulk of the diet. One of the prime factors was rest in bed. Avoid exercise and excitement as the nerves played an important part in the etiology. Atropine methylbromide, 1/120 grain three times a day for a child five years old, or sulphate of atropine, from 1/200 to 1/100 grain three times a day. When there was marked acidosis bicarbonate of soda, from ten to fifteen grains, might be given several times a day. Vasomotor efficiency must be maintained by systematic hydrotherapy; thus the cold water spray or shower in conjunction with massage might aid in stimulating the circulation and indirectly aid in the proper metabolism of the carbohydrates.

In the discussion Dr. EDWARD E. CORNWALL said that in the literature on the treatment of diabetes one point appeared to have been overlooked which he believed to be of vital importance, and that was that the diet should be so arranged as to make as easy as possible the processes involved in protein metabolism; that in the treatment of this affection insufficiency of protein metabolism, as well as insufficiency of storage and combustion of carbohydrates, should be considered. The dietetic treatments for diabetes which were in vogue looked only to the restriction and selection of carbohydrates. They failed to regard nitrogenous metabolism, and, worse than that, they imposed unnecessary burdens upon it, both by giving protein in excess and also by giving it chiefly in a form the metabolism of which was comparatively difficult—namely, animal tissues; for protein in that form put upon the liver, already incapable of properly performing its carbohydrate metabolic duties, the work of breaking up purin bodies directly introduced with it and products of its putrefaction by the saprophytic bacteria in the intestines. The instability of the liver in diabetes as regards its glycogenic function we would naturally expect to be increased by such treatment, and it might be that this was partly responsible for the extreme limitation of carbohydrates which had so often been found necessary in order to clear the urine of sugar. The reasonableness of the argument presented received emphasis from consideration of the fact that a large proportion of cases of diabetes were found in families in which gout, chronic arthritis, chronic nephritis, apoplexy, and cardiovascular disease were prevalent. It was in treating persistent glycosuria in such patients, whose nitrogenous metabolism was obviously deficient,

that his attention had been drawn to the therapeutic value of an "easy" nitrogenous diet in diabetes. The therapeutic principle to which he referred was not limited to diabetes. It had a wider application, and might be formulated thus: In any condition in which the body was laboring under one particular burden of disease, relief of other burdens, physiological or pathological, enabled it better to bear and to throw off the particular burden. In the case of diabetes, making easier the burden of nitrogenous metabolism facilitated the rectification of carbohydrate metabolism.

Dr. ROBERT L. WATKINS said he had been pleased to note Doctor Fischer's mention of the fact that diabetes was in some cases associated with syphilis. In cases of azoturia he thought it would be well to look for crystals of uric acid in the blood stream. He had observed not only uric acid crystals, but also those of the triple phosphates, and in some instances cystine, in the six sided crystals. He called attention to this because many had an idea that such bodies were not visible. By carefully drawing the blood and examining quickly, before the drop dried too much, his experience was that they could frequently be seen. Cystine was always insoluble, on account, he supposed, of the contained sulphur element.

Dr. J. WALLACE BEVERIDGE said that in the papers this evening one important fact in connection with diabetes had not been touched upon, and it seemed advisable to indicate what, to his mind, offered one of the principal obstacles met with in the treatment, as well as one of the fundamental causes. In the observation of many cases of diabetes during the past few years the gastric contents had been examined by him, and in over eighty per cent. excessive acidity of varying degree had constantly been found present. Furthermore, the radiographic analysis of the stomach by Dr. A. J. Quimby showed, in over seventy-five per cent. of the cases, dilatation with mechanical defects in the intestines. It had been proved by Bayliss and Starling that a hormone, named secretin, was manufactured in the epithelial cells lining the pylorus and duodenum as the result of acid stimulation. In normal digestion we had a sufficient amount of secretin evolved to activate the normal internal pancreatic secretions to complete digestion without any interference with metabolism, and secretin was now unquestionably given the principle rôle as the activating agent of the pancreas. Consequently, when we had an increased acidity of the gastric contents an overproduction of secretin necessarily ensued, and this overstimulated the pancreas to an increased production of the internal secretions which in time, if permitted to continue, would cause a degenerative change in the pancreas and not only interfere with the breaking down of the carbohydrate group, but also cause inability to attack the protein molecule. Again, other factors would be lesions such as ulcers, stenosis, or any change in the pylorus or duodenum which might interfere with the normal production of secretin. The intestine played an important part in the digestion of the diabetic, but time would not permit of his entering into a discussion of this function, except to say that

intestinal putrefaction should in all cases be carefully guarded against.

Dr. CHARLES HERRMAN thought that diabetes was comparatively rare in childhood, and especially in infancy. The same case was often seen by several observers at different times, and hence the cases of the disease appeared more numerous than they actually were. It was only in small infants that there was any difficulty in getting a specimen of urine for examination. After a child was two years old there was no such difficulty. While it had been remarked that diabetes was unusually common among adults of the Hebrew race, this did not appear to be the case in children. He was connected with three large institutions in which the clientèle was principally Jewish, and in fifteen years he had met with only two instances of diabetes among the children. It seemed probable to him that syphilis was a more important factor in the etiology of the disease than had been supposed. The specific affection was no doubt often latent, but now that we had the Wassermann reaction to aid us the detection of its presence presented less difficulty. Doctor Fischer had spoken of the association of diabetes with pertussis. It was a fact, however, that sometimes in pertussis the urine reacted to Fehling's test without true diabetes being present. It was also necessary to differentiate alimentary glycosuria from true diabetes, for while the one was of little significance and easily cured, the other was extremely serious, since it was well known that the prognosis in this disease was worse in children than in adults. It was true that we did not meet with the same complications as in adults, but there was not sufficient time for these to develop. The disease was apt to run a comparatively rapid course and terminate in coma. He had tried the use of atropine, as recommended by Rudisch, but while it might control the glycosuria, it did not seem to have any effect upon the progress of the actual disease. He thought it advisable that children suffering from diabetes should be cared for in a hospital or sanatorium, where they might be under constant supervision and the dietetic treatment could be carried out more systematically.

Dr. ROBERT T. MORRIS said that Doctor Beveridge was the only one who had approached the surgeon's point of view in relation to diabetes. Every one of these patients should be sent to a gastroenterologist in order to obtain a report upon the question of intestinal putrefaction. Toxines which were byproducts of intestinal bacteria excited secretion of morbid secretin. Hormones which dictated function to the pancreas gave wrong messages. In addition to that, the pancreas in cases of intestinal putrefaction was frequently in a state of chronic congestion.—interstitial pancreatitis occurred very frequently and was unobserved by the clinician. In certain cases in which the islands of Langerhans were squeezed they ceased to function properly, and diabetes mellitus was a common symptom. Diabetes mellitus was never a diagnostic entity; it was always a symptom. There were several causes for this symptom. We might have irritation of the floor of the fourth ventricle of the brain from toxic, mechanical, or reflex causes, and in these cases diabetes mellitus was a symptom



quite as well as when pancreatitis squeezed the islands of Langerhans. If we did not first obtain a report from the gastroenterologist in all of our cases of diabetes, we were not going at the subject intelligently—we were applying metaphysical medicine.

In answer to a question as to the danger of operating on diabetics, Doctor Morris said that operative work in the presence of diabetes was always a bit risky, because the hygroscopic sugar circulating in the blood drew water out of body cells by osmosis. The body cells were too dry to carry on their function normally—they were crippled. Nevertheless, if we could reduce the proportion of sugar and have a case of diabetes fairly well under control, we might sometimes operate safely.

## Letters to the Editor.

WHITEHALL BUILDING,  
NEW YORK, November 5, 1913.

To the Editor:

In a review of the second edition of Doctor Chapin's *Sources and Modes of Infection*, which appeared in a recent number of the *American Journal of Public Health*, the following quotation is taken from a new paragraph on School Disinfection in the work in question:

"All evidence points strongly to the fact that when children contract infectious disease in school, the channel of infection is not by means of school desk or floor but by the personal infection of another child."

I shall be glad if you will allow me to call attention to the fallacy underlying this well known *ipse dixit* of Doctor Chapin. As I have pointed out elsewhere, there is absolutely no evidence that infection is not transmitted through the agency of fomites. On the contrary, if proof be needed of what is generally regarded as axiomatic, a few simple experiments would be sufficient to show that infection can be readily transmitted in this manner. We are probably all agreed that direct infection is more common than infection through the agency of fomites, but there are certainly no grounds for the contention that the latter may be safely ignored.

Doctor Chapin is further quoted to the effect that "recent bacteriological studies of schoolroom air in New York have shown that ordinary quiet air must be a wholly insignificant factor in the spread of disease." This is undoubtedly true; but why "quiet air"? The only time in which the air of the schoolroom is quiet is when the children are not in it, and when, consequently, it is a matter of no importance whether the air be quiet or not. During school hours the air is *not* quiet, and moreover, the movements of the children keep the dust in constant circulation. In this connection, it is interesting to recall the fact that the reviewer himself has recorded the presence of 22,700 acidforming streptococci in a single gramme of schoolroom dust taken from an average of nineteen samples.

Doctor Chapin's whole attitude in regard to disinfection is as incomprehensible as his attitude toward fly borne disease, for I venture to suggest that his "scepticism" in this matter, to which the reviewer refers, is shared by few other medical men of equal standing.

J. T. AINSLIE WALKER.

## KYMOGRAPH AND KYMATOGRAPH.

173 LEXINGTON AVENUE,  
NEW YORK, November 3, 1913.

To the Editor:

I shall thank you for coming to my aid by publishing my objection to the word Kymograph when Kymatograph is meant.

In all American and in all German medical lexicons,

in American and German medical literature by the term Kymograph is understood an instrument recording wave-like motions; in reality, however, it is the Greek name for measure of the length of syllables in poetry; the correct name for that instrument is Kymatograph (Kyma, Kymatos). Noticing such error, which the small boy in Greece would recognize, I cannot help correcting it, but this is sometimes not appreciated. Colleagues will dispute, quoting what they erroneously think are authorities.

The worst errors in our nomenclature are among the new formations made, by those who know only our school Greek, by means of the lexicon. We may call this "Lexicon Greek." We can imagine all the horrors, when we think of the everyday nonsense produced by foreigners who wish to express themselves in English by means of the dictionary. Gott schütze Dich! The lexicon gives: schützen, to guard, to protect, to shelter, to *damn*. And he selected the shortest of the words for schützen!

A. ROSE, M. D.

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*A Compend on Bacteriology. Including Animal Parasites.* By ROBERT L. PITFIELD, M.D., Pathologist to the Germantown Hospital, Late Demonstrator of Bacteriology at the Medico-Chirurgical College, Philadelphia. Second Edition. With Four Plates and Eighty-five Other Illustrations. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. vii+280. (Price, \$1.)

Although so large a subject as bacteriology cannot be adequately treated in so small a volume yet this quiz compend contains the more important points. It does not go into any detailed discussion but it admirably fills the purpose that its author had in view. "To serve the needs of the medical student preparing for examination, and for the practitioner of medicine who desires to acquaint himself with the principal facts of the rapidly growing science of bacteriology." The illustrations are well selected and the plates showing the various forms of malarial organisms are excellent.

*Genitourinary Diagnosis and Therapy.* For Urologists and General Practitioners. By Dr. ERNST FORTNER, Specialist in Urology, Berlin, Germany. Translated and Edited by BRANSFORD LEWIS, M.D., B. Sc., Professor of Genitourinary Surgery, Medical Department of St. Louis University, Genitourinary Surgeon to St. John's Hospital, etc. With Forty-three Illustrations. St. Louis: C. V. Mosby Company, 1913. Pp. 221. (Price, \$2.50.)

This book is full of unexpected thrills: Thus, on page 14, we read, "While argyrol, as with all other drugs used for this purpose, is occasionally attended with indifferent success"; on page 15, "Erections and emissions must receive attention as they may be suppressed"; and on page 125, "The usual surgical treatment of renal calculus is nephrotomy with very good result." These are but a few among many Anglo-German efforts. While they lend a certain flavor of the original German to the book they do not help its reputation. The chapter on acute gonorrhea is thoroughly German. For instance, under "dietetic instructions," "Alcoholics are to be avoided excepting small quantities of red wine and light beer. Alkaline spring water as well as lemonade and other acid drinks are to be avoided as they make the urine alkaline and thereby tend to induce mixed infection." On page 18, the author speaks of posterior urethritis as one of the complications of gonorrhea. But he is set right by the editor who gently suggests that the term complication is hardly justifiable as it occurs in eighty-five per cent. to ninety-five per cent. of cases. The author's treatment of gonorrhea is a peculiar mixture of the older Janet irrigation and the more modern treatment by means of silver salts. For instance, he uses albugin in the abortive treatment, but if there is no question of abortion he starts the pa-

tient on home injections of thallin sulphate or, "if this is too expensive," potassium permanganate. In four or five days if the patient is getting better silver nitrate is alternated with these injections. In describing the treatment of the posterior urethra he does not at all mention the very common method of introducing the catheter into the bladder, injecting the solution, and, after withdrawal of the catheter, allowing the patient to urinate. There is a growing tendency in books of this sort to suggest but one make of instrument: Page 57, "If the catheter has been pushed back into the bladder it is readily extracted by the means of the editor's operative cystoscope." We know several operative cystoscopes which might be successfully used for a similar purpose; indeed we read on the previous page, "By means of Mark's operating cystoscope such bodies may be easily removed." Throughout the book there are countless prescriptions, many of them with, to the reviewers, unknown drugs. We note that he considers methylene blue a urinary antiseptic and an antineuralgic; also on page 122, renal tuberculosis, "Very slowly developing, practically stationary cases get well." This aside from being interesting English is a statement founded upon no pathological data. Under diseases of the kidney the author has a portion devoted to the treatment of various medical nephritides, which is excellent and modern. It is a pity these are so generally neglected in most English genitourinary works. Throughout the book the author mentions practically every disease ever heard of, but is unduly brief in the space allotted to each. For instance under cystocele all that he says of diagnosis is: "A cystocele is a sacular prolapse of the floor of the bladder toward the vagina. It usually follows upon prolapse of the vagina." There is an excellent appendix by Doctor Sophian on serological diagnosis and specific treatment of gonococcal infection. It is interesting how long it takes one country to get ideas and methods from another. We have reviewed at least three modern English books on urology during the past year and in not one of them is the complement fixation test for gonorrhea mentioned—here is another foreign book in which this important subject is covered by an American. In short we feel that much time has been wasted upon this work which the well known editor might better have spent in giving us a really good book by his own hand.

*A Course in Normal Histology. A Guide for Practical Instruction in Histology and Microscopical Anatomy.* By RUDOLF KRAUSE, a. o. Professor of Anatomy at the University of Berlin. Translation from the German by PHILIPP J. R. SCHMAHL, M.D., New York. With Thirty Illustrations in the Text and 208 Colored Pictures, Arranged on Ninety-eight Plates after the Original Drawings by the Author. New York: Rebmans Company, 1913. Part I. Pp. x-86. Part II. Pp. x-406.

Professor Krause is a firm believer in the serious advantage accruing to the physician who is well trained in normal histology, the handmaiden and precursor of morbid histology. He advocates the utilization of an entire summer semester for the study of the subject—a view which any one familiar with the wonderful help that histology affords in the understanding of tissue structure and the departures therefrom incident upon disease cannot but sustain. The work before us has for its object to supply a practical education in this branch of medical knowledge. It is composed of two volumes, one of which, a handy book of some eighty pages, contains, very clearly though succinctly enunciated, the technic of the whole subject, including the use of the microscope and the microtechnic—that is to say, all those methods which serve to produce a microscopic slide, methods of preservation, etc. The methods of injection—the filling of any hollow structure with stained or unstained materials—mensuration and drawing of microscopic preparations are also given in detail. The second volume, or part, is a collection of two hundred and eight superb histological plates of tissues and organs with their brilliant stains, all presented with a care and degree of perfection seldom equalled in works available to the student. Each plate is accompanied by a clear explanation of the process of histological preparation adopted and a description of the illustrations. The translator's part in the work has been admirably done and the publishers are greatly to be praised for the care shown in the production of the work, which is bound to meet a favorable reception in this country.

*Orthopedics in Medical Practice.* By PROFESSOR ADOLF LORENZ, Director of the Imperial University Ambulatorium for Orthopedic Surgery in Vienna, and Dr. ALFRED SAXL, Assistant Surgeon in the Imperial University Ambulatorium for Orthopedic Surgery in Vienna. Authorized translation from the German by L. C. PHILIP KITCHIN, U. S. M. D., F. R. C. S., F. R. C. S. (Engl.), Late Volontär-Arzt in the Imperial University Ambulatorium for Orthopedic Surgery in Vienna, etc. With Thirty-nine Illustrations. (New York: William Wood & Co., 1913. Pp. xvi-288. (Price, \$3.)

This translation of Adolf Lorenz and Alfred Saxl's work affords English readers a valuable illustration of the importance of having at least a superficial knowledge of orthopedics when the general medical practitioner is called upon to consider internal medicine. The effort of the writers is to reach back to the beginning of those conditions that ultimately become classified as orthopedic. In the early history of such conditions there is almost invariably a more or less prolonged period when the symptoms were sufficiently pronounced and yet failed to impress the internist with their true character. Thus the reflex pains of tuberculous diseases are generally considered symptomatically. Valuable time is lost and ultimate reproach for careless diagnosis ensues. The six chapters are devoted respectively to Diseases of the Respiratory, the Circulatory, the Digestive, the Urinary, the Nervous, and the Locomotory Systems. The comprehensive preface by Adolf Lorenz explains the purpose and necessities for the book, and the pages following are replete with valuable information from the extensive clinical experiences of the authors. The brochure should be read by every one who attempts to minister to the ailments of either children or adults. Indeed, the general practitioner or internist will welcome such a store house of information bearing upon his attitude as diagnostician. Throughout the book there are clearly described methods of applying orthopedic principles by the medical diagnostician in the avoidance of error in diagnosis, in treatment, and in protracted delay in appropriately obtaining the cooperation of the orthopedic surgeon when such is demanded. The references to German literature are very complete, and the only criticism is the conspicuous absence from the bibliographical references of equally important literature in other languages.

*Modern Ophthalmology. A Practical Treatise on the Anatomy, Physiology, and Diseases of the Eye.* By JAMES MOORES BALL, M.D., LL.D., Dean and Professor of Ophthalmology, American Medical College of St. Louis (Medical Department of the National University of Arts and Sciences). Third Edition, Revised and Enlarged. With 445 Illustrations in the Text and Numerous Figures on Twenty-four Colored Plates. Philadelphia: F. A. Davis Company, 1913. Pp. xxv-911. (Price, \$75.00.)

This admirable textbook needs no introduction, but how it has grown with the advance of ophthalmology! Several chapters have been rewritten, and some new ones have been added, together with much new material that brings the book well up to date. If we wished to be captious we might point out the omission of such operations as Toti's dacryorhinostomy, of Homer Smith's ripening operation for cataract, and the fact that we have been unable to find any mention of the asthenopia caused by intranasal conditions; but omissions will occur in every book, and this one is a monument to the industry of its author, who has given us one of the best textbooks for the student, and of the most useful reference books for the practitioner now on the market.

*Coprostasis. Its Causes, Prevention, and Treatment.* By SIR JAMES SAWYER, of London, Doctor of Medicine of University, Fellow of Royal College of Physicians, Lumelian Lecturer, 1908, etc. Birmingham: Cornish Brothers, 1912. Pp. 74.

This little book of seventy-four pages is well worthy a full review, so charmingly is it worded, so wise and practical the descriptions and recommendations. Not only are the salient points of "this perennial and daily topic of a physician's practice" succinctly and clearly covered, but certain ones of large importance (in the opinion of the reviewer) are also described; such as the significance of

posture, organic adjustment, and psychic influences. Physiological explanations are peculiarly clear, vigorous, and helpful. The chapter on intestinal obstruction is an important corollary.

## Meetings of Local Medical Societies.

**MONDAY, November 17th.**—New York Academy of Medicine (Section in Ophthalmology); Medical Association of the Greater City of New York; Elmira Clinical Society; Hartford, Conn., Medical Society.

**TUESDAY, November 18th.**—New York Academy of Medicine (Section in Medicine); Buffalo Academy of Medicine (Section in Obstetrics and Gynecology); Pri-Professional Medical Society of New York; Medical Society of the County of Kings; Binghamton Academy of Medicine; Syracuse Academy of Medicine; Ogdensburgh Medical Association; Oswego Academy of Medicine; Psychiatric Society of Ward's Island; Clinical Society of Elizabeth, N. J., General Hospital.

**WEDNESDAY, November 19th.**—New York Academy of Medicine (Section in Genitourinary Diseases); Woman's Medical Association of New York City (New York Academy of Medicine); Medicolegal Society, New York; Northwestern Medical and Surgical Society of New York; Buffalo Medical Club; New Jersey Academy of Medicine (Jersey City); New Haven, Conn., Medical Association.

**THURSDAY, November 20th.**—New York Academy of Medicine (stated meeting); German Medical Society, Brooklyn; Newark, N. J., Medical and Surgical Society (annual); Aesculapian Club of Buffalo.

**FRIDAY, November 21st.**—New York Academy of Medicine (Section in Orthopedic Surgery); Clinical Society of the New York Post-Graduate Medical School and Hospital; New York Microscopical Society; Brooklyn Medical Society; Saratoga Springs Medical Society.

**SATURDAY, November 22d.**—West End Medical Society; New York Medical and Surgical Society; Harvard Medical Society; Lenox Medical and Surgical Society.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending November 5, 1913.*

**Carrington, P. M., Surgeon.** Directed to carry on a field investigation of tuberculosis in California south of the latitude of San Francisco. **de Valin, Hugh,** Passed Assistant Surgeon. Directed to proceed to Providence, R. I., and such other points as may be necessary to investigate outbreaks of typhoid fever on steamships engaged in interstate traffic on the Great Lakes, and to cooperate with State and local authorities in preventing its spread. **Frost, W. H.,** Passed Assistant Surgeon. Directed to report at the bureau for a conference relative to the conduct of the investigations of the pollution of the Ohio River, after making preliminary arrangements for the establishment of a temporary laboratory in Pittsburgh, Pa. **Laughlin, J. B.,** Assistant Surgeon. Relieved from duty at the Mobile Quarantine Station and directed to proceed to Biloxi, Miss., and assume temporary charge of the Gulf Quarantine Station during the absence of Passed Assistant Surgeon E. A. Sweet, on official business. **Ruoff, J. S.,** Assistant Surgeon. Directed to proceed to Ellis Island, N. Y., and report to the chief medical officer for duty. **Sweet, E. A.,** Passed Assistant Surgeon. Directed to carry on a field investigation of tuberculosis in the State of Texas.

### Boards Convened.

Board of medical officers convened to meet at Laredo, Texas, for the purpose of making a reexamination of Kazhaia Yousses, a Syrian alien. Detail for the board: Acting Assistant Surgeon H. J. Hamilton, chairman.

### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending November 8, 1913:*

**Barber, John R.,** Captain, Medical Corps. Relieved from duty at Letterman General Hospital, Presidio of San Francisco, California, and will report for duty at Fort Huachuca, Arizona, for duty. **Blanchard, R. M.,** Captain, Medical Corps. Ordered to duty at Fort Porter, New York, while Major Wadhams is on leave of absence. **Darnall, C. R.,** Major, Medical Corps. Relieved from duty about January 1, 1914, at the Field Medical Supply Depot, Washington, D. C., and after expiration of leave of absence will take the April 5, 1914, transport for the Philippine Islands. **Haine, Elgar F.,** First Lieutenant, Medical Reserve Corps. Granted one month's leave on account of disability, to take effect upon expiration of present leave of absence. **Hillman, C. C.,** First Lieutenant, Medical Corps. Now on detached service from his station Fort Myer to accompany the Fifteenth Cavalry to Fort Bliss, Texas. **Kennedy, J. S.,** First Lieutenant, Medical Reserve Corps. Granted leave of absence for five days. **Murdo, Howard B.,** First Lieutenant, Medical Corps. Relieved from duty at Fort Huachuca, Arizona, and will proceed to the Letterman General Hospital, Presidio of San Francisco, for assignment to duty. **Shaw, Henry A.,** Lieutenant Colonel, Medical Corps. Reported for duty as attending surgeon, Boston, Mass., on November 2, 1913. **Wadhams, S. H.,** Major, Medical Corps. Granted one month's leave of absence, to take effect about November 1, 1913. **Walkup, O. J.,** First Lieutenant, Medical Corps. Left Fort Bayard, on November 1st, on one month's leave of absence. **Winter, F. A.,** Lieutenant Colonel, Medical Corps. Will report at his new station as Commanding Officer of the Army and Navy General Hospital, Hot Springs, Arkansas.

## Births, Marriages, and Deaths.

### Married.

**Price—Crutchfield.**—In Richmond, Va., on Tuesday, October 28th, Dr. Lawrence Taylor Price and Miss Louise Crutchfield. **Weigle—Noble.**—In Muncy, Pa., on Saturday, October 25th, Dr. Henry Stine Weigle and Miss Esther Noble.

### Died.

**Clark.**—In New York, on Wednesday, November 5th, Dr. Clarence G. Clark, aged thirty-six years. **Comstock.**—In Toledo, Ohio, on Tuesday, October 28th, Dr. Oliver G. Comstock, aged fifty-eight years. **Croze.**—In Indianapolis, Ind., on Monday, October 27th, Dr. Samuel E. Croze, aged forty-seven years. **Fisher.**—In Edwardsville, Ill., on Wednesday, October 29th, Dr. Peter Fisher, aged seventy-four years. **Hahn.**—In Newfield, N. J., on Wednesday, October 22, Dr. H. E. Hahn, of Walbrook, Md., aged fifty years. **Kalmerton.**—In Milwaukee, Wis., on Sunday, October 26th, Dr. Edward C. Kalmerton. **Léon.**—In New York, on Sunday, November 2d, Dr. Alexis Marcy Léon, aged fifty-six years. **McBurney.**—In Brookline, Mass., on Friday, November 7th, Dr. Charles McBurney, of New York, aged sixty-eight years. **Myer.**—In St. Louis, Mo., on Wednesday, October 29th, Dr. Jesse S. Myer, aged forty years. **O'Brien.**—In Clinton, Mass., on Friday, October 31st, Dr. Philip T. O'Brien, aged sixty-four years. **Pedlar.**—In Alameda, Cal., on Sunday, October 19th, Dr. Alfred J. Pedlar, aged sixty years. **Peebles.**—In Bristol, Tenn., on Friday, October 24th, Dr. Madison T. Peebles, aged ninety years. **Rutherford.**—In Kingston, N. C., on Friday, October 24th, Dr. Leonidas A. Rutherford, aged sixty-three years. **Taylor.**—In Oil City, Pa., on Friday, October 31st, Dr. John Erskine Taylor. **Wadhams.**—In Chicago, on Saturday, November 1st, Dr. Frederick E. Wadhams, aged fifty-one years. **Wallace.**—In London, England, on Friday, November 7th, Dr. Alfred Russell Wallace, aged ninety-one years. **Way.**—In Riverside, Cal., on Tuesday, October 21st, Dr. E. Henry Way, aged sixty-two years.



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### Original Communications.

#### RECENT PROGRESS IN ORTHOPEDIC SURGERY.\*

By CHARLES OGLIVY, M. D.,  
New York.

Many are the advances that orthopedic surgery has made during the past decade. In no other branch of medicine or surgery has so much progress been made in so many different lines. It is quite impossible in this short paper to intelligently discuss all the subjects relative to orthopedic surgery in which this recent advancement has occurred. The writer wishes, however, to introduce for discussion a number of important themes which are of special interest.

#### ANTERIOR POLIOMYELITIS.

The orthopedic treatment of anterior poliomyelitis is as interesting as it has been progressive. Oppenheimer, some years ago, first suggested fixation and rest in a plaster of Paris bed—especially during the acute stage of the disease. This has been more recently emphasized by Lange (1910) and has been practised by many. Until recently the operative treatment of infantile paralysis confined itself to tendon lengthening, tendon shortening, fasciotomies, and the manual correction of deformities. At the present time we have a number of operative procedures, all of which should be considered when treating infantile paralytic cases. These are: Arthrodesis, tendon transplantation, the use of silk ligatures, nerve anastomosis, and transplantations.

Arthrodesis.—Simple arthrodesis has been successfully employed for a number of years. A most ingenious arthrodesing operation, first reported in brief in 1901, and later, in full, in 1908, and again in 1910, is worthy of special note. This operation was devised by Whitman.<sup>1</sup> It is especially advised for cases of paralytic calcaneus. It gives most excellent results in many cases of extreme functional disability of the foot, which we previously treated by braces and by various operative procedures with unsatisfactory results. The operation consists in first, the removal of the astragalus through an incision made on the outer side of the foot. The new articulation is then made. An arthrodesis is made between the inner surfaces of

the malleoli and the sides of the os calcis and scaphoid on the inner border of the foot and the os calcis and cuboid on the outer border. The foot is then transplanted backward and fitted accurately in this new articulation. The two peronei tendons are passed through the base of the tendo Achillis and are sutured to it and to the periosteum of the os calcis. The foot being carefully held in this new position and in slight plantar flexion is so retained by a plaster of Paris dressing. This dressing remains undisturbed for five weeks.

Tendon transplantation.—In studying the literature of this subject one finds that Duplay,<sup>2</sup> as far back as 1876, performed the first recorded tendon transplantation. Nicoladoni,<sup>3</sup> six years later (1882), attached the peronei to the tendo Achillis in a case of paralytic calcaneus. In 1898 two hundred and seventy-four cases of tendon transplantation were reported by Eve.<sup>4</sup> In 1899 Vulpius<sup>5</sup> reported one hundred and sixty cases. In 1902 Lange<sup>6</sup> advised the use of artificial tendons of silk when the lengthening of a transplanted tendon was necessary. Lange also introduced tendon transplantation to periosteum instead of transplanting the healthy tendon to the tendon of a paralyzed muscle, as had been previously done. He advised, in some cases, the passing of the tendon through a tunnel drilled through the bone, the tendon being looped back and fastened to itself at the entrance of the tunnel. He lays much stress on the preparation of the silk used. "The silk is boiled in sublimate and is then well dried for two days, under aseptic precautions. It is then cooked for an hour in paraffin (melting point 60° in a water bath). The new tendon forms along the silk, the paraffin is absorbed and replaced by connective tissue."

Sever,<sup>7</sup> after a very extensive revision of the subject and basing his report upon this review in addition to thirteen operations upon animals in which postoperative results and findings were carefully recorded, forms the following conclusions:

1. Tendon transplantation, *per se*, is at times useful.
2. Tendons lengthened or reinforced with silk are better in that they are not only stronger, but also can be used to greater mechanical advantage.
3. Silk or linen thread is an excellent material to use for lengthening tendons in suitable cases.

<sup>1</sup> *Bulletin et memoires de la Societe de chirurgiens de Paris*, 26, 1900, p. 788.

<sup>2</sup> *Ann. chir. France*, 1876, 55, 882.

<sup>3</sup> *British Medical Journal*, October, 1898.

<sup>4</sup> *Monatsschrift medizinische Wissenschaften*, April 28, 1899.

<sup>5</sup> *Monatsschrift medizinische Wissenschaften*, 1899, January 7, 1902.

<sup>6</sup> *Journal of the American Medical Association*, November 19, 1902.

\*Read before the Northwestern Medical and Surgical Society, April 18, 1913.

<sup>1</sup> *American Journal of the Medical Sciences*, October, 1901; *Annals of Surgery*, February, 1908; *American Journal of Orthopedic surgery*, August, 1910.

4. The growth of new tissue will permeate and penetrate the silk only slightly (in some cases not at all) and does not absorb it.

5. When the peritendineum and tendon sheath have been removed some foreign body is essential for regeneration to serve as a director for the new growth.

6. With the sheath and the peritendineum present and sutured no foreign body need be inserted. In this case the new growth is true tendon tissue.

7. Without the presence of the sheath and the peritendineum no true tendon tissue can be regenerated. Such tissue is merely fibrous tissue, lacking elasticity and subject to stretching.

8. The new "tendons" are apt to be larger and stronger than the resected ones, especially when silk has been used to replace the resected portion.

9. Providing the sheath and peritendineum are preserved and function allowed early, adhesions may not occur. Without the sheath adhesions may and do occur much more frequently.

Ten years ago when tendon transplantation was first introduced overenthusiasm resulted in many failures. Cases should be carefully selected and, furthermore, in relation to the muscle of the transplanted tendon, the points to be carefully considered are: 1, Its power; 2, its loss of power when its direction of force is altered; 3, the amount of work it is called upon to do in its new relation.

Artificial silk ligaments.—The use of artificial joint ligaments of silk was reported by Lange. The first time he employed this method was in 1903. He now uses these silk ligaments in cases of drop toe,—that is, paralytic equinus. Four small incisions are made; two in front, one over the scaphoid, and one over the tibia five centimetres above the ankle joint; two on the sides, one over the fibula and one over the cuboid. Six to eight strands of silk are firmly fastened to the periosteum of the tibia above, passed down beneath the deep adipose tissue over the capsule of the ankle joint and fastened to the periosteum of the scaphoid. Silk strands are in like manner fastened and passed from the fibula above to the cuboid below. With these two silk ligaments, one on either side, thus formed the foot is retained in dorsal flexion. "The results of the operation are good and permanent if careful aftertreatment is carried out for a year."<sup>8</sup>

Nerve transplantation and nerve anastomosis.—These procedures are still in the experimental stage. Favorable results of nerve grafting in cases of infantile paralysis have been reported by Spitzzy, Ballance and Stewart, Rivers and Head, Langley and Anderson, Killington and Dunlap, Taylor and Peckham, Tubby and Sherren, Young, and others. These have, in most instances, been isolated cases rather than groups of cases. Warrington and Murray state that there have been few successes and many failures. The writer is also of this opinion. Generally speaking, one is unable, at the present time, to report favorably upon this subject. Good results, however, have been obtained, and the possibilities are far reaching.

#### CONGENITAL DISLOCATION OF THE HIP.

Congenital dislocation of the hip was looked upon about twenty years ago as an irremediable

condition. At that time (1890) Hoffa, of Berlin, advised the open method of reduction. In 1895 Lorenz modified this open operative procedure. During the next five years (1895-1900) Lorenz began to treat cases by the closed method of reduction. In 1900 he published some of the results which he had obtained. In 1905 F. Calôt, of Berck sur Mer, published his *Traité pratique de technique orthopédique, technique de traitement de la luxation congénitale de la hanche*, in which he described at length his modification of the Lorenz operation. From the experience of the writer the results obtained by Calôt's operation are even better than those from the Lorenz method. The outline in brief for this treatment is as follows:

The patient is anesthetized and placed upon the table. The pelvis is firmly fixed by the assistant while the operator flexes both the thigh and knee to 90°. At the same time traction directly upward is made with the knee in this flexed position. There is little or no abduction, neither is there any rotation of the limb. While this manipulation is being carried out—probably by two assistants, one holding the pelvis down upon the table and the other making traction upon the thigh directly upward—the operator places his thumbs beneath the great trochanter and presses upward. By this means he is enabled, in the younger patients, to slide the head of the bone into the acetabulum, the replacement of the head being distinctly felt when the reduction is made. When this fails a second manoeuvre is that of adding to the treatment a slight rotation outward with a simultaneous abduction of the limb. If this fails to reduce the dislocation, Calôt advises that the patient be laid upon the well side and the leg be adducted as far as possible—the knee being still held at right angles and traction being kept up as before—at the same time rotating the limb slightly inward. The operator, with his thumbs upon the great trochanter, is enabled by such pressure to reduce the dislocation. A plaster of Paris spica is then applied with the limb in 70° of flexion and 70° of abduction without any rotation. This spica, including the foot, must be applied snugly and firmly over cotton—which cotton is itself bandaged tightly to the body. Calôt advises this first spica to remain undisturbed for three months, after which a second is applied in which the leg is rotated inward, at the same time reducing the abduction to a position which can be obtained without force. The second spica remains on for a couple of months. The more favorable cases do not require a second spica. Of this operation Calôt says: "*Soumise a un bon traitement la maladie guérit et l'état de la hanche redevient normal ou sensiblement normal.*" He goes on to state that the condition in unilateral cases is always cured in children under seven years of age (one hundred per cent.) In patients from seven to twelve years of age nine out of every ten are cured (ninety per cent.); from twelve to fifteen years of age, three in every four are cured (seventy-five per cent.); over fifteen years of age the difficulty becomes almost insurmountable. However, by a long preparatory treatment one might obtain success. In bilateral dislocations one must lower the respective ages three years. Thus the chances of reducing a double

dislocation in a patient seven years old are nine to ten (ninety per cent.). In those between seven and twelve years of age the chances of reduction are three to four (seventy-five per cent.). Above twelve the chances are the same as those in the unilateral cases in patients fifteen years of age. The age of choice is between two and three years. The writer, from personal experience and from the experience of his *compères*, considers that such statistics can hardly be accepted. In other words, he does not believe that one hundred per cent. of cures are obtained in unilateral cases in patients seven years of age and under. Nor do we believe that one hundred per cent. of cures are obtained in bilateral cases in patients under four years of age. By cures we refer to a perfect anatomical and functional result. The question then naturally follows, What results may one expect? To which the writer replies that between eighty and ninety per cent. are cured in unilateral cases in patients between two and seven years of age. In bilateral cases one may prognosticate cures in children between these same ages in about fifty per cent. of the cases. To these statements one might add that a number of cases in which perfect anatomical and functional results were not obtained the patients were much improved by reason of the dislocation being changed from a posterior to an anterior one with the head of the bone taking up its position under the anterior inferior spine. In this position the functional result may be designated as good.

In reporting upon the results obtained by the Lorenz method, P. Redard<sup>9</sup> stated that in operations upon children between two and four years of age, in eighty-five to ninety per cent. of the unilateral cases and in thirty per cent. of the bilateral cases, anatomical and functional cures were obtained. It is interesting to note that among four hundred and fifty of the early cases which Lorenz reported upon there were eleven cases of fracture of the neck of the femur, three cases of fracture of the pelvis, three cases of perineal paralysis, three cases of crural paralysis, three cases of sciatic paralysis, one case of rupture of the femoral artery, and one case of gangrene, necessitating amputation. These complications were undoubtedly due to the great amount of force which was used in the abduction of the limb and of the attempted reduction in this position. The Calot method of abduction practically eliminates the probabilities of any such unfortunate complications by reason of there being no forced abduction of the limb.

#### THE OPERATIVE TREATMENT OF POTT'S DISEASE.

For many years the idea of immobilizing the vertebrae in Pott's disease by means of fixing the spinous processes firmly together has been considered. Hadra,<sup>10</sup> in September, 1891, discussed the advisability of wiring the spinous processes together. Phelps and others, subsequent to this date, attempted and obtained fixation in this way. It was found, however, that the wire cut through the bone in too many instances to justify the advisability of

performing this operation, so that it was discontinued.

Doctor Lange,<sup>11</sup> in May, 1910, read a paper before the American Orthopedic Association upon Support for the Spondylitic Spine by Means of Buried Steel Bars Attached to the Vertebrae. He used tin plated steel wire five millimetres thick and ten centimetres long. The ends of these splints are wired into place. They are placed on either side of the spinous processes. Strong paraffin sublimate silk is used to fasten the rods to the spinous processes. The steel rods are inserted into an incision through the muscles as deeply as possible and close to the bone to the right and left of the spinal column. The skin incision is sewed up and drained at the upper end of the wound for forty-eight hours. A plaster of Paris jacket is applied which is not removed until six weeks after the operation. After which a celluloid corset is worn. In concluding the presentation of this subject Lange, though admitting that the cases had been too few to draw very definite conclusions, advises the continuance of this operative procedure. Owing to the difficulties, however, associated with the preparation of the metal, and so of assuring good results, this treatment has not been generally followed, nor can it be advised.

Bone transplantation for Pott's disease.—In the *Journal of the American Medical Association* of September 9, 1911, F. H. Albee first reported upon this subject. A curved incision is made down the back which passes by the side of the spinous processes of the vertebrae involved. The skin flap is turned aside and the spinous processes so reached. The cartilaginous tips of the spinous processes are split in the centre, as is also the supraspinous ligament, leaving each part of it attached to the halves of the spinous processes. The interspinous ligaments are split in two equal parts to a depth of about three quarters of an inch. The spinous processes themselves are then split with a chisel to a depth of about three quarters of an inch. Thus a wedge is formed into which the transplant is fixed by interrupted sutures of kangaroo tendon. These are passed through the supraspinous ligament. The sutures are drawn snugly over the graft posteriorly. The graft is taken from the anterior surface of the tibia. This is done without changing the position of the patient by flexing the knee upon a sand bag. The length of the graft will depend upon the number of vertebrae involved. Its breadth is from two thirds to three quarters of an inch and its thickness from one third to one half an inch. The patients are kept in a recumbent position for a few weeks (from six to seven), after which Albee states that they may be allowed up without any spinal brace.

Hibb's operation for Pott's disease.—In June, 1911, this operation was first reported upon. It consists in cutting down upon the spinous processes, stripping the supraspinous ligament and the periosteum from either side of the spinous processes involved, as well as one above and one below this area. The spines being thus laid bare of periosteum and superimposing tissues, are broken down, one upon the other, by means of chiseling half way through the upper part of the spinous process and making a green stick fracture

<sup>9</sup>P. Redard, *Zeitschrift für orthopädische Chirurgie*, Bd. xxx. h. 1-2, 1912.

<sup>10</sup>Daniel's *Texas Medical Journal*, September, 1891.

<sup>11</sup>*American Journal of Orthopedic Surgery*, viii. No. 2.



of its remaining half. The tip of the spine is denuded and planted firmly in the gap made by the breaking down of the spinous process immediately beneath it. The spines of all the vertebrae involved and, in addition, one above and one below this area, are so treated. They are held firmly in position by the periosteum and superjacent structures which are firmly drawn together across them posteriorly.

Hibbs has shown by radiographs, as a result of this procedure, the formation of a definite bony bridge by means of which both immobilization and protection of the diseased vertebrae are obtained.

It is too soon to estimate the true value of these last two operations mentioned. In comparing the two, and having performed both operations several times, the writer would be inclined to place more confidence in the results obtained by Albee's method. He would advise, however, that the aftertreatment of these patients should be very carefully carried out, and that a spinal support—preferably of plaster of Paris—be continued for at least a year after the operation. A number of serious complications have followed and full reports upon these cases will alone enable us to know definitely what value to place upon such operative procedures, and in which cases these operations should be advised. Such treatment is, however, a decided step in advance and there seems but little doubt that the length of time of treatment will be materially shortened by these methods.

#### MOBILIZATION OF ANKYLOSED JOINTS.

Mobilization of ankylosed joints has been a subject to which much thought and a great deal of work has been given. Helferich, in 1893, excised the condyle of the inferior maxillary bone in a child and inserted within the articulation a flap from the temporal muscle. In 1902 Gluck used the skin flap for the same purpose. In 1902 Orlow inserted metal plates and also gold foil. Muscle flaps have been used by Quénu, Albarran, Nélaton, Delbet, Murphy, Hoffa, and others in both the hip and knee joints. Murphy has advised the use of a flap of fascia covered with a layer of fat from which he reports good results. Weglowski,<sup>12</sup> in 1907, reports a case in which he transplanted the cartilage from the seventh rib into an ankylosed elbow joint by which he obtained sixty to seventy degrees of motion.

One who has done considerable work in this new field of operation is Dr. William S. Baer, of Baltimore. The writer has seen the results in a number of his cases. He uses the membrane from a pig's bladder, which is chromicized to remain intact for about forty days.

In the knee joint two lateral incisions are made along the side of the patella. The patella is thoroughly freed from the femur, as is also the tibia from the femur. All new bone formation is removed and complete mobility obtained. The pig's bladder membrane is inserted into the joint so as to completely prevent contact of any of the raw surfaces one upon the other. The membrane is sewed into the joint by catgut sutures. The wound is entirely closed and the leg is put up in a cast. Passive motions are begun within seven to ten days.

In the hip joint the joint is approached through an anterior incision. The capsule is cut through, the head separated from the acetabular cavity, exostosal growths are removed, the acetabulum is curetted, and the surface of the head of the bone and that of the acetabular cavity is made as smooth as possible. The pig's bladder membrane is placed between the head of the bone and the acetabulum and is bound tightly about the neck, where it is sewed with catgut sutures. The wound is then closed up tightly and the leg is put up, usually, in about twenty degrees of abduction. The first dressing is made after about eight days, when passive motion is begun. Doctor Baer<sup>13</sup> concludes in his first presentation of this subject as follows: "Our results of permanent motion attained by the use of chromicized pig's bladder in ankylosed joints have been such as to make a more exhaustive study of the method advisable." Later results are still more commendable.

#### ROTARY LATERAL CURVATURE OF THE SPINE.

In the *NEW YORK MEDICAL JOURNAL* of June 24, 1911, and of April 27, 1912, the subject of rotary lateral curvature of the spine was discussed by Abbott. The method of treatment was described at length and the results in some eighteen cases were reported upon, with photographs representing the condition before and after treatment. The results as reported were so remarkably good, especially in the cases of long standing fixed curvature in which bone change had taken place, that a great deal of interest was aroused and a number of us journeyed to Portland, Maine, to obtain as much information as we could upon this subject. These patients are treated with plaster of Paris jackets which are applied in flexion instead of in extension as had previously been done. The jacket is applied in a horizontal position in a gaspise frame, within which a hammock is swung. The patient is swung upon this hammock face upward. The body is allowed to flex forward by its own weight. The hammock, being shorter on one side than the other, allows the short side to press against the bulging ribs. The back of the neck is rested upon a strap of webbing. The buttocks are supported by a cross bar. Straps are then applied around the body to pull it in any direction desired. Three or four such straps are used. The object of this method of horizontal suspension with side traction straps is by this means to reverse the curves of the spine and place them in the opposite direction as far as possible. When this has been obtained the plaster of Paris is applied—care being taken to carefully pad the patient with felting, especially back of the low shoulder, over the sacrum, over the spinous processes of the ilium, over the prominent ribs of the front of the thorax, under both arms, and over the convexity of the ribs.

After a thick plaster of Paris jacket has been applied two windows are cut in the jacket—one behind and another in front. The one at the back occupies the area where the ribs were depressed to allow the body to come over toward this side. On the other side of the jacket the other window is cut in front, which allows the ribs that bulge posteriorly to push forward. Felt is crowded in over

<sup>12</sup>*Zentralblatt für Chirurgie*, April 27, 1907.

<sup>13</sup>*American Journal of Orthopedic Surgery*, August, 1909.

the convexity posteriorly, and this is added to every few days. In the cases which Abbott reported the length of time taken to produce complete overcorrection which he claims to have obtained, was from ten days to six weeks—the average time being three weeks.

In the NEW YORK MEDICAL JOURNAL of April 27, 1912, the same JOURNAL in which Abbott's last article appeared, there was also another by the writer entitled Rotary Lateral Curvature Based Upon the Report of Results Obtained.

My conclusions at that time have since been substantiated. They are, in brief:

1. That rotary lateral curvature of the fixed type, developed in childhood and persisting in adolescence, cannot be perfectly cured.
2. That the general condition of the patient can be much improved.
3. That the anteroposterior postural deformity can be corrected.
4. That the lumbar lordosis can be corrected.
5. That the lateral deviation of the body can be corrected.
6. That the lateral deviation of the spine is corrected in earlier cases.
7. That the rotation of the vertebræ may be improved but not corrected.
8. That the results obtained by the use of the plaster jacket applied by the Abbott method in flexion, with corrective felt pads, are very satisfactory in that we are enabled to obtain the results above enumerated in a shorter time (within six months) than by any other method of treatment heretofore practised.

40 EAST FORTY-FIRST STREET.

## OBSERVATIONS ON INOCULATION THERAPY.\*

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Sir Almroth E. Wright has made the prediction that "the physician of the future will be an immunizer." We might define an immunizer to be one who has mastered the principles of immunity, as discovered and elaborated by Pasteur, Metchnikoff, Wright, Ehrlich, Leishman, and others, and is prepared to apply them to the prevention and cure of disease. The successful application of his studies on immunization, notably his antityphoid inoculation, has attracted the attention of the whole civilized world to Wright and his brilliant coterie of associates and assistants in the laboratories of the inoculation department of St. Mary's Hospital, London. Much has been written and spoken for and against the method of vaccine therapy which he has elaborated, but the consensus of opinion of scientific men is that by proper bacterial inoculations in suitable cases we are really able to raise the antibacterial power of the blood, in this way success-

fully combating infections. Wright's discovery becomes, therefore, "the most valuable asset in medicine," and it has produced and it is destined to produce results of great importance in the domain of practical medicine.

Many men have undertaken the administration of bacterial vaccines who are not qualified; and criticisms are sometimes offered by physicians whose disastrous failures have been due entirely to their own inexperience and lack of knowledge of the fundamental principles of inoculation therapy. It is a complex and difficult subject which requires careful theoretical study and sound judgment, founded on a considerable clinical experience. The practitioner who undertakes specific inoculation without such painstaking preparation is not only doomed to disappointment for himself, but may seriously aggravate his patient's condition. In this connection it must not be forgotten that vaccine therapy is quite different from and much more complex in its administration than serum therapy; although with our recently acquired knowledge of anaphylaxis—the term used to describe the alarming symptom complex occasionally met with after the injection of a serum—we have found that even successful serological work is not always plain sailing.

As to the requirements for the successful application of his new therapeutic method, Wright has given us the following classical summary: "The medical man who has recourse to vaccine therapy ought to have familiar acquaintance with the microbes which affect the human body. He ought to appreciate the fact that vaccines owe their efficacy to the reaction they set up in the tissues, and not to any action exerted directly by the vaccine upon the invading microbe. He ought to have mastered the general principles of immunization. He ought to know in connection with each vaccine the minimum effective dose, i. e., the dose which gives the minimum immunizing reaction without any intervening negative phase; and the medium or average dose, i. e., the dose that gives, after a negative phase, a more powerful immunizing reaction. He ought to know the general conditions which affect the sensibility of the organism. He ought to understand how to adjust the dose to the requirements of the individual patient. And he ought to have a knowledge of the conditions which obtain in the focus of infection, and of the methods of circumventing the difficulties which are introduced by these conditions" (1).

The writer has been devoting such time as he could spare from the demands of an exacting practice for the past four years in an attempt to qualify under these requirements. And it is with the hope that his observations and experience may benefit others this paper is offered.

### BACTERIOLOGICAL REQUIREMENTS.

In order to select a suitable vaccine for a given case, we must first determine accurately what microorganism is the cause of the disease, because a vaccine is specific and has no effect except in combating its own species. It is sometimes possible for an experienced immunizer to do this from the clinical picture and symptoms without recourse to laboratory methods, because many lesions are regu-

\*Read before the New Jersey State Pediatric Society at its annual meeting, Spring Lake Beach, June 9, 1913.

larly associated with certain bacteria; thus the staphylococcus is, in the majority of cases, the cause of boils, carbuncles, osteomyelitis, syphilis barbæ, suppurating acne, and often eczema, whitlow, occasionally infective endocarditis, and septicemias; the streptococcus is known to be the cause of most forms of infectious cellulitis, lymphangitis, puerperal septicemia, erysipelas and septic endocarditis; the tubercle bacillus is the causal infection in many chronic joint, glandular, and osseous swellings, many skin lesions, tuberculous peritonitis, and frequently of infections of the genitourinary system, besides phthisis. Where the diagnosis cannot be thus easily determined, the discharge from the affected part of the organism must be examined microscopically, and if more than one organism is observed, cultures must be made until pure growths are obtained. In this latter case we may either use a mixed vaccine or select the bacillus which is the most probable pathogenic agent, as evidenced by its greater virulence or the clinical symptoms (2).

The determination of the causal microbe in septic endocarditis and other septicemias may in the absence of an obvious lesion necessitate blood cultures. Likewise in infections of the bladder, ureters or genitourinary tract, catheter specimens of urine must be obtained and cultured in the laboratory. Cultures from the urine are often of value in general septic conditions, as sometimes the microorganism causing the disease, particularly the streptococcus and the staphylococcus, may be found in the urine when it cannot be isolated from the blood.

The possibility of a double infection or of a mixed infection must always be borne in mind, particularly where no improvement takes place in the clinical symptoms, although the case is one which we would expect to respond promptly to inoculation therapy. Thus streptococci may be present in tuberculous glands, causing suppuration; or pneumococci may complicate pulmonary phthisis. In such cases the secondary infection must also be treated specifically before a cure will result. Failure to recognize this fact explains many of the failures and contradictory reports made by beginners and the inexperienced.

#### IMMUNITY.

One cannot hope to apply vaccines to the prevention or cure of bacterial diseases intelligently without a comprehensive knowledge of the general principles of immunity. It is a well known fact that when an individual recovers from an infectious disease he is ordinarily in no danger of contracting it afresh, and that this nonliability continues for a longer or shorter period. There is no plausible explanation of this phenomenon other than that the infected system develops a resistance to the action of the invading pathogenic microbes which it did not originally possess, and that complete recovery is due to this resistance becoming strong enough to overcome and destroy these organisms (3). The problems involved in the development of such resisting powers have usually been studied under the term "immunity," under which we include not only the nonsusceptibility of an individual to a given disease and the power to resist infection, but also the mechanism by which a cure is effected.

According to the hypothesis of Wright, when a patient recovers spontaneously from a bacterial in-

fection his cure is the result of immunizing responses evoked by the setting free of bacteria or their products from the focus of disease into the adjacent lymph or blood stream of the individual, to which process he gives the name of "autoinoculation." Wright has demonstrated that it is possible to produce artificially in the human organism such immunizing responses, and the elaboration of antibacterial elements in the tissues by the hypodermic inoculation of bacterial vaccines which are derived from (autogenous) or correspond to (exogenous) the infecting microbes. This process he calls therapeutic immunization.

The microbes in the vaccine are devitalized so that they cannot multiply after being injected into the tissues. If the dose has been properly regulated the inevitable result of the inoculation is the manufacture at the site of the injection of antibacterial substances, or "opsonins," generated by the organism on a scale which is more than adequate to bring about the destruction of the bacterial elements incorporated in the vaccine. The surplus of the specific antibacterial substances thus elaborated is carried by the blood stream to the focus of infection which we desire to benefit, stimulating phagocytosis and bringing aid to the defensive forces of the organism, which were perhaps ineffectually combating the invading microbes. Thus the victory which the uninfected tissues have won over the dead microbes of the vaccine will in this way lead up to a victory of the infected tissues over the microbes they have to combat (1). This is *active immunity*.

In *passive immunity*, on the other hand, it is first necessary to immunize an animal actively by inoculating it with bacteria or their products, and when the protective substances have been produced in sufficient amount the serum of the immune animal is used for curative purposes upon individuals attacked by the disease for which the serum was produced. This is known as *serum therapy*, the application of which produces *passive immunity*. Successful specific sera have been thus produced in diphtheria, tetanus, epidemic cerebrospinal meningitis, and dysentery—rather a short list.

Vaccines are useful in combating bacteria which contain the poisonous substances within themselves, the so called "endotoxines," types of this class being the staphylococcus and streptococcus; whereas serums are ideally suited for the "exoteric" microorganisms of which the Klebs-Loeffler bacillus is the type. Bacteria of this latter class, while they themselves remain localized in the tissues first attacked, produce virulent toxins from the media in which they grow, and these poisonous substances are absorbed into the blood, are very easily diffused through the body, creating serious havoc in the various tissues and organs with which they come in contact and produce the clinical symptoms of the disease. In infections from bacteria of this class the chief danger to the patient is from these toxins.

The endotoxines, on the other hand, are set free in the body only by the death and disintegration of the bacteria, and are not diffused by the blood stream as in the case of true toxins.

In acute disease, if one is to use a vaccine at all successfully, it must be given early, because the protective antibacterial substances are slowly pro-



duced. In exoteric infections, like diphtheria, the poisons form so rapidly and are so quickly diffused throughout the body that the damage might easily be done before the immunizing mechanism of the body could be sufficiently stimulated by the vaccine inoculations to destroy the invading microbes. Here, of course, serum treatment is indicated, because by neutralizing the poison damage to the various organs and nerves is prevented. Prompt administration is also important in administering a serum, because if we wait until the organs or tissues have been damaged by the toxins, the antitoxines cannot be expected to undo such harm.

It is evident, we think, that the number of diseases to which serum treatment will prove to be applicable is likely to remain small, however striking its success may be in the cases where it can be used. Thus, both its aim and the scientific basis on which it rests distinguish it completely from Wright's plan of inducing active immunity by therapeutic inoculation.

It has recently occurred to the writer that in certain infections it might be permitted to use both a serum and a vaccine, the former to neutralize the toxins and the vaccine to stimulate phagocytosis. I have never heard of this being done, but under suitable conditions I do not see why it would not be a proper expedient.

In connection with our studies on immunization, it is well to bear in mind that according to Pasteur there is no such thing as absolute immunity, because if the infection is large enough and virulent enough even an immune individual will contract the disease.

#### THE OPSONIC INDEX.

The direct effect of a properly administered inoculation is to produce an increase in the blood of certain substances known to exist there, but not isolated, to which Wright has given the name of "opsonins." These substances act upon the bacteria in some way so that they become a ready prey for the white corpuscles, and indirectly increase the phagocytic power of the blood. The "opsonic index" is the expression of the measure of the phagocytic power produced in a sample of washed leucocytes by the serum of the individual in question, as compared with the phagocytic power induced in a similar sample of leucocytes by the serum of one or more healthy individuals. The technic devised by Wright for the estimation of the opsonic index is difficult to acquire, and much patient endeavor and practice are necessary before one is able to secure trustworthy and satisfactory results. It consumes time, and special laboratory apparatus is necessary. It is of value only when estimated by an expert opsonist.

In a not inconsiderable proportion of cases it is essential to success that the dose of a vaccine shall be controlled and regulated by measurements of the opsonic index. This applies particularly to difficult cases—especially pulmonary tuberculosis and severe acute infections, such as septic endocarditis.

A rise in the opsonic index subsequent to an inoculation is always favorable, but in cases of some lesions—for instance, carbuncles—the severe negative phase following a large dose will very often cause much liquefaction of the diseased

tissues, which is at times of great advantage in hastening a cure by rapidly throwing off the slough. This phenomenon explains why in furunculosis certain patients get better during the negative phase. In phthisis pulmonalis, on the other hand, patients have shown high opsonic indices, even though doing badly. This seemingly contradictory phenomenon is explained on the theory that in such cases there is probably some complicating infection—perhaps streptococcus or pneumococcus.

The opsonic index, in expert hands, is one of the most valuable and positive aids we have in the diagnosis of incipient phthisis and in the differential diagnosis of obscure diseases where the causal microbial agent cannot be determined by ordinary bacteriological procedures; as, for example, in deciding whether the pathological condition in an infected joint is due to tuberculosis or to the gonococcus.

#### THE POSITIVE AND THE NEGATIVE PHASES.

Following a bacterial inoculation there is usually a drop in the opsonic index of the patient, accompanied by characteristic clinical symptoms. This is the so called negative phase. The length of this phase and the clinical symptoms depend upon the size of the dose. The clinical symptoms may be either subjective or objective, or both; the subjective symptoms may include one or all of the following: General malaise, a "seedy" feeling, increased tenderness and pain at the site of the lesion, or in the limbs, or joints, lassitude, headache, nervous irritability, drowsiness, and in bladder cases increased frequency of micturition. The objective symptoms ordinarily observed are an increase in the discharge, swelling, or congestion, in cases of acne an increase in the number of foci of infection, and in bladder cases perhaps more cloudiness due to increased activity on the part of the infective microbe. There may be occasionally a slight rise of temperature. An abrupt drop in the temperature from 103° or 104° F. to subnormal may indicate an excessive dose. Occasionally rigors, high temperature, and vomiting may follow an excessive dose. Or if the dose has been very small the clinical symptoms may be absent altogether.

This state is then followed by a rise in the opsonic index, indicating an increase in the opsonic value of the blood, providing the patient has the power to react. Clinical evidences of improvement are also apparent. A state of general invigoration ensues which is quite marked. The patient feels better and very gleefully says so. The rise in the opsonic index following the negative phase Wright calls the "flow"; the subsequent decline in the index toward normal he designates as the "ebb"; the two together constituting the positive phase. It is when the ebb becomes manifest that the inoculation should be repeated.

#### DOSE.

Wright has determined the dose of various vaccines accurately by a long series of experiments, including many thousands of estimations of opsonins and agglutinins, and careful observations of the clinical symptoms during the negative and positive phases, following inoculations. From

the hundreds of men who have gone to London to study under him he has had exceptional opportunities to select assistants of unusual ability who have ably aided him in these researches. One should not attempt to use a vaccine until he has learned the range of doses of such bacteria, where this has been definitely established, and the methods of determining the dose suitable for a given case.

The amounts recommended by the commercial houses in the United States are, as a rule, too large, so much so that the beginner who takes their printed literature as his guide is apt to be disappointed with the results, if indeed he does not get into serious difficulties. It is a fact that most men who use vaccines in this country are administering excessive doses, a fact which explains the many failures which we hear of or read about from time to time. One must not forget that an overdose of bacterial vaccine may be as injurious as an overdose of arsenic or strychnine; while an insufficient dose, on the other hand, may be as ineffectual as too small a dose of quinine in a bad case of malaria.

In quite a long list of vaccines, thanks to Wright's investigations, it is now only a matter of memory to learn the doses of the vaccines most frequently used from the "minimum effective" to the "medium or average" dose. The minimum effective dose is to be administered in all acute febrile conditions, such as phthisis pulmonalis, where autoinoculations are taking place, and where even a very short negative phase might lead to disastrous activity on the part of the invading microorganism, making possible the involvement of tissues previously unaffected, and the initiation of fresh foci of infection in hitherto uninvolved areas. In chronic and afebrile infections, on the other hand, we would use a medium dose because we know that after a negative phase a longer period of increased immunity is secured. Unless the positive phase is preceded by a negative phase, it will be of short duration; in other words, the longer the negative phase, the longer the positive phase will be, but this holds true only up to a certain point, beyond which attempts to lengthen the positive phase by increased doses may ultimately result only in the "summation" of our negative phase when no positive phase accrues at all.

The best results are obtained, therefore, where a negative phase, giving at the most only mild subjective symptoms and lasting not longer than from twelve to twenty-four hours, is followed by a positive phase lasting from three to ten days. Such a result when the index is chartered is designated by opsonists as the "ideal curve." This dictum applies to all cases except general infections with fever when bacteria are present in the blood stream. In such cases even a very brief negative phase may do harm, and if vaccines are to be used at all, they should be given in minimal doses, at more frequent intervals, perhaps, but always by an expert able, if necessary, to control them by estimations of the opsonic index.

When our methods become more perfect and exact, it may be possible to so determine our dose as to avoid the negative phase. It is always wise to give as an initial dose an amount well within the limits of safety, and to gradually and cautiously in-

crease it if the symptoms so warrant until, if necessary, large amounts are administered.

Where the minimum effective doses are used, as they should be in all severe febrile infections, there is no negative phase, but the immunizing response elicited is very brief; hence the inoculations must be more frequently repeated, in some cases daily injections being permitted. After larger doses the inoculations are to be repeated when the positive phase symptoms, as indicated by the careful interpretation of the clinical symptoms, or in doubtful cases by the estimation of the opsonic index, are no longer apparent. In practice this varies from three to fourteen days.

An overdose will during the negative phase increase the *objective* symptoms of the disease; in treating acute infections this is to be avoided if possible. We should aim, ordinarily, to get only mild *subjective* symptoms such as malaise, and to avoid all objective symptoms.

A moderate negative phase in strictly localized or chronic infections does no harm because the opsonic content of the bycirculating blood does not immediately affect the disease focus. On the contrary, the local reactive inflammation of this phase may do good by flushing the lesion with blood and an increased outflow of lymph, whereby a greater quantity of the blood's protective substances is carried into the infected area and thus healing tends to result.

In determining the dose it must not be forgotten that a marked difference occurs in different strains of bacteria. Thus, a satisfactory immunizing response may be obtained from a vaccine in doses of two millions, while other vaccines made from different strains of the same bacillus may require as a dose from forty to fifty millions; in other words, the dose will vary according to the virulence of the strain used in preparing the vaccine. This applies particularly to the gonococcus, the streptococcus, and the colon bacillus. At St. Mary's Hospital, London, all the strains of bacteria used in making vaccines have been frequently tested as to their immunizing power by careful clinical and blood tests, and their therapeutic value is thus definitely determined. In no laboratory in the United States, so far as is known to the writer, is this done, and for this reason he prefers to employ Wright's vaccines when he uses stock preparations to the ones put on the market by the commercial houses in this country, which are made from strains which have not been tested therapeutically, because of the lack of clinical facilities, or of men competent to carry out such experiments.

#### WRIGHT'S DOSES.

Vaccine.	Minimum effective dose.	Medium or average dose.
Gonococcus . . . . .	1 to 2 millions	5 to 25 millions
Influenza bacillus, . .	5 millions	10 to 15 millions
Staphylococcus . . .	50 to 100 millions	250 millions at the outset increasing to 750 millions
Streptococcus . . . .	2 millions	5 to 15 millions
Tubercle . . . . .	1 100,000 to 1 50,000 milligramme in extensive affections	1 6,000th to 1 3,000th milligramme to be used only in non febrile, slight, localized infections, without lung involvement.
	1 15,000 to 1 10,000 in slight affections	

In the matter of dose, it is the experience of most conservative immunizators nowadays that smaller doses are to be preferred, at least in the be-

gining of the treatment, to the very large doses reported, sometimes disastrously, in connection with the earlier experiments with inoculation therapy. Generally speaking, the more severe the infection and the more pronounced the clinical symptoms, the smaller should be the dose of vaccine employed. It is now entirely possible to effect a cure by vaccine therapy without once inducing the toxic symptoms associated with the earlier attempts at immunization, and still frequently seen after inoculations by the ignorant and inexperienced. A toxic dose should never be given, and is always to be avoided if possible. The initial dose should, with rare exceptions, be small, and the increase gradual. This conservatism applies also to the frequency of the inoculations; because undue frequency may, like an overdose, do harm by inducing a severe or protracted negative phase. If at any time it is thought best to omit an inoculation, salt solution may be substituted for the vaccine, in order to hold the patient's attention.

Robust individuals require larger doses than thin and delicate patients. As in the administration of salvarsan, the body weight may be taken as a guide to the dose.

Children, of course, require much smaller doses than adults.

Bacterial vaccines are standardized in such a manner as to contain in each c. c. a specified number of microbes, except in the case of Wright's tubercle vaccine, where each c. c. contains a specified weight of the powder obtained by the comminution of tubercle cultures.

#### ARTIFICIAL AUTOINOCULATION.

When a patient fails to recover from a bacterial infection this may be due to excessive autoinoculations, causing a profound or permanent "negative phase," with lowered resisting power in the blood, making possible the rapid extension of the disease processes; to an inadequate or tardy immunizing response; or to the fact that the infective bacteria occupy a nidus so sheltered from the bycirculating blood that the antibacterial agencies (opsonins) in the blood do not have free access to them, and thus phagocytosis is interfered with.

Artificially induced autoinoculations are destined to prove important factors in the treatment of many diseased conditions in which vaccine inoculations are impossible or are contraindicated, and an interesting field for experimental therapy along these lines is thus opened to the intelligent and observant physician. Moreover, it is important in treating all infectious diseases to find out, if possible, before resorting to bacterial inoculations to produce active immunity, what the body itself is capable of doing and to what extent extraneous circumstances such as exercise, massage, osteopathy, passive motion, Bier's apparatus, poultices, etc., may influence these attempts on the part of the body. The increased circulation thus induced does good by carrying away from the focus of infection some of the bacteria or their products into the general circulation, thus inducing an autoinoculation. In phthisis such autoinoculations are very frequently taking place, and may be induced by coughing, talking, deep breathing, or exercise (6). This explains

why in phthisis the opsonic index is often high or variable, and also why the opsonic index taken before and after exercise or massage is such a valuable diagnostic guide.

Care must sometimes be taken to prevent excessive autoinoculations, which might do the patient serious harm by inducing a prolonged or severe negative phase, thus making possible the rapid extension of the disease. The agents at our disposal for this purpose in subacute or chronic cases are carefully graded or restricted exercise; and in acute febrile cases absolute rest in bed, quiet breathing, no talking, and occasionally the local application of ice. For this reason poultices to the chest in a severe pneumonia may do harm by producing a summation effect in the negative phase.

The thorough comprehension of the phenomena of autoinoculation enables us to explain many clinical problems hitherto obscure. An intelligent understanding of its *modus operandi* will be a valuable aid to the general practitioner.

In chronic conditions and in all nonfebrile conditions, in which bacterial vaccines are indicated, much good may be accomplished by periodic autoinoculations, artificially induced by any of the various measures at our command for the production of an increase of circulation through the infected part. Many of the cures attributed to osteopathy are undoubtedly explained in this way.

In comparing the respective advantages of autoinoculation and inoculation with bacterial vaccines as a means of treatment in bacterial infections, we must not forget Wright's warning that in the former method we use unmeasured doses of living cultures and therefore it must be uncertain and never can be altogether dissociated from risk.

#### LYMPHAGOGUES.

Successful results can be obtained from inoculation therapy only where an efficient lymph stream can be conducted through the foci of infection. Unless the blood stream with its antibacterial substances or opsonins has free access to the infected area, an increased opsonic index may not ameliorate the symptoms. The walls of an old sinus with a poor blood supply by reason of pent up discharge, due to obstruction to outflow, or coagulation, offer the infective microorganisms a highly suitable nidus in which to multiply. Again the contents of an infected cavity, whether it be the peritoneum, pleura, or an ordinary abscess, may be low in protective substances, while the bycirculating blood may contain an excess. Sinuses must therefore be flushed, abscesses drained, and poultices, massage, or Bier's apparatus employed to increase the local blood supply. Lymphagogues are indicated in such cases. Flushing the sinus with a solution containing four per cent. of sodium chloride and one per cent. of sodium citrate in sterile water promotes by its hypertonicity increased osmosis through the sinus walls, and a more copious flow of lymph ensues. Inasmuch as the sodium citrate prevents coagulation, the lymph, rich in protective substances, will find its way to the surface uncoagulated. In the case of a cavity, drainage is followed by the introduction of fluids from the blood, containing an excess of protective substances, and the cavity is quickly healed (2).



## THE WIDE SCOPE OF VACCINE THERAPY.

The field for vaccine therapy is almost as wide as that of medicine itself; some idea of its scope may be obtained from the following enumerations: 1, Inflammatory trouble at the roots of the teeth with toothache, pyorrhea alveolaris, caused by the ordinary streptococci of the mouth; 2, pruritus ani, in which disease a platinum loop applied to the seat of irritation brings away astonishing numbers of microbes, invariably staphylococcus and pseudodiphtheria, and occasionally tetragenous; 3, hay fever; 4, x ray dermatitis; 5, urinary calculus, which has been found to be associated with the presence of staphylococci in the urine; 6, indigestion, vomiting, and flatulent distention of the stomach, so often seen in early phthisis where pyorrhea alveolaris is a frequent accompaniment; 7, epilepsy, in which disease the symptoms may be due to a bacterial focus standing in connection with the nervous system; 8, pancreatic diabetes and Graves's disease, and other diseases due to the faulty functioning of some organ which may ultimately be traced to a bacterial infection from a coliform bacillus or the staphylococcus. In this connection Wright has suggested that glycosuria and carbuncle, which we have always supposed to be related as to cause and effect, may perhaps in some cases at least be merely two different manifestations of a staphylococcal infection; 9, enuria, which is sometimes due to an unsuspected coli infection of the urine (3).

## AUTOGENOUS VERSUS STOCK VACCINES.

Autogenous vaccines should be used in preference to stock ones when this is possible, although in staphylococcal and tuberculous lesions the results from a trustworthy stock vaccine are most satisfactory. It is always proper to use a stock vaccine to save time while we are waiting for an autogenous one to be prepared. In infections due to the colon bacillus an autogenous vaccine should always be prepared, as experience has shown that stock vaccines of this microorganism are of little or no use.

In Wright's vaccines the cultures have been devitalized by heat, and suspended in a sterilized physiological salt solution to which 0.5 phenol has been added. The erysipelas vaccine used by the writer is obtained from Dr. George W. Ross, of Toronto, who employs a special technic in its preparation. The microbes which have been therapeutically tested are devitalized by carbolic acid without heat; in this way a vaccine is produced which has twice the potency of one made in the ordinary way (4).

If a stock vaccine is giving satisfactory results it is always proper to continue its use. On the other hand, if no improvement follows the administration of a stock vaccine in a case where a vaccine is clearly indicated, an autogenous suspension should be prepared before abandoning the treatment. One should never lose sight of the possibility of a mixed infection where no benefit results from inoculations in a suitable case.

## TUBERCULOUS INFECTIONS.

The methods of therapeutic inoculation have been used most largely and with the greatest prospect of doing good by Wright and others in tuberculosis, more particularly the chronic, strictly localized, and apyrexial infections, i. e., tuberculous

glands, cystitis, ulcers, sinuses, and deposits in the joints and bones.

It has been found that under proper inoculation treatment in the class of cases enumerated above, the symptoms gradually improve, the deposits shrink and disappear, and in the majority of circumstances a successful outcome may be safely predicted as a normal consequence of the treatment. The results at St. Mary's have been most brilliant, and leave no reasonable doubt that the recoveries have been due directly to the effect of the inoculations.

Tuberculous glands under tuberculin inoculation treatment are a triumph for this system of therapeutics. Such cases rarely fail. When inoculations are given as a postoperative treatment in tuberculous lymphnoditis we find that less radical surgery is required, recurrence is prevented, and it is not so essential to excise all the infected tissues. Where the inoculations have been resorted to prior to operative treatment, liquefaction and pus formation result more quickly, and removal may be accomplished through a small puncture or a large aspirating needle, care being observed to avoid secondary infection. Continued inoculation treatment results in a complete cure, and the resulting scar is very slight. Tuberculous iritis, cystitis, dermatitis, nephritis, epididymitis, orchitis, peritonitis, and bone or joint lesions have all yielded to inoculation treatment in the hands of experienced immunizers. Immediate results must not be looked for from inoculation treatment in suitable tuberculous infections, and the patient should be informed at the outset that six to nine months is usually the shortest period required for a cure. The prognosis is better if treatment is begun early.

Pulmonary phthisis is a theme by itself. Inoculations with tubercle vaccine should not be resorted to while active symptoms are present, but the cough and fever should first be allayed and the patient kept quiet and at rest. Such cases should be treated only by an expert immunizer, otherwise serious, if not fatal, harm may be done to the patient. Here the opsonic index is most important. In treating phthisis, as already pointed out, we must always be alive to the possibility of a complicating infection from the streptococcus, pneumococcus, or some other organism, in which case a mixed vaccine would, of course, be necessary to accomplish successful results. In inoculating for phthisis the dose should be very small, because there is a varying amount of spontaneous auto-inoculation taking place from the diseased areas in the lungs, and a negative phase of only a few hours duration might give rise to disastrous activity on the part of the tubercle bacillus.

The absence of scar tissue formation and the *restitutio ad integrum*, even in very deep and extensive tuberculous ulcers, have been frequently noted after a cure has been effected by inoculation therapy.

The dose may be summarized thus: The minimum effective dose varies from 1/100,000th to 1/15,000th milligramme, in extensive infections, and from 1/15,000th to 1/10,000th in slight infections; the maximum doses vary from 1/6,000th to 1/3,000th milligramme; these latter to be used only in nonfebrile, slight, and localized infections where

lung involvement has been positively excluded. These doses would be much smaller for children. Increase in the doses should be cautious and gradual, with the exercise of extreme care to avoid any clinical symptoms of a negative phase.

#### PROPHYLACTIC INOCULATION.

The inoculation of bacterial vaccines to produce active immunity against various diseases opens up a very large field for investigation and experiment. The result of Wright's researches positively demonstrates that in certain cases absolute protection may be secured in this way. Preventive doses are, as a rule, much larger than curative doses.

1. Antityphoid inoculation. First introduced by Wright, this is now a routine procedure regularly adopted in the armies and navies of both England and the United States. The immunity thus secured is known to last for at least three years. In England only two doses are given; 1,000 millions for the first dose, 2,000 millions for the second, which should follow the first after an interval of ten days. Two inoculations are deemed sufficient (5). In the U. S. Army three inoculations are administered, at intervals of ten days; 500 millions in the first dose and 1,000 millions in the second and third doses. In children and in delicate adults the dose would, of course, be smaller. The Widal reaction appears immediately after immunization, and has been known to be still present after a year and a half.

2. Antigonococcal inoculation. Captain S. R. Douglas has given doses of gonococcus vaccine up to 200 millions to healthy men without marked symptoms. He recommends as a commencing dose about 100 millions and repeating the inoculation in about a week's time with a larger dose, say 200 millions, providing the first dose did not produce any marked symptoms. This should produce an immunity lasting several weeks. Such prophylactic inoculations would be justifiable where gonorrhea has been contracted innocently or otherwise by a married person, for the protection of the uninfected partner; in institutions, to prevent the spread of specific vaginitis, which at times is so difficult to control; among sailors before shore leave, and soldiers; and where marriage is contemplated between individuals one of whom has had the disease, and we wish to protect the healthy party to the contract.

3. Antiinfluenza inoculation. The writer has repeatedly given to healthy individuals inoculations of fifty millions without any more discomfort than a slight local reaction. We do not know as yet how much immunity this dose produces or how long it lasts. My practice is to give repeated doses beginning with from ten to fifteen millions and to increase them as long as they do not produce any marked clinical symptoms, at first once a week, and later, when the larger doses are reached, once or twice a month. The agglutinins may be measured after the second inoculation. I have endeavored to immunize in this way many patients who during past winters have suffered from severe or recurring attacks of epidemic influenza, its complications and sequelae, and I have been much gratified with the results. All the patients have kept very well and most of them have gained markedly in weight.

#### DIFFICULT CASES.

Occasionally the beginner and the inexperienced inoculator will encounter failures which he cannot understand and which tend to discourage him from the further use of vaccines. Ulcerative endocarditis is often pointed out by the opponents of this system of therapeutics as a disease which should be cured if Wright's opsonic theory is correct, but which as a matter of fact is not always benefited by inoculations, even where the causative microbe has been isolated in the blood stream. Undoubtedly this disease is quite the hardest disease we are called upon to treat, but the reason is that the actual lesion is not as appears at first sight, in the blood stream, but is situated on a practically bloodless tissue embedded in a mass of unorganized fibrin, so that it is extremely difficult for the immune substances of the serum to reach the active lesion. In this connection it must not be forgotten that a limit is placed to the efficacy of inoculations by the fact that there are definite limits to the responsive power of the patient, and that successful results cannot be obtained unless an efficient lymph stream can be conducted through the focus of infection.

#### CONCLUDING REMARKS.

In inoculating children attention to the technic of the operation is a very important adjunct to success. The hypodermic needle should be small and polished and the point should be sharp. The preparation of the dose should be made in another room where the child cannot see what is going on. A site should be selected where there is plenty of loose tissue; the skin of the abdomen, the buttocks, or the back. If one can avoid scaring or hurting the child at the first inoculation there will be little trouble with subsequent treatments.

The vaccine therapist must have a well equipped general and special laboratory, a vast store of clinical experience, the ability to estimate accurately the opsonic index in doubtful or difficult cases, and the skill necessary to prepare quickly an autogenous vaccine, where one is required. He must also understand how to test therapeutically the various strains of bacteria, as to their immunizing power, so as to determine the doses of the vaccines made up from them.

Properly prepared vaccines will keep indefinitely in a cool, dark place, except the typhoid vaccine, which becomes inert after three months.

In long standing chronic infections vaccine therapy can be expected to give definite results only after a long succession of inoculations and there is no security against a relapse until the infections have been completely extinguished. Hence the inoculations should be continued even after an apparent cure for a long period, at intervals of several weeks or longer, in order to prevent a recurrence.

The so called "combined" vaccines, manufactured by some of the commercial houses, are made up of a mixture of many different varieties and strains of the more common bacteria. Their use is not to be encouraged any more than "shotgun" prescription writing is to be commended when drugs are used. The idea of the manufacturers in furnishing a combined vaccine is that some one or more of

the strains of the various microorganisms contained in it may apply to the case in question; thus providing a handy "cure-all" for a great many pathological conditions, making it possible to dispense with precise bacteriological procedure. Such attempts to make easy the path of the general practitioner is neither scientific nor accurate, and the use of such vaccines in unskilled hands in serious cases might do very great harm.

It is evident that the general practitioner who has given the subject no study had better refrain from attempts at inoculation therapy. The writer can imagine nothing more foolhardy than the haphazard use of biological products by physicians unfamiliar with the theoretical considerations which underlie their administration. Vaccine therapy is a specialty which only the properly qualified should attempt to practise.

It is most important to remember that if sera or vaccines are to be used successfully the earlier they are employed in combating a given infection, the better are the chances of success. Too often the inoculation therapist is called in merely as a last hope, too late to be of any avail. Vaccine inoculations, to be successful, should be administered before the immunizing mechanism of the body has been permanently disarranged by excessive auto-inoculations, or before the limits of the responsive power of the patient have been reached.

Variation in the methods of preparing vaccines materially influences their immediate therapeutical and keeping properties. Hence contributors to medical journals should always mention the methods used in the preparation of an autogenous vaccine or the source from which any stock vaccine used has been obtained.

While up to the present the most brilliant results have been obtained in chronic infections, the indications now are that as we become more expert in interpreting the clinical signs, in determining the correct doses and the intervals between doses, and in making blood tests, in acute infections rather than in chronic ones will vaccine therapy ultimately prove to be of the greatest service.

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## PREJUDICES AND SUPERSTITIONS MET WITH IN MEDICAL SCHOOL INSPECTION\*

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"Parents control the bodies and minds, the hearts and souls of their children not so much by what their ancestors were, as by what they themselves do and think."—Nathan Oppenheim.

As every country has its language, its literature, and its laws, so too, it has its traditions, prejudices, and superstitions; some racial, others religious,

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which often prove to be serious obstacles in the path of physicians and nurses engaged in municipal health work. In the cosmopolitan city of New York, with its five million people, its seven hundred schools—public and others—and its 825,000 school children, we have several lands in one, for with the swarthy Syrian, the flaxen haired Swede, the confiding loquacious German, the wary and reticent Greek, the suspicious Russian, the doubting Italian, and the Jewish, Irish, Bohemian, Hungarian, Polish, Slavish, Armenian, French, Colored, Japanese, Chinese, and Scandinavian elements, there arises a mass of doubt and hesitancy regarding the laws of health and proper living, which education alone can overcome. It may seem a far reaching statement to make, but the truth is, that in the prevention and treatment of disease among the tenement population in New York city, the physician or health officer must deal not only with the conditions at issue, but, what at times is more difficult, he must meet and combat a fusillade of prejudice, tradition, and superstition, ignorance, distrust, apprehension, indifference, irresponsibility, poverty, and antagonism.

When the history of the twentieth century has been written, it is doubtful if any accomplishment along the lines of preventive medicine will stand out more prominently than the medical inspection and examination of school children; inspection preeminent consideration of which is the prevention of disease; inspection which at school guards against contagion in every form and discovers the existence of physical defects that interfere with the child's development, school progress, educable capacity, equipment, and future usefulness; inspection which by a thorough "follow up" process in the home, unearths hidden and unsuspected contagion and stimulates in parents an endeavor to have physical defects remedied and thus prevent shattered and perverted lives and degenerate citizenship; inspection which is not only of and for to-day, but which will make the future homes a more potent environment for the development of the physical, mental, moral, and spiritual well being of their offspring; inspection which has for its ultimate goal the betterment of home conditions and the welfare of the child—"the nation's best asset," as he has been called.

The socioeconomical conditions of life in New York city are so complex, so different from those of almost any other city in the world, and so intimately interwoven with school life, that any attempt at accomplishing results from medical school inspection, however complete, will prove only partly successful, unless constant and repeated attention is given to the home. It is in the home that many conditions, which after persistent effort are eradicated or ameliorated by the nurse at school, are reborn, as it were, to renewed activity; it is in the home that hygienic, dietetic, and other errors must ultimately be corrected, and it is in the home that the peculiar customs and mode of living which have been brought to us by the alien population and which are pronounced and firmly rooted, must be combated, ere we hope to see light in the solution of many school problems. To appreciate the part which tradition, prejudice, and superstition play, one has only to accompany an inspector and



nurse of the health department to the various home quarters to which their daily work carries them. Here you will be brought face to face with a motley crowd which may not "fit the age in which we live," but which must be reckoned with and approached in every instance from a different standpoint.

Come with me then into the heart of the tenement district and listen to the answers which are given to the inspectors and nurses in response to their plea for early and proper treatment of the physical defects found in the school children, and to their advice on prevention of contagion, on child diet, child care, hygiene, and sanitation. It is needless to state that defective eyesight in its many phases—near sightedness (myopia), far sightedness (hyperopia), astigmatism, etc.—is one of the most frequent causes of retardation at school. Truly with many of the children, to see or not to see is the question. And yet the answers which some parents give and the arguments which they advance in response to the request for eyeglasses and other forms of treatment would seem laughable were the problem not so serious. They will tell you that eyeglasses are a luxury, that they are worn for style, that they make the child look old, that the child will get used to them, that he or she will be subjected to ridicule at the hands of the playmates—a frequent taunt being "Oh, you four eyes!" They add that the wearing of eyeglasses will become a habit, that the child will never be able to get along without them, and that the eyes will grow weaker. And after all this, the mother of the lower East Side—the Ghetto section—will tell you that the presence of eyeglasses will interfere seriously with her daughter's matrimonial prospects, that she "won't marry well," or as one mother told me of her ten year old, "if she needs glasses let her husband buy them." It is, in fact, an open secret in this section of the city that the marriage marketable value of a daughter with eyeglasses is below par. Not infrequently when visiting the home of a child excluded from school for mucopurulent conjunctivitis you will find an infant or another child similarly affected and the mother attempting a cure by literally squirting breast milk into the eyes. What a woeful waste of nutriment! What an ideal culture medium for bacteria! And many mothers in order to prevent strabismus will continually keep passing their hands before the child's eyes, while the Bohemian element not infrequently treats ulcer of the eyeball by dusting sugar into the child's eyes.

How many children of to-day owe their deafness to the fact that their parents considered "running ears" beneficial and to the belief that like "running sores" they allowed the "poison" to escape readily and thus purify the blood? I have often called the attention of parents to the fact that a child experienced some difficulty in hearing which should be given immediate attention, only to be informed that "at home he hears too much."

With all that has been written, published, and preached on the subject, it would seem as if parents should realize the necessity and importance of free and unobstructed nasal passages. Nothing is more vital for the growth and development of a child's body and mind than oxygen. And with oxygen we

might group sunlight—the arch enemy of the tubercle bacillus, organic matter, and humidity; for as the Italian proverb puts it, "Where the sun does not go the doctor does." The ill effects of enlarged tonsils and adenoids—the main causes of nasal obstruction in childhood—are constant, progressive, and accumulative, and are acting against the child all the time. These defects limit the proper ingress of air and therefore inhibit the process of healthful tissue changes; they disturb sleep, cause restlessness and night terrors, interfere with the hearing, tend toward deformities of the jaw, render speech and voice defective, stunt growth and development, predispose toward pulmonary involvement and chest deformities, and interfere with what a school child requires most—his memory and retentive faculties. And yet when all this is explained, what do we hear from some parents?

The negress, with full assurance of her position, informs you knowingly that her child's nasal twang is due to the fact that the "child's palate am down," and follows this enlightening statement with the advice that by constant pulling of the hair on the top of the child's scalp the palate will become elevated and the condition relieved.

One of Ireland's buxom daughters, when told of the enlargement of her child's tonsils, stated defiantly, "Is that so? Sure, God put them there, and there they'll stay." And in many cases they do—while you make a hasty exit.

The colored mother when approached upon the question of operation for these conditions frankly tells you, "The Lord made my child as He made me, and I ain't going to have no one trying to improve on His work." An educated negro, when advised to have his adenoids removed, indignantly replied, "The negro is in a great measure characterized by his flat nose, and yet you advocate the removal of my adenoids, which would result in making my nose higher. I shall never do it. Always be what you are."

The mother of the Jewish ghetto offers as her excuse: "If the tonsils are taken out the throat will be too wide and air will rush into the lungs too quickly and produce inflammation of the chest." While another will tell you that removal of the tonsils will interfere with the speech and indeed with the singing voice, and again you will be told that removal of the tonsils and adenoids "produces a loss of sexual instinct and creative power" or that the patient will "become hypochondriacal and have suicidal tendencies."

Voodooism or the superstition of the negro finds its victims in the Northern cities as well as in the Southern states. I have come in personal relation with cases where the use of different colored yarn was applied by the "doctor" for the cure of contagious and other diseases found in school children—red yarn for erysipelas, yellow for jaundice, pink for "pink eye," and white for anemia. One inspector when working in a school district frequented by negroes was much perplexed at the stubbornness of a large number of cases of ringworm only to learn that the best treatment was held to be the application of a round piece of cloth which the voodoo doctor carefully applied, mumbling diligently the while.

The Italian parent is firmly convinced that the unsightly crust of eczema so often seen on the scalp is a protective covering placed there by an all wise Providence and that to remove it would cause the death of the child. Even a suggestion that olive oil be applied—and olive oil according to the Italian mind is surely good for what ails you—is not over enthusiastically received and the appearance of an otherwise attractive little Angelina or Raffaello is marred.

Venture to tell the East Side mother to cut the child's hair which is matted together by dirt, pediculosis capitis, or scalp disease, and note her horror at the thought of his growth being prevented, or of his strength going with it.

And who is so bold as to enter one of these homes and advise that the child's nails be cut short. Cut them, so that he "will become a thief" or "have his speech retarded" will be the retort. Bite them off—yes! Cut them—never!

Comment adversely upon the Italian school child dressed in an array of garments of many sizes, shapes and colors, which may be pulled off, one after the other like the coats of an onion, and be told that if these precautions are taken in the fall he will be protected from the rigor of winter, the dangers of cold and the discomforts of low temperature. While in the home, argue with a mother of this nationality against the use of the swaddling clothes in which the infant is bound, and which impede its freedom of motion, and interfere with its breathing and circulation, only to be assured that this mummylike garb will keep the legs straight and the feet small. Like the Chinese, the Italians believe that small feet are a distinct advantage for girls.

Fancy entering a home on the lower East Side—the Jewish quarter—for the purpose of instructing a mother in the care of the mouth and teeth, to be shown her toothless jaw and then to be told in significant jargon, "I havent any teeth either and I am alive. Continue your rounds in this section, meet a well nourished and well developed youngster, admire it, say nice things about it, be friendly with it, and then watch the mother hastily lick its eyes and face three times, expectorating as she does so. How else can she remove the "evil eye" which you have unknowingly cast upon it? And if she does not resort to this procedure, it is only because she has scared away this evil spirit by sewing some salt in the child's shirt or by tying red ribbon around its wrist or neck.

The negress will tell you that pulling teeth gives the children sore eyes and that "it is bad luck for any poor child to have gold or silver in the mouth." One mammy said, "I pulls my own chile's teet, and they is mighty lucky if they kin git the holes stopped up wid meat and bread."

Woe betide you if you chance to step over the child as it plays on the floor in his home! Doesn't this retard its growth? Atone then for your mistake, retrace your steps and recross it.

Time and again you will be told that the child has ringworm because he played in the circles which children so frequently chalk for games on the sidewalk.

You may be discoursing upon the backwardness

of the child in the school studies and its dependence upon some physical defect, only to be looked at by the mother in wonderment and told, that "the child's memory is weak because he persists in eating the ends of the bread loaves." Or you may be instructing the mother that the cause of her child's bed wetting is some nervous disturbance, some disease of the kidneys or bladder, or perhaps adenoids, only to see her shake her head significantly and in her compassion for your ignorance say, "The child always plays at the fire with matches before he goes to bed."

Primary or essential malnutrition claims about three per cent. of the school children of New York city—some twenty to twenty-five thousand—and calls for instruction to the parents on proper housing, sleep, play, ventilation, personal and home cleanliness, and food of proper quality, quantity, selection, preparation, and palatability. It also means that such children are referred by the inspector and nurse to open air classes or country homes, that suitable school lunches are provided, and that the cooperation of the various social and relief agencies is obtained. But many mothers will tell you that their children are pale because they look into the looking glass late at night. Why does the nurse insist upon telling the mother that she must not give the child "a taste of everything"? Doesn't this indiscriminate tasting harden the child? And doesn't deprivation at this time mean that in after years the child will suffer from want, hunger, and unsatisfied desires? The Italian mother, whose child is suffering from poor nutrition, is with great difficulty persuaded to discontinue wine, beer, and coffee as of no nutritive value. These are considered as tonics and are used to "strengthen" the children.

I remember having had occasion to advise one mother as to the existence of adenoid vegetations and pigeon breast in her child, only to be told at the next visit of the following therapeutic measure for retarding further development of the chest deformity. The child was taken to the coffin of a religious individual, and the latter's hand was rubbed several times over the pigeon breast, when *presto*, the deformity was supposed to decrease.

And after advising proper measures for the removal of warts and moles, I have been told that a small piece of meat *stolen* from a butcher and buried in the earth would cause the growth to shrivel up and disappear simultaneously with the disintegration of the buried meat.

What would you say of the theory of predigested foodstuffs if you saw a mother deliberately chewing bread, meat, or vegetables and then placing it in a spoon and giving it to the child?

Often you will find that your visit to a sick child is accepted with great satisfaction because of the belief that "each friendly visitor takes away one sixtieth part of the disease."

Frequently enough you will observe that the mother calls her child to task for describing upon his body how a neighbor's child was operated upon, fearing that because of this a similar operation will be performed upon him.

I remember one little Italian youngster who was always shy when I approached him, afraid it

seemed to me as if some one were about to do him bodily harm. Subsequently I learned that having red hair, he was looked upon as a "bad character" and as such was beaten regularly—a therapeutic measure indicated according to the mother's interpretation.

Such are some of the difficulties with which the path of the inspectors and nurses of the Department of Health is strewn; such are the types which they meet, such the conditions which confront them daily, which call for tact, judgment, patience, perseverance, kindness, encouragement, and enthusiasm.

And thus you will see, as James Creelman puts it, that New York city is "a Niagara of conflicting bloods, tongues, religions, and civilizations, flowing together from all parts of the earth, and carrying with it the social and political prejudices and discouragements of older nations. London is English, Paris is French, Berlin is German, St. Petersburg is Russian, and Canton is Chinese. But who will say that New York, the largest municipal unit in the world, is American?"

To recognize a condition, to inform parents of its existence is one thing, but to have treatment instituted is another. So serious at one time did this question of parental cooperation become that it was suggested that legislation be enacted to compel parents to have these physical defects remedied.

It is questionable whether any such compulsory law will be enacted in our day, any that will stand the test of the courts, and I admire the courage of those who advocate the idea. With Kerley I prefer to say, "I do not believe in compulsion or in attempt at legislating righteousness into people. I do believe in education sufficient so that each individual may with reason and intelligence direct his life and habits." The easier way, that of education, I believe to be along the line of least resistance; "accomplishing mighty feats by gentle suasion" will prove in the long run not only more effectual but more lasting.

Dr. Abraham Jacobi, in an address, said: "I have come to believe that the social betterment and the equalizing humanitarianism required in our country is better than the social revolution which I hoped for fifty or sixty years ago. I believe that more can be accomplished by organization, co-operation, and evolution than by more violent means. The lesson taught by the great men of science is that we should leave some vestiges of our creation, large and small, to live after us."

I present for your consideration four charts which show in a numerical way how a persistent follow up campaign in New York city has succeeded in routing the forces of prejudice, distrust, and superstition, and how as a result increased physical efficiency of school children has been attained.

CHART I.

New York City.

Year.	Number of pupils examined physically.	Number of pupils found needing treatment.	Number of pupils found with defects of teeth as only defect.	Number of pupils found with other defects than of teeth only.	Percentage of children examined requiring treatment.
1909.....	231,081	172,112	69,962	102,150	74.48
1910.....	266,426	106,664	95,062	101,602	71
1911.....	230,243	166,368	90,511	75,857	72
1912.....	287,469	206,720	119,359	87,361	71.6

CHART II.

New York City.

Year.	Percentage of children examined requiring treatment for dental defects than of teeth only.	Percentage of those examined requiring treatment for defects of teeth.
1909.....	44.2	57
1910.....	37.4	62
1911.....	30.1	58.1
1912.....	30.1	49.4

CHART III.

New York City.

Percentage of defects found among children examined.

Year.	Defective vision.	Defective nasal breathing.	Hypertrophied tonsils.	Defective teeth.	Essential malnutrition.
1909.....	13.4	18.7	22	57	3.14
1910.....	11	15	18	62	3.55
1911.....	10.6	11.3	15	58.1	2.5
1912.....	7.3	7.6	10.4	49.4	2.8

CHART IV.

New York City.

Operations for hypertrophied tonsils and defects of nasal breathing.

Year.	Eye glasses procured.	Number of defective vision.	Percentage of glasses procured.	Number of cases of hypertrophied tonsils and defective nasal breathing.	Number of operations.	Percentage of operations.
1909.....	30,408	8,218	27	94,327	20,731	22
1910.....	29,034	9,929	33	90,958	18,089	21
1911.....	24,514	11,301	46	61,955	21,002	33.3
1912.....	21,078	16,658	50.5	54,952	14,527	28.0

Chart I shows that of the children examined during 1909 to 1912 the percentage of those requiring treatment for all physical defects declined from 74.48 in 1909 to 71.6 in 1912.

Chart II shows that of the children examined and requiring treatment for other defects than of teeth only the percentage has declined from 44.2 in 1909 to 30.1 in 1912, and that the percentage of children requiring treatment for teeth has declined from 57 in 1909 to 49.4 in 1912.

Chart III shows the educational results of medical inspection and examination of school children, in that the percentage of children with defective vision, defective nasal breathing, and hypertrophied tonsils has declined steadily from 1909 to 1912. This table also shows that all children considered, the percentage with defective teeth has declined from 57 in 1909 to 49.4 in 1912. Essential malnutrition, that is, malnutrition without any contributing physical defect, has remained almost stationary—3.14 in 1909 to 2.8 in 1912. These figures coupled with our experience that in children admitted to school for the first time the number of defects found is becoming smaller proves to my mind that the public is beginning to learn the lesson that the best time to take care of the child's health is before it enters school. The examinations during these years were conducted in similar groups of children, new admissions being examined first in all cases and then examinations being made from grade to grade.

Chart IV shows how the public has been educated up to the necessity for the use of eyeglasses—twenty-seven per cent. in 1909 to 50.5 per cent. in 1912; and to the advisability and benefits of operations upon the nose and throat—from twenty-two per cent. in 1909 to twenty-eight per cent. in 1912. The decrease from 33.3 per cent. in 1911 to twenty-eight per cent. in 1912 was due to the inability of our nurses to take the children to hospitals and dispensaries as frequently as in former years, because



of the institution of a system which placed the control of contagious diseases in their hands and which required the major part of their time at school.

New York city, because of the constant influx of immigration, has at all times a conglomerate army of alien population which must be taught. That this is feasible despite the aforementioned obstacles, that education does reach and has reached them, is testified to, by the fact that many parents have come to realize the importance of having the physical defects of their children treated or removed, and have done so in many instances before the child entered school life.

And it is common experience these days to find that the word operation for school children does not carry with it the terror of years ago. Time there was when to mention this word was to incite a panic not only at home but in the immediate school and neighborhood. To-day many parents have been educated up to the point where they realize that intervention of this nature is the only proper method of cure, and they signify their approval in many instances by permitting, yes requesting, the nurse to take the child to the clinic. To see one of these mothers, who a year ago shrank from the idea of operation, reason with and urge her neighbor to have the child operated upon, can be appreciated only by those who have watched the development of this work. Nor does the idea of oral hygiene and the care of the teeth meet with that indifference which was formerly so pronounced. Now we see the tooth brush and powder in many homes, albeit at times that one brush is called upon to do service for the entire family.

The present generation of mothers, largely foreigners, can be, and is being, educated but this education must of necessity proceed slowly and with difficulty. They are so imbued with fear, indifference, suspicion, tradition, prejudice and superstition that knowledge, up to a certain point only, will be absorbed. The vast majority of mothers are willing and anxious to keep their children well and will try to do so if approached in the proper manner. They must be taught to recognize the solemn duty which rests upon them, they must lead the way that their children may follow; they must learn in order that they may direct, and what they do not learn, the school boys and girls of to-day—the citizens and mothers of the morrow—will teach them. They will bring into the homes, by reason of superior advantages offered to them, that light, that knowledge which will cause fewer lives to be sacrificed upon the altar of doubt, ignorance and superstition. This is exemplified during every summer vacation by our organization of Little Mothers' Leagues and by the school children voluntarily presenting themselves to many of the clinics for diagnosis, treatment, or operation, so that they might obviate the possibility of treatment during the school term.

A kind word, an evident interest in the child, gentle suasion, explanation of the effects of the condition and the benefits of treatment, *with special emphasis upon the fact that removal of the defect will increase the child's future wage earning capacity—a plain heart to heart talk in their native tongue*—therein lies the hope of parental cooperation these days.

And this parental cooperation will come about in one way only. Just as a Prussian king once said: "Three things are necessary for war—money, money and more money," so in overcoming tradition, prejudice and superstition three things are necessary, "education, education and more education." Concentration of our energies upon the home, upon the mother, must be our byword if we ever hope to help the child.

Train ye a mother in the way she should go and when her children grow up they will not depart from it.

## A QUANTITATIVE CHEMICAL REACTION FOR THE CONTROL OF POSITIVE WASSERMANN REACTIONS.

(Third Communication.)

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The results obtained in the quantitative chemical estimation of the alpha amino nitrogen of the aliphatic acid group in the blood serum have been so gratifying that a further report seems advisable. The chemistry of the reactions involved and the theoretical chemistry of the aliphatic amino groups explaining why the amount of amino nitrogen should be less in syphilitic than in nonsyphilitic sera have already been considered.<sup>1</sup>

The technic used in the cases now under consideration was identical with that formerly reported; 2.5 c. c. of blood serum were treated with twenty-five c. c. of ninety-five per cent. alcohol and allowed to stand over night at room temperature. This was then evaporated in a porcelain evaporating dish over a water bath at about 60° C., almost to dryness, but not entirely so. The residue was dissolved in boiling hot water (ten c. c.).

Care must be taken to secure every minute trace of the residue. This suspension contains, among other things, the amino nitrogen and is ready for the apparatus to determine the quantity present.

### REAGENTS.

The evolution of the NO<sub>2</sub> gas was accomplished as before, by using ten c. c. of C. P. glacial acetic acid and forty c. c. of sodium nitrite (granular) solution (300 grammes of sodium nitrite in 1,000 c. c. water). A preliminary correction to determine the amount of unabsorbable gas present in the sodium nitrite solution was made every day when performing the test. For the absorption of the NO<sub>2</sub> gas an alkaline solution of potassium permanganate (fifty grammes of pure potassium permanganate and twenty-five grammes of potassium hydrate per litre) was used in an ordinary Hempel pipette.

### DESCRIPTION OF THE APPARATUS.

The complexity of the Van Slyke apparatus makes lucid description difficult, but because so many inquiries have been made regarding it we

shall again attempt this task. In the accompanying schematic diagram and photograph the barometer and thermometer are not shown. The type of apparatus in this communication corresponds to the latest model improved by Doctor van Slyke. It is driven by a motor with the exception of the Hempel pipette, which is shaken by hand. *A* is a compound cylinder consisting of three parts, *a*, *b*, and *c*. Parts *a* and *c* are graduated.

Into *a* are poured the reagents for the evolution of  $\text{NO}_2$  gas in order to displace the air, as air is not absorbed by the alkaline permanganate solution. These solutions are permitted to run separately into *b*. The chamber *b* is connected by a one way stopcock 4 with chamber *c*, which receives the evaporated and dissolved solution to be tested. The two way stopcock 2 connects chamber *b* either with

water bulb above the level of stopcock 2; stopcock 3 is closed and, after lowering the water bulb, is again turned so as to connect burette *D* with the Hempel pipette. This causes the permanganate solution from the Hempel pipette to flow into the burette *D*. As soon as a few tenths of a cubic centimetre have passed over into *D* the stopcock 3 is turned neutral and the water bulb is raised again above the level of stopcock 2, and the stopcock 3 turned so as to connect with the waste, in order to drive off the few tenths of permanganate from the burette *D*. This procedure establishes a continuous column of permanganate from the Hempel pipette to the burette *D* and after *D* has been cleared of permanganate and the stopcock turned neutral there is also established an uninterrupted column of water from the top of stopcock 3 to stopcock 2. After turning stopcock 3 neutral (having cleared the burette *D* of permanganate) the water bulb is again lowered. Stopcock 2 is turned so as to connect *B* with the waste; stopcocks 1, 4, and 5 are turned neutral. The apparatus is now ready for the driving off of the air in *a*.

#### TECHNIC OF DRIVING OFF THE AIR AND FILLING *I* WITH $\text{NO}_2$ GAS.

Ten c. c. of glacial acetic acid are poured into *a* and at once permitted to flow into *b* by turning stopcock 1. Stopcock 1 is again turned into the neutral position and forty c. c. of the sodium nitrite solution are poured into *a*; this is also permitted to run into *b* by opening the stopcock 1. The acetic acid and the sodium nitrite solution at once begin to evolve a brownish gas, which is the  $\text{NO}_2$  necessary for the riddance of the air. The surplus  $\text{NO}_2$  escapes through the waste. Turn the stopcock 2 so as to direct the column of gas against the water column in *g* instead of into the waste. With the stopcock 1 still open the motor is started and permitted to shake the contents in *b* until chamber *a* is about four fifths full of returned fluid; stop the motor and turn stopcock 1 neutral and immediately connect *D* with *b* by opening stopcock 3. This will force the column of water in *D* down and the apparatus is ready to receive the specimen to be analyzed. The previously dissolved evaporated alcoholic serum extract is poured into *c* and stopcock 4 opened to permit the fluid to run into *b*. Care must be exercised not to permit the least amount of air to enter the chamber *b*. The motor is started again and permitted to work for five minutes, no more nor less. This shakes the acetic acid, sodium nitrite and the suspension to be tested, causing the liberation of the nitrogen attached to the aliphatic amino acid group in the alpha position. The evolved gas lowers the column of water in *D*. At the end of five minutes the motor is stopped and after a lapse of one minute the fluid in *a* is permitted to flow into *b* by turning stopcock 1. This causes the fluid in *b* to drive the least quantity of nitrogen gas into burette *D*; care must be taken not to allow any fluid to run into *D*, as this may give wrong results when the fluid in *D* is driven back into the Hempel pipette. Having carefully transferred all the gas from *A* into *D* stopcock 3 is turned so as to exclude burette *D* from communication with *A*. Now turn stopcock 3 neutral and raise bulb *F* above the entire apparatus; if possible suspend the bulb from

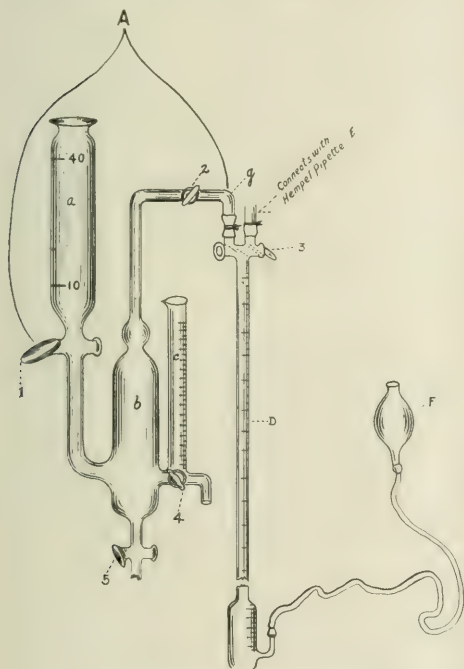


Fig. 1. Schematic diagram of apparatus.

the waste or with burette *D* through the stopcock 3. The stopcock 3 also provides a connection between the burette *D* and the Hempel pipette *E*. *F* is the water reservoir, which connects with the bottom of burette *D* by means of a rubber tube, thus permitting of raising or lowering of the bulb in order to create positive or negative pressure in the burette *D*.

#### PREPARATION OF THE APPARATUS.

First fill the lower bulb of the Hempel pipette and one half of the upper bulb with the alkaline potassium permanganate solution; stopcocks 2 and 3 are turned so as to connect burette *D* with the waste. The water reservoir and the burette *D* are then filled with distilled water while holding the

a hook or some such support. Turn stopcock 3 so that it will establish a communication between *D* and the Hempel pipette *E*. The pressure from the water in the raised bulb will force the gas in the burette *D* into the permanganate solution in the Hempel pipette, where the gases, with the exception of the  $\text{NH}_3$  nitrogen, are rapidly absorbed. In transferring the gases from the burette into the

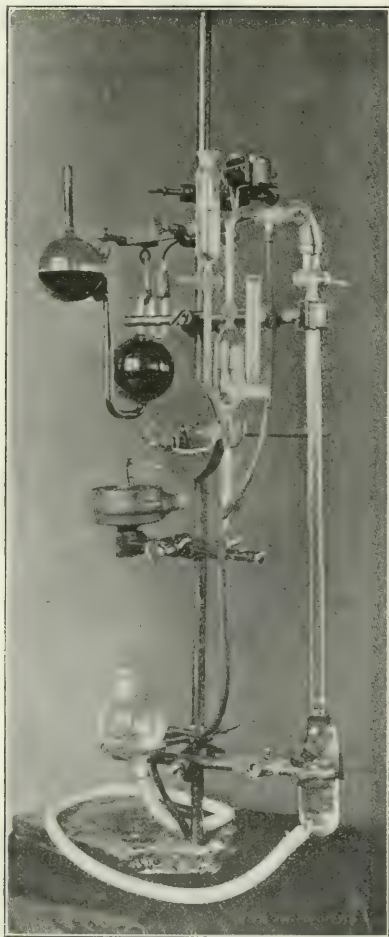


FIG. 2.—Futrie apparatus assembled for permanent use.

Hempel pipette one must be careful not to transfer the gases too rapidly, as the permanganate solution may squirt out of the upper bulb of the Hempel pipette. It is therefore advisable during the gas transfer to shut the cock 3 occasionally, when the permanganate rises too high in the upper Hempel bulb, and to shake the pipette for a few seconds, which causes the rapid (almost instantaneous) absorption of the gas. Having transferred all the gas into the Hempel pipette, as well as a small quantity

of the distilled water from the burette *D* (about 0.5 c. c.) the stopcock 3 is shut and the Hempel pipette is shaken for two minutes. This enables the permanganate to absorb everything but the amino nitrogen and the gas adherent in the acetic acid sodium nitrite solution. The water bulb is now lowered and stopcock 3 is permitted to communicate with the Hempel pipette, which causes a rapid return flow of water gas and permanganate solution into *D*. In permitting the return of the gas into *D* it is important to gather all the gas present in the bulb; this is accomplished by permitting a few tenths of a cubic centimetre of the permanganate solution to flow into the burette *D* and is to be deducted from the final reading. The stopcock 3 is turned neutral and the water bulb is raised on a level with the column of water in the *D* and the quantity of gas read off. From this quantity is deducted the amount ascertained for the unabsorbable gas present in the nitrite solution, the remainder is representative of the amount present in 2.5 c. c. of serum. In order to express this amount in milligrammes of amino nitrogen the quantity obtained must be calculated first for one c. c. of serum and then multiplied by a factor which corrects the result for the variations of temperature and pressure according to the chemical laws governing the behavior of gases. This factor is obtainable from Gattermann's tables, which were given in the first installment of this work. (Same title as this communication, NEW YORK MEDICAL JOURNAL, June 7, 1913.)

We consider an amino nitrogen content in the serum as normal when the amount obtained in 100 c. c. is 2.8 milligrammes or more. More than 2.3 milligrammes and less than 2.8 milligrammes is considered doubtful, and any amount less than 2.3 milligrammes is considered as significant of syphilis when the Wassermann reaction is also positive. The report of our present series of cases will be scheduled in six groups. The material comprising these various groups, with their respective diagnoses, treatments, spinal fluid findings, and remarks, will be given in the following tables:

#### GROUP I.

##### *Lues Clinically Absent (Untreated). Serum Wassermann Reaction Negative.*

Case.	Diagnosis and remarks.	$\text{NH}_3\text{N}$ in 100.
Pom.—	Mother gave positive Wassermann reaction in serum.	1.114
Lay.—	Traumatic hysteria.	5.570
Sp.—	Sciatica; spinal fluid normal.	3.342
Osg.—	Facial tic.	4.456
Nek.—	Arthritis.	3.342
Pen.—	Osteoarthritis.	4.450
Sil.—	Family amaurosis.	2.29
Pom.—	Mother of boy with spastic paraplegia.	6.244
Pom.—	Father of boy with spastic paraplegia.	3.342
Gat.—	Hemiparesis; otitis media chronica.	6.687
Svt.—	Antioxistoxation.	4.452
Con.—	Gastric neurosis.	3.333
Gar.—	Neurasthenia.	4.446
Rez.—	Cerebellar pontine tumor.	1.60
Kor.—	Myrioceros.	4.446
Ros.—	Acromegaly.	7.782
Com.—	Cerebral hemorrhage.	4.446
Mac.—	Psychoneurosis.	3.204
Hel.—	Arthritis.	3.321
Mac.—	Pes planus.	4.406
Sti.—	Sexual neurosis.	5.530
Alk.—	Neurasthenia.	6.516
Xov.—	Sciatica.	4.518
Hel.—	Sciatica.	4.518
Bro.—	Cardiovascular disease.	4.518
Si.—	Sexual psychoneurosis.	3.458
Hym.—	Gastrointestinal disease.	3.458
Gen.—	Cephalic.	3.458
Kat.—	Traumatic neurosis.	3.063
Zre.—	Psychasthenia.	5.043
Gen.—	Chronic alcoholism.	6.182
Gre.—	Rheumatic arthritis.	4.154



Tue.—Friedreich's ataxia	6,152	Tue.—Anxiety neurosis	1,795
Bel.—Schub's spastic spinal paralysis	5,040	Ch.—Dystonia	8,819
Mrs. A.—Husband contracted lues ten years ago	2,979	Ogr.—Optic atrophy	5,514
Ba.—Torticollis	4,691	Fil.—Atherosclerosis	1,421
Gol.—Arthritis deformans	5,010	Sw.—Ecthyma of face	2,145
Wil.—Paralysis of right abductus	6,232	Tot.—Multiple sclerosis	3,994
Car.—Cardiovascular disease	6,232	Ow.—Epilepsy, no lues	3,998
Gul.—Inebriety	5,485	Boy.—Syngonychia, Sp. Fl. normal; W. R. one month later negative	1,886
Har.—Chronic nephritis	4,870	Alm.—Constitutional inferior	4,732
Gla.—Neurasthenia	5,092	The analysis of this group shows that the amino nitrogen group gave the desired information in 75 per cent. of cases while the W. R. proved positive, although clinically no lues could be demon-	
Hys.—Hysteria	3,986	strated.	
Mon.—Delirium tremens	5,160	Amino nitrogen diminished in 3 cases or..... 25 percent	
Bel.—Disseminated sclerosis	6,087	Amino nitrogen normal in 9 cases or..... 2 percent	
Han.—Paralysis agitans	8,369	Amino nitrogen doubtful in 6 cases or..... 6 percent.	
Den.—Pseudobulbar palsy	2,160	GROUP 3.	
Kar.—Chronic arthritis	6,258	Lues Clinically Present (Untreated) Serum Wassermann Reaction —	
Ryt.—Chronic arthritis	6,427	Sp. Fl. (spinal fluid); W. R. (Wassermann reaction);	
Nem.—Gonorrheal vaginitis	6,087	Glob. (globulin); C. S. (cerebrospinal).	
Hor.—Anxiety neurosis	1,199	Cases.	
Mar.—Hydrocephalus	4,257	Diagnosis and remarks.	
Gum.—Spinal cord lesion	4,188	Led.—Tables, Sp. Fl. 100 cells per cmm. Rest normal.....	
Hof.—Hypothyroidism	3,283	Mor.—Tables, Sp. Fl. 270 cells per cmm. Rest normal.....	
McD.—Disseminated sclerosis; spinal fluid normal	3,128	Rot.—Tables, Sp. Fl. 10 cells per cmm. Rest normal.....	
We.—Achyia gastrica	3,128	Wen.—Tables, Sp. Fl. not analyzed.....	
Dar.—Multiple sarcomatosis	3,128	Cel.—Tables, Sp. Fl. not analyzed.....	
Cri.—Husband has general paresis	3,140	Jon.—Tables.....	
Fie.—Psychoneurosis	4,235	Fan.—Tables, incipient.....	
Psi.—Emphysema	10,617	Ost.—Tables.....	
Hor.—Brain tumor	3,951	Kap.—Tables.....	
Mof.—Manic depressive insanity	2,242	Wei.—Tables, exulmative.....	
Jay.—Anxiety neurosis	3,312	Man.—Taboparesis, Sp. Fl. W. R. + 170 cells, Glob. +.....	
Rhe.—Rheumatic arthritis	3,383	Gae.—Tables, Sp. Fl. W. R. + 131 cells, Glob. +.....	
Wag.—Anxiety neurosis	5,010	Wen.—Tables, Sp. Fl. W. R. + 88 cells, Glob. +.....	
Sic.—Hyperacidity	1,174	Pee.—C. S. lues, Sp. Fl. W. R. + 21 cells, Glob. +.....	
Rul.—Epilepsy	4,165	Joh.—C. S. lues.....	
Sch.—Paresis of the frontal bone	3,879	Sol.—C. S. lues, Sp. Fl. W. R. — 70 cells, Glob. —.....	
Roe.—Cerebral vascular disease	1,066	Cam.—General paresis, Sp. Fl. W. R. + 32 cells, Glob. +.....	
Kin.—Spinal thrombosis; spinal fluid negative	2,785	Cri.—General paresis, Sp. Fl. W. R. + 40 cells, Glob. +.....	
Mid.—Otitis media; spinal fluid negative	4,215	Sei.—General paresis, Sp. Fl. W. R. + 26 cells, Glob. +.....	
Sch.—Subacute endocarditis	3,199	Lie.—General paresis.....	
Car.—Traumatic transverse myelitis	3,929	Beck.—General paresis, Sp. Fl. W. R. + 81 cells, Glob. +.....	
Fab.—Brain tumor	2,127	Sul.—Lues three years ago.....	
Ste.—Cerebral thrombosis	3,929	Mey.—Lues five years ago.....	
Has.—Arthritis	2,112	Rog.—Lues and nephritis.....	
Ans.—Anxiety neurosis	3,656	Dr. P.—Lues three years ago.....	
Mag.—Husband luetic	5,679	Wax.—Cerebral gumma, W. R. weakly plus.....	
Hem.—Epilepsy	1,507	Sch.—Congenital lues.....	
Reg.—Combined sclerosis	5,405	Ter.—Tertiary lues.....	
Fel.—Brain tumor	6,266	Eno.—Luetic skin.....	
Con.—Hysteria	5,405	Cha.—Luetic epilepsy.....	
Bro.—Gonorrhea	4,523	Dum.—Meningomyelitis, lues fourteen years ago.....	
Dr. J.—Arthritis	1,938	Har.—Contracted lues from husband.....	
Pla.—Migraine	8,861	Ren.—Luetic arthritis.....	
Con.—Constitutional inferior	3,061	Wak.—Luetic leptonemiasis.....	
Swi.—Achyia gastrica	3,446	Gae.—Tables, Sp. Fl. W. R. + 131 cells, Glob. +.....	
Ste.—Wife suffers from lues	3,446	Han.—Tables, Sp. Fl. W. R. + 46 cells, Glob. +.....	
Ned.—Multiple sclerosis	4,451	Lef.—Tables.....	
Gin.—Osteomyelitis due to gonorrhea	3,875	The amino findings are as follows:	
Sim.—Hemiplegia; spinal fluid normal	4,808	Amino nitrogen diminished in 36 cases or..... 90 per cent.	
Fen.—Severe secondary anemia	4,808	Amino nitrogen normal in 3 cases or..... 75 per cent.	
Gae.—Occupation neurosis	1,754	Amino nitrogen doubtful in 1 case or..... 25 per cent.	
Msk.—Pelvic disease	3,003	GROUP 4.	
Day.—Flat foot	4,278	Lues Clinically Present (Untreated) Serum Wassermann Reaction —	
Hem.—Puella	3,314	Sp. Fl. (spinal fluid); W. R. (Wassermann reaction); Glob. (globulin);	
Fri.—Sciatica	3,151	+ (positive); — (negative).	
Sim.—Acroparesthesia	5,895	Cases.	
Gas.—Occupation neurosis	5,636	Diagnosis and remarks.	
Gly.—Alcoholic neuritis	4,573	Mat.—Cerebral thrombosis luetica.....	
Aro.—Arthritis	1,287	Cae.—Luetic history.....	
Hal.—Alcoholic neuritis	3,675	Aug.—Tables.....	
Dia.—Spondylitis tuberculosa	4,752	Soc.—Mucous patches.....	
Ket.—Spondylitis rhizomelique	4,087	Sta.—Lues three years ago.....	
Tic.—Gonorrheal neuritis	3,554	Hof.—Tables, Sp. Fl. W. R. + 59 cells, Glob. normal.....	
Par.—Paralysis agitans	5,277	Or. S.—Lues ten years ago.....	
Win.—Constitutional inferior	4,206	Que.—Lues two and a half years ago.....	
Sim.—Acroparesthesia	4,615	Tob.—Tinnitus aurium.....	
Kon.—Gonorrheal arthritis	5,023	Woo.—Tables, Sp. Fl. W. R. +, Glob. +, 33 cells.....	
Rea.—Pelvic disease	8,815	Man.—Suspected lues.....	
Ryh.—Hemiplegia	2,400	Hal.—Luetic osteomyelitis.....	
Wed.—Neurasthenia	1,072	Hal.—Lues cerebrospinalis.....	
Rea.—Manic depressive insanity	3,646	Fin.—Systemic lues.....	
May.—Pulmonary tuberculosis	1,287	Han.—Lues; Sp. Fl. normal.....	
Ous.—Multiple sclerosis	3,222	Ogr.—Luetic history.....	
Alv.—Cerebral embolism	2,148	Pot.—General paresis.....	
Isa.—Epilepsy	6,014	Kro.—Cerebrospinal lues.....	
Bel.—Multiple sclerosis W. R. twice plus; no better after three intravenous injections of "606" and iodides.	4,206	Joh.—Vascular cerebral disease, luetic.....	
Gul.—Diagnosis not made	4,206	Kon.—Lues?.....	
Roq.—Alcoholism	4,206	Han.—Tables, Sp. Fl. W. R. +, Glob. +, 32 cells.....	
Rah.—Arthritis	3,646	Sna.—Tertiary lues.....	
Rah.—Hip dislocation	1,072	Tot.—Tertiary lues, Sp. Fl. +, 26 cells.....	
Kir.—Diagnosis indefinite	2,163	Rom.—Luetic hip.....	
Res.—Tic	1,072	Mas.—B. Interstitial keratitis.....	
The amino results are as follows:		Bac.—Tables, Sp. Fl. +, 41 cells.....	
Amino nitrogen diminished in 20 cases.....		Pie.—Systemic lues.....	
Amino nitrogen normal in 8 cases or.....		Nov.—Tables.....	
Amino nitrogen doubtful in 3 cases.....		Was.—Tables, eight years ago.....	

## GROUP 2.

Lues Clinically Absent (Untreated) Serum Wassermann Reaction Plus.  
Sp. Fl. (spinal fluid); W. R. (Wassermann reaction).

Cases.	Diagnosis and remarks.	NH <sub>2</sub> N in 100 parts.
Gas.—Progressive muscular atrophy		3,204
Hom.—Rheumatic arthritis		6,152
Ano.—Traumatic neurosis		3,927

The amino findings are as follows:

Amino nitrogen diminished in 26 cases or.....	77 per cent.
Amino nitrogen normal in 6 cases or.....	23 per cent.
Amino nitrogen doubtful in 0 cases.	

## GROUP 5.

*Lues Clinically Present (Treated), Wassermann Reaction +.*  
606 (salvarsan); 914 (neosalvarsan); Hg. (mercury);  
W. R. (Wassermann reaction).

Cases.	Treatment and remarks.	NH <sub>4</sub> N in 100 parts.
Caf.—Lues clinically present.	Many 606 and Hg. W. R. +	3.204
Kie.—Lues.	Three 914 intravenous injections.	7.592
Nea.—Cerebrospinal lues.	Many 606 and Hg.	1.126
Col.—Same as above.	W. R. +	0.777
Pal.—Cerebrospinal lues.	Six 914 intravenous injections.	0.913
Bae.—Systemic lues.	Much Hg.	2.490
Al.—Cerebrospinal lues.	606. Sp. Fl. normal.	2.444

Amino findings are as follows:

Amino nitrogen diminished in 4 cases or.....	57 per cent.
Amino nitrogen normal in 2 cases or.....	28.6 per cent.
Amino nitrogen doubtful in 1 case or.....	14.4 per cent.

## GROUP 6.

*Lues Clinically Present (Treated), Serum Wassermann Negative.*  
606 (salvarsan); 914 (neosalvarsan); Hg. (mercury);  
Sp. Fl. (spinal fluid); C. S. (cerebrospinal).

Cases.	Treatment and remarks.	NH <sub>4</sub> N in 100 parts.
Hat.—C. S. lues.	Much 606. Sp. Fl. +, 91 cells.	4.469
Dod.—Systemic lues.	Many Hg. injections.	5.022
Fin.—Tables.	Four 914 intravenous injections.	5.530
Bin.—Tables.	Three 914 intravenous injections.	4.408
Blu.—Lues thirty-two years ago.	Sp. Fl. normal.	1.086
Sm.—Lues ten years ago.	Four 914 injections.	4.712
Mat.—Tables.	Nineteen 606 and 914 injections.	1.795
Vol.—Tables.	606.	1.771
Jon.—Old lues.	606.	2.599
Tis.—C. S. lues.	Well treated.	5.166
Mat.—Tables.	606.	6.087
Dr. S.—Lues six years ago.	606.	1.495
Att.—Lues at eighteen.	Epileptic. Sp. Fl. normal.	0.486
Mar.—Old lues.	606.	0.962
Hav.—C. S. lues.	Three 914 and Hg.	5.095
Ode.—Cerebral endarteritis luetica.	606 and Hg.	4.415
Fox.—C. S. lues.	606.	3.876
Mrs. T.—Lues.	Much Hg.	0.858
Mrs. M.—C. S. lues.	606.	5.440
Hof.—C. S. lues.	Three 914 injections.	3.544
Nea.—C. S. lues.	606.	0.868

The amino findings are as follows:

Amino nitrogen diminished in 8 cases or.....	38 per cent.
Amino nitrogen normal in 13 cases or.....	62 per cent.
Amino nitrogen doubtful in 0 cases.	

A résumé of the amino findings giving the results at a glance are embodied in the following table.

## GROUP 1.

Lues clinically absent, untreated, Wassermann reaction —, 117 cases.	
Amino nitrogen diminished in 20 cases or.....	17.6 per cent.
Amino nitrogen normal in 94 cases or.....	80.3 per cent.
Amino nitrogen doubtful in 3 cases or.....	2.1 per cent.

## GROUP 2.

Lues clinically absent, untreated, Wassermann reaction +, 12 cases.	
Amino nitrogen diminished in 3 cases or.....	25 per cent.
Amino nitrogen normal in 9 cases or.....	75 per cent.

## GROUP 3.

Lues clinically present, untreated, Wassermann reaction +, 40 cases.	
Amino nitrogen diminished in 36 cases or.....	90.3 per cent.
Amino nitrogen normal in 3 cases or.....	7.5 per cent.
Amino nitrogen doubtful in 1 case or.....	2.5 per cent.

## GROUP 4.

Lues clinically present, untreated, Wassermann reaction —, 32 cases.	
Amino nitrogen diminished in 23 cases or.....	77 per cent.
Amino nitrogen normal in 6 cases or.....	23 per cent.
Amino nitrogen doubtful in 0 cases.	

## GROUP 5.

Lues clinically present, treated, Wassermann reaction +, 7 cases.	
Amino nitrogen diminished in 3 cases or.....	57 per cent.
Amino nitrogen normal in 2 cases or.....	28.6 per cent.
Amino nitrogen doubtful in 2 cases or.....	14.4 per cent.

## GROUP 6.

Lues clinically present, treated, Wassermann reaction —, 21 cases.	
Amino nitrogen diminished in 8 cases or.....	38 per cent.
Amino nitrogen normal in 13 cases or.....	62 per cent.
Amino nitrogen doubtful in 0 cases.	

The lesson that the above exposition teaches can be summarized in a few words, i. e., that a positive Wassermann reaction in a patient without lues can be checked by the estimation of the amino nitrogen in the serum. This is particularly evident in the series of cases in group 2. The number is luckily very small, nevertheless unpleasant consequences to the patient are very prone to happen if they are permitted to carry away the diagnosis based on a faulty or incorrect positive Wassermann reaction. The question is in order as to the significance of the three cases in group 2, who also gave a diminished amino content. We believe that the safest procedure would be to use less serum (0.1 c. c.) and repeat the entire test, using freshly obtained blood. If the result is again positive, we are inclined to regard the positive result as expressive of syphilis,

even though no clinical manifestations of its presence could be detected. In the laboratory of the Neurological Institute all questionable reactions are controlled by an amino determination.

30 BECKMAN PLACE.

## THE AUROMETER.

*An Instrument for the Exact Recording of Hearing and the Determination of Progress in the Treatment of Various Conditions of Deafness.*

By M. LUBMAN, M.D.,

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Chief Assistant in Ear, Nose, and Throat Department of  
Har Moriah Hospital.

The treatment for chronic nonsuppurative otitis media with deafness, tinnitus, etc., is to remove any mechanical or pathological obstruction that may interfere with the proper ventilation of the middle ear. Having accomplished this, we use local application to the Eustachian tubes, also vibration and inflation. The objects of vibration are: 1. To draw the sunken drum outward; 2, to break off adhesions of the ossicular chain; and, 3, to improve the circulation of the parts. The objects of inflation are: 1. To clear the Eustachian tubes from blocked secretions; 2, to break off newly formed adhesions between the ossicles; 3, to push the drum outward; and, 4, to restore the normal tension between the drum head, ossicles, and the intralabyrinthine fluid. It would seem then that vibration and inflation could serve as specifics for this disease; their use, however, is dependent upon the improvement, for if there is no improvement after the third visit, inflation should not be further attempted, as it is then absolutely contraindicated and injurious.

We are guided in the use of inflation in a given case by the tests that are at our command, which are supposed to register whether there is any improvement or not.

The tests are subjective—asking the patient if there is any improvement—and objective, the voice, whisper, watch, and the tuning fork.

Upon careful examination, however, these tests are unreliable, for we cannot depend too much



FIG. 1.—A circular headband adjustable by a thumbscrew to fit any size of head.

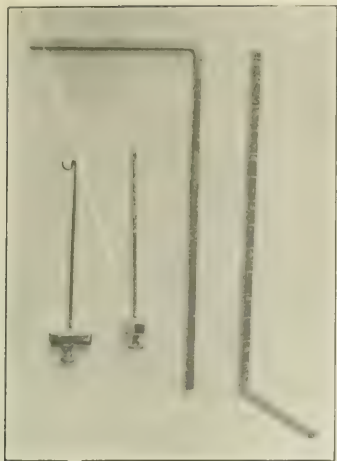


FIG. 2.—Fig. 2, two angular bars graduated in one half inch. Fig. 3, sliding upright pieces controlled by a thumbscrew with a small hook at the top to suspend a watch.

upon the patient's statements, for the patient may assert that he hears perfectly in one ear, while the hearing of the other is greatly impaired; but a careful test of the ear which the patient believes is normal will often cause the examiner to wonder at the statement, so greatly impaired will the function of this ear be found. The impairment of function may also vary in many cases according to the state of weather and the general health of the individual.

The voice and whisper may vary in distance from the patient's ear from the first to the second visit, as well as in pitch and in intensity. The watch will also vary in distance from the patient's ear from time to time. The tuning fork is of service to locate the disease, but it cannot inform us whether there is any improvement, for the patient may hear  $C_2$  at the first as well as at the second and third visit. Therefore something accurate is necessary to register the improvement of the case by which we may be guided as to the use of inflation. I wish, therefore, to offer the aurometer, which is

very simple in its construction and is able to register improvement to a fraction of an inch.

The aurometer consists of circular headband adjustable by a thumbscrew to fit any size of head (see Fig. 1). At the sides of this headband, opposite the ears, are extended two angular bars graduated in  $\frac{1}{2}$  inches (see Fig. 2, B). On each bar is a sliding upright piece (c) controlled by a thumbscrew and with a small hook at the top to suspend a watch; the watch will be in the exact line of the external canal (see Fig. 3). As you will see in Fig. 1, the headband has two eye shields to obstruct patient's vision, for obvious reasons. It is preferred that the watch should hang on a string from the hook, as it will prevent a solid contact of watch with the instrument to transmit vibrations.

It is by moving this sliding upright with the watch that gives us accurate data of the progress of the case.

78 EAST FOURTH STREET.

## A TEST FOR ADULT IMBECILES AND SIX YEAR OLD NORMALS.

BY HOWARD A. KNOX, M.D.,

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Assistant Surgeon, United States Public Health Service.

The average brain at each age during the developmental period of life is capable of a definite amount of mental effort and has the power to solve problems of a given complexity, just as each glass graduate from ten cubic centimetres to a litre is capable of holding a certain definite amount of fluid.

Now, knowing this, we say that a brain with insufficient ability to solve a problem (without previous training) of the proper complexity for its physical age is a defective one, and we classify the possessor according to the point in life where his mental development was arrested. Thus, if he develops not at all or but little, he falls into the idiot class; if he reaches one year of mental life and stops, he is a low grade imbecile; if he reaches six or thereabouts, he is said to be an imbecile, or, as some say, a high grade imbecile; if he stops at eight, he is said to be feeble-minded; and if he does not pass the age of twelve mental years and he is in body four or more years older, he is said to be a moron or higher feeble-minded. Among educated persons the Binet-Simon test is an excellent means of classification, but in working with illiterates and their children, performance tests that demonstrate native ability and which presume no previous instruction, are better. The tests herein described are meant to meet this indication. In fact all the tests in use at Ellis Island are adapted and standardized for use in working with those in whom no scientific effort at teaching has been previously attempted.

The author's imbecile test, in addition to being of value in diagnosing adult imbeciles, is of value as a test for six year old normals, provided that in childhood they have not been in the habit of playing with similar contrivances. A normal child at the usual time of entering school (six years) should be



FIG. 3.—Patient with instrument attached.



able to perform the test in less than one minute and thirty seconds with not over three "false moves" and one "mistake"; this was the average experience with twenty-five six year olds, who conformed to the Binet-Simon standards for that age.

The judgment of size and form should be a mental process entirely in the case of normal children



FIG. 1.—The author's "imbecile" test; one model made up and the other with pieces removed; size 6x8 inches, and  $\frac{3}{4}$  inch thick.

by normal six year olds. When all the blocks are out of the frame, no obvious space is apparent for the circular section, 5, and to normals there are only two possible spaces where it can go, the centre and in the space for section 4. Attempting, therefore, to put 5 anywhere else would constitute a false move and should be recorded as such.

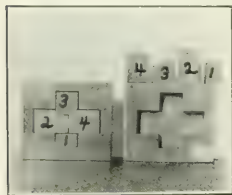


FIG. 2.—The author's "moron" test; one model made up and the other with pieces removed; size 4x5 inches and 1 inch thick.

porting results. In our classification of imbeciles the number of false moves and mistakes are disregarded in this test, and those who in ten minutes cannot put the sections in their proper places are said to have qualified, in part at least, for the imbecile class, provided they have no physical disability that might interfere with the performance of the test, such as defective vision or paralysis.

This test is also used as an encouragement test at Ellis Island in working with suspected higher defectives, that is, it is given to them at the beginning of the performance test examination to inspire confidence, and to reassure them as to their ability to perform the more difficult performance tests suitable to their mental measure, of which the moron test shown here is an example. Experience with fifty subjects shows that illiterates and others who are ten years old or older should be able to put the four blocks in this moron test inside of three minutes and, furthermore, if the notched part of 2 be turned toward the space for 1 they should be able to correct this manoeuvre by turning 2 back toward 3 and completing the test by putting the other three

pieces in place; in other words, they should understand the puzzle and not perform it by accident. To be sure of this the subject should be made to perform the test three times in succession and later in the examination also.

## MYIASIS, OR FLY LARVÆ AS PARASITES OF MAN.

*With Report of a Case.\**

BY MICHAEL G. WOHL, M. D.,  
Philadelphia,

Demonstrator of Pathology and Curator of the Pathological Museum in the Medical Department of Temple University, Philadelphia.

That the infection of the human body by the larvæ of insects was known to the ancients seems certain by the mention that Homer makes of a man affected by a maggot. However, the first scientifically authentic cases seem to have been reported not earlier than in the sixteenth and seventeenth centuries. Thus, among the first, Leeuwenhoek (1687) speaks of a patient whose leg was infected by many small maggots, the species of which, however, were not ascertained. Hope, Chichester, Pickles, Sandberg, and Blanchard report cases of infection by beetle larvæ. The presence of the fly larvæ as parasites of man, first designated by Hope as myiasis, has been divided by subsequent investigators into myiasis interna or intestinalis, to describe the infection of the gastrointestinal tract by the larvæ; and into myiasis externa or dermatosa, to describe the occurrence of the larvæ on the skin, in the nares nasi, frontal sinus, etc.

The term myiasis, hitherto loosely used in literature, has been more scientifically employed in conjunction with the name of the species to denote the proper classification of these larvæ. Thus, myiasis intestinalis muscosa, or myiasis externa cecostoma. There is no doubt but that the field needs closer investigation, especially since the rapid advance of entomology enables us to properly designate the species. Among the dipterous insects, many families have been reported as having infected the human body with their larvæ. We shall, however, turn our attention to the study of some members of the family sarcophagæ or flesh flies, and especially to the fly *Sarcophaga sarra-cinæ* Riley. Early records are kept about this fly; Plutarch writes that in Persia criminals sentenced to death were exposed to perish by these flies. Kirby and Spencer mention the case of a beggar who was accustomed to place his surplus contributions between his shirt and skin. On one such occasion, having thus hidden some meat and lain down to sleep, the meat was consumed by a fly, probably of a species of the sarcophagidæ, and then his body was attacked. The man's breast was partly consumed, and death followed closely after transference to the hospital. (Kirby and Spencer, *Introduction to Entomology*, 1828; I, p. 738.) The flesh flies are said to be uncommonly numerous in Paraguay. Azara recites instances in which patients, after having bled at the nose during their

\*Read before the Pathological Society of Philadelphia, May 22, 1913.

sleep, were attacked by the most violent headaches, and did not feel any relief until large maggots—the offspring of flesh flies—were extracted.

The larvæ of these flies have also been frequently found in the ear. Dr. Walter B. Johnson, of Paterson, N. J., in an old number of the *Ophthalmological Record*, gives an account of the occurrence of maggots in the ear of one of his patients. The latter was an old, well nourished man, who suffered from a long existing suppurating otitis media in the left ear, which had been under observation for some time. When admitted to Doctor Johnson's infirmary an examination showed the external auditory canal to be filled with a mucopurulent discharge of considerable thickness, yellow in color, and excessively odorous. After removing this the tympanum was found to contain a large perforation, in which was noticed a white substance which was first thought to be exfoliated skin. Later the material was observed to move, and by using ear forceps the object was seized and instantly removed. It adhered to the mucous membrane with a force sufficient to cause some hemorrhage. The larva was recognized as that of the flesh fly. It was full grown, and just at the point of transformation. (Abnormal Entozoa in the Human Ear—*Ophthalmological Record*, 1892, I, p. 274.) How could we account for the particular situation of this larva? Doctor Lockwood suggests that it might have entered through the Eustachian tube when very young. Supposing the patient to have eaten cold tainted meat, and when a morsel was in his mouth to have coughed from some cause or other, or in some way to have dislodged a very young larva so that it was thrown onto, or near, the Eustachian tube orifice. The occurrence of larvæ of the flesh fly in the human ear forms one of the most disagreeable complications of cases of otitis media purulenta. The insect is guided by the sense of smell to its food, to the depository of its eggs, hence it is found generally in otitis media characterized by often offensive discharges.

The larvæ of the sarcophagæ were found in two cases under Doctor Blake's observation. There was an extensive destruction of the membrana tympani and profuse otorrhea. Symptoms were shown in an increased deep seated pain with the sensation of some motion within the ear. The discharge became blood streaked. The larvæ were seen as a whitish undulating mass filling the middle ear and the inner end of the meatus, and were extracted by means of forceps. Five larvæ were removed from each of the two cases. With the removal the pain and streaks of blood in the discharge ceased. (*Archives for Ophthalmology and Otolaryngology*, ii, 1872.) Mr. Ruthe (Wigm. *Handbuch der Zoologie*, 1832, p. 438) records the larvæ of the sarcophaga to have been discharged from an abscess in the ears of a man in Berlin on several occasions, though the imago is rather rare there. Doctor Taschenberg, in *Gesam. Naturg.* xxvi, 1870, reported a case of Doctor Eylan, who extracted two larvæ of the flesh fly from the ear of a boy of Merseburg, and he added that Mr. Brown wrote to him of similar cases that had occurred in Vienna.

Under favorable conditions the flesh fly may deposit its eggs in other places than in the ear.

Major James Kimball in the NEW YORK MEDICAL JOURNAL of 1893 reported the following case of myiasis of the nares:

CASE I. Private J. J. S., 18th Infantry; complained of pain in the forehead and orbits, anorexia and fever. His temperature taken under the tongue was 102.4° F. He was admitted to the hospital and given the usual treatment for fever patients, but the following morning he was much worse. During the night he had been delirious and sleepless at times, constantly tossing about and trying to get out of bed. He complained of intense throbbing pain at the root of the nose and over the frontal region. The nose and lower eyelids were red and swollen. There was a discharge of bloody serum, from the left nostril, with an offensive odor. Chloroform was given by inhalation, and all the larvæ that could be seen, about fifteen to twenty of them, were removed with a slender forceps, and then one drachm of carbolic oil was injected into the nostrils. The patient expressed great relief, but from time to time maggots were ejected in the act of sneezing or in the blowing of the nose. On September 21st the condition of the patient was worse than ever. Both eyes were closed by the swelling. Unremitting pain and sleeplessness were most distressing. Maggots escaped not only from the nose, but from the mouth as well when in the act of coughing. The fetor of the breath was extremely offensive. The velum palatinum was swollen to such an extent that deglutition was prevented. An injection was given of two drachms of chloroform (pure). The pain produced by the injection was allayed by injecting carbolic oil, and the nostrils were washed out by means of a postpharyngeal syringe with a ten volume solution of hydrogen dioxide. The effect was immediate and encouraging. Not less than a hundred dead larvæ were expelled, partly by syringing, partly by sneezing, by forcibly blowing the nose, and by coughing out those which came down through the posterior nares into the pharynx. On September 23d live maggots were again seen on looking into the left nostril, and the injection of chloroform was repeated for the third and last time. A score or more of dead larvæ were gotten rid of on this occasion. In all not less than three hundred maggots were ejected.

History. The patient said he had had catarrh since the last winter, and that for several months past the discharge had been offensive. The history he gave of the present illness was that on the afternoon of September 16th, about thirty-six hours before he had applied for medical aid, while asleep on a bench in the barracks he was awakened by a tickling sensation in the nose, which he thought was produced by a comrade with a straw. This, in all probability, was the time when the eggs or the larvæ were deposited by a fly within his nostril. The infection in this case proved to be caused by the sarcophaga.

The flesh fly is found very commonly around the butcher shops from about the first of March to the last of October.

Kimball, who reported this case, added that he obtained reliable information of seven cases of maggots in the nose (in addition to the one reported) occurring at Fort Clark and its vicinity, all of which except one proved fatal. Ozena existed in all patients. Attracted by the strong odor the fly enters the nostril when the victim is asleep to drop its living larvæ.

CASE II. Patient was a soldier and had pain in both head and face. When bleeding from the nose commenced, maggots were discovered in the right nostril. Treatment was unsuccessful and the man died. At the autopsy a great number of the maggots were found in the posterior nares and nasopharynx, some being free in these cavities and moving actively about, and others imbedded in the tissues.

CASE III. Soldier, admitted to hospital with neuralgia of left side of face and epistaxis. Committed suicide. Sarcophagæ (georginæ) were found in the left nostril and left antrum.

Of the rest of the cases meagre detail were gathered, and all but one proved fatal.

Herr Schneer reports a case of a patient, female; from an abscess of her nose he extracted numerous small maggots of the flesh fly, which occasioned much suffering. (*Archiv für Naturgeschichte*, 1853.)

Kuznezov in *Centralblatt für Bacteriologie, Parasitenkunde und Infektionskrankheiten*, I, xxv, p. 236, reports the following case:

CASE IV. July 25, 1893. Kirgise D., aged thirty-one years, of strong constitution. On admission the mucous membranes were pale. Temperature was  $38.3^{\circ}$  C. The patient complained of vertigo, headache, insomnia and anorexia, and constipation. Chief complaint was frequent epistaxis. On examination of the nose nothing abnormal was found. The patient, however, continued to complain of itching and pain in the nose. A five per cent. solution of boric acid was employed as a nose wash. The suffering of the patient was diminished. Later larvae of the genus *sarcophagæ* escaped from the nostrils. The fever subsided and five days later the patient was dismissed.

This disease deserves special mention because it is of rather frequent occurrence in Siberia among the nomad tribes. Portshinsky claims that infection by these larvae have been very frequent in Russia. Quoted by Gilberth (*Archives for Internal Medicine*, ii, 1908).

M. Legrande du Saulle reports a case of a child nine years old, who had the *sarcophagæ* in the frontal sinus. They were extracted through the nose. (*Comptes rendus hebdomadaire des séances de l'Académie des Sciences*, Paris, 1857, xlv, p. 600.)

The members of the *sarcophagæ* have also been found in the eye. Professor Grube (*Archiv für Naturgeschichte*, 1853, xix, I, p. 282) records three cases:

CASES V and VI. Two boys, aged four and twelve years, had slept in the open field. On awakening, they felt some pain in the inner angle of the eye. There followed inflammation, destroying the eye, and the physician extracted twelve to fifteen larvae nine lines long. Some of them were transformed into flies, which Professor Grube recognized as *sarcophagæ*.

The following case shows that if the conditions are favorable the *sarcophagæ* will deposit eggs in other situations than in those above mentioned:

CASE VII. A soldier who suffered from remittent fever, was also the subject of constitutional syphilis, which was manifested at this time by ulcers of the gums with a very offensive odor. For several days he was in a semiconscious state, low delirium, and while in this condition a fly deposited its larvae in an ulcer above the upper incisors. The nurse discovered them and they were removed, forty to fifty in number, by brush and forceps. (Kimball, *New York Medical Journal*, 1893, Ixii, p. 273.)

Dr. H. A. Hagen received from Wright, Canada, a larva of the genus *sarcophagæ* extracted from a swelling in the neck of a girl. In connection with this we might say that larvae of this family have been found in furunculoid swellings beneath the skin, in the vagina, especially where there had been a discharge. Undoubtedly many cases reported as the finding of larvae of dipterous insects were really of the genus *sarcophagæ*, but were either unrecognized or mistaken for another genus. Thus Hope reported and tabulated thirty-seven cases of myiasis by the muscæ which were recognized as the *Musca (Sarcophaga) carnaria*, Lin.

The following case came under the observation of the author:

A young man while on his vacation in a suburb of Philadelphia was suddenly seized with abdominal pain,

followed by a profuse diarrhea. On examination of the stools about a dozen small larvae were found. At the suggestion of Dr. Joseph McFarland some of the larvae were bred on meat, and in the course of twelve days were transformed into flies, which were identified by Mr. E. T. Cresson, Jr., of the Academy of Natural Sciences, as the *Sarcophaga sarcarinæ* Riley. After treatment by santolin and calomel no more larvae were expelled. Since then there has been no further indication of the infection. The stages of transformation were as follows: Larva, September 22, 1910. Pupa, September 27, 1910. Fly, October 4, 1910.

The above collected cases from literature show that human myiasis externa *sarcophagidæ* is not at all unusual. This case of myiasis interna *sarcophagidæ* however, appears to be sufficiently unusual to warrant its being reported. The method by which the intestinal infection takes place may be explained by the following observations: It has been noted that this fly deposits its living young on tainted meat and on the carcasses of fish or near it. Herms, in his experimental study of *sarcophagæ* in the Lake Laboratory, Ohio State University, also observed that the more moisture that is present in the fish, the greater is the number of young larvae deposited, and as soon as the liquids have been sucked from the accessible parts of the fish, the egg laying and depositing of young larvae ceases. Eggs and larvae are seldom, if ever, deposited upon fish that have become dry. (W. Herms—Experimental Study of *Sarcophagæ* with Relation to Lake Beach Débris, 1907.)

The *sarcophagæ* have also been observed by Howard (*Proceedings of the Washington Academy of Sciences*, 1900) to deposit eggs and larvae on exposed feces. Altogether ten cases where the larvae were captured on exposed feces were noticed by him. This species was also bred from excrement found in latrines at the camp of the district militia at Leesburg, Virginia, and it was also captured on feces at Marsh Hall, Maryland. This species seems to be common and widespread. (Howard, *Proceedings of the Washington Academy of Sciences*, 1900.)

Bouché found the larvae and eggs of the *sarcophagæ* in rotten vegetables. (*Proceedings of the Boston Society of Natural History*, 1881.) This shows the necessity of covering all eatables, especially meat, fish, and vegetables, with something to protect them against the deposition of larvae and eggs. Although this fly has been found in houses, its presence there, however, is accidental.

The life cycle of the fly is as follows: The young larvae, when hatched, at once eat into the softer parts, attacking the viscera and later consuming the muscular portions. The fish is eaten clear to skin and bone. On leaving the fish by migration the larvae immediately burrow into the sand below or close by the fish. After the imago comes out it starts for the nearest grass to unfold its wings, and thus becomes an adult fly.

I desire to express my appreciation of the constant interest and advice of Dr. Joseph McFarland, under whom this work was completed, and to acknowledge further the kindness of Mr. E. T. Cresson, Jr., for identifying the fly.

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## EXPECTANT SCHOOL DISEASES.

BY HAROLD B. WOOD, M. D., D. P. H.,

Providence, R. I.

School efficiency is dependent upon attendance and attention at school. Both these factors are more dependent upon the individual health of the scholars than upon their scholastic abilities or willingness to work. Ability and desire are greatly influenced by the physical condition and vigor making aptitude. It is the defective who becomes the weakling; the defective who becomes slothful, careless, inattentive and backward. The physically defective is prone to become mentally defective, and mental defectiveness leads toward moral deficiency.

Before a child is admitted to school he is examined for his scholastic fitness, and frequently thereafter he receives repeated examinations. A scholastic census is thereby taken of the school. The necessity of physical examinations to determine the conditions of the senses, brain, and body which are to undergo development has often been proven. Not alone is the taking of a health census a need, but the correct use of the information obtained is essential, that the little individual may be helped.

A school health census may be said to be comprised of two parts, a census or total enumeration of the physical defects of the scholars and a census of the various transmissible diseases. Each census is important and each should be obtained. Each varies year by year; the figures which represent the ratio of conditions tend to increase unless particular effort is taken to control them. Conditions of the home and the school influence the index of defects, but the widespread health control in the community largely affects the ratio of disease. From each census can be gleaned expectant results.

Poor school work is the expectant of a neglected defect census, poor attendance and broken classes result from lack of control of contagious diseases. So much work has already been done in discovering and correcting physical defects, that it is safe to state that in any school where medical examinations are not made and the existing defects corrected, there can be expected more or less of an increase of the defects, with backwardness, ignorance, disease, repetitions and waste of public funds.

A disease census of a school is the enumeration of the particular diseases which the school children have had during some specified time. The time herewith considered is all the time previous to the taking of the census. For the purposes of this article susceptibility is rather a historical than a physiological term. If a child has not had a particular disease he is herewith classed as being susceptible to it, an inference, however, which is not scientifically true. If a child has not had vaccinia or smallpox he is classified as being susceptible to variola. For the purposes of this article, and for school control of the infections, it seems safe to assume that when a child has had a disease he becomes immune from future attacks.

This would not be a safe assumption with diphtheria. It would be unsafe to consider that a case of diphtheria cannot become harmful when exposed

to immune children. There would be more or less danger of those children becoming carriers. After a diphtheria case has been discovered in school and isolated, it is advisable to determine the presence of any carrier who may have infected the excluded child, or became infected by him. But with the other communicable children's diseases the occurrence of a second attack is so uncommon, or the danger of an immune child becoming a carrier is so little, that for the purposes of the sane control of diseases in school the probability of such occurrences could safely be overlooked.

The disease census does not indicate absolute results, but simply indicates the approximate relative needs or attention due the scholars. Neither is there an absolute boundary line between conditions classified as physical defects and those accepted as normal or requiring no corrections. The census of past diseases is most reliably obtained from the parents, but this method has its objections. When the children are given blank cards to have filled out by the parents, the mothers are forgetful or do not understand the usefulness of the data or the children lose the cards. When the children are asked themselves in regard to their past history the answers are usually reliable, except with children in the first grade or with children of foreign extraction. Children and parents are apt to confound measles and German measles, and children are frequently sick of a contagious disease when a correct diagnosis is not made. These conditions vitiate the results of the census.

When diphtheria outbreaks in a school unless the carrier cases are discovered and eliminated a continuance of the outbreak can be expected, even though the patients be isolated and the room fumigated. Fumigation, at best, is of questionable service, and of little benefit if there still remain in the classes the children who are the carriers and distributors of infection. An indirect advantage of the school disinfection is that it compels the closure of the school for a while, during which time new cases have an opportunity to develop and become manifest, and hence are kept from school. After disinfection the room usually receives a good cleaning and airing, both of which are always needed.

A school census of diseases in a western town showed the following percentage of diseases which the school children had had at some time previous to the enumeration.

	June, 1912. Per cent. affected.	June, 1913. Per cent. affected.
Chicken pox .....	41	65
Diphtheria .....	5	4
Measles .....	71	79
Mumps .....	16	61
Rubella .....	22	—
Scarlet fever .....	24	29
Whooping cough .....	—	65
Variola .....	8	—
Vaccination .....	27	50

These figures include the classes from the first to the eighth grades inclusive, being a compilation of the diseases of 769 scholars in five schools.

A census taken of older scholars might show great variation from these figures. This percentage for scarlet fever is high owing to the presence of an annual epidemic of the disease for several years previous to 1913. The increase in mumps

was due to an outbreak of 354 known and uncontrolled cases among the school children. The percentage of immunity was raised from sixteen to sixty-one, if those children who had had mumps may be termed immune. An outbreak of measles in the same town, in which four tenths of the known cases were school children, influenced the census figures from seventy-one to seventy-nine. There were 156 cases among the school children. The increase in vaccination was the result of numerous talks by the health officer upon the subject. Compulsory vaccination is not legal in the state.

The disease census of one school may vary considerably from that of another. The great influencing factor is epidemics which may be local, varying in parts of the same city. A census of physical defects of different schools or of different localities is more or less uniform, for rural as well as urban schools. In many examinations of different schools throughout the Union, it has been shown that approximately twenty-five per cent. of the scholars have defective vision. But the percentage of children of an entire school who have had measles will vary considerably from the percentage obtained in another school or in another town. An outbreak in the school or a few cases will increase the disease ratio over that of the previous year. Conversely if there should be no outbreak of a certain disease among the scholars the disease ratio will decrease from year to year. This is due to the fact that the older scholars who had the particular disease have left school and the younger incoming school children have remained free of the infection, and hence lower the ratio of disease to susceptibility.

The proportion of susceptible children who will contract a disease upon a single exposure in a school room will vary considerably, being probably highest with measles and mumps. With the aforementioned measles outbreak the percentage of susceptible children who contracted the disease when the first infectious child appeared in the room was sixty-five per cent., seventy-seven per cent., and eighty per cent. in three first or second grade rooms; sixty-two per cent. in a third grade and one hundred per cent. (three scholars) in a fourth grade room. The percentage of susceptible children is greater in the lower grades, but is more dependent upon school than upon town outbreaks.

For the purposes of estimating probabilities the school census is useful. If a case of communicable disease appears in a school room it is of value to be able to judge of the probable damage which is apt to accrue. Again, examples may be permitted. In two classes within the same school building two cases of measles appeared about the same time. By the census it was learned that in one class of thirty pupils there were only three who had not had measles at some time previous. These three children promptly developed symptoms from the one exposure. To have closed the room would have been an injustice. None of the other children developed the disease. In the other room there were twenty-five susceptible children among thirty-five scholars. Of these twenty contracted measles from the same exposure.

When it is known that a school has suffered in

the past from several contagious diseases the probabilities of future interference of school work from this cause will be lessened. The teachers and the school board then will be justified in outlining a greater amount of work, and have the assurance of little interruption and a hope of completing their expectations. If, however, the health officer or school physician knows that the susceptible are many, more vigor and watchfulness must be employed to prevent the outbreaks which would almost invariably follow the careless exposure of a few cases. If the susceptibility to a disease, as scarlet fever, were high in a certain class, greater precaution should be taken than if most of the children had already had the disease. If the class had suffered severely from scarlet fever in the past, when a new case appears there would be less need to close the school for a week or two and to isolate every child at home. With few or no susceptible children in the class a health officer might be justified in permitting the attendance of a child of the same family in which is a case of scarlet fever, measles, mumps, and whooping cough. It would hardly be safe to permit a child from an infected household to remain in intimate contact with a large number of susceptible children. The apparent duty of those responsible for the health of the school children is to determine the susceptibilities of those children and to control them according to their dangers.

The period of exclusion from school on account of transmissible diseases may be influenced or determined by the results of a school disease census, unless definitely defined by law. With our present knowledge it is difficult to determine exactly when a case of scarlet fever ceases to be infectious. If a class from which a case comes is highly susceptible the class deserves the benefit of the doubt and the exclusion period should be long. It should probably be prolonged until near the end of desquamation, to give the throat ample time to clear. But if the census shows that nearly every child with whom the case would come in contact at school had had scarlet fever it would probably be much safer to return the child to school as soon as the throat had apparently become normal, and long before desquamation was complete. At this time the danger of transmission is slight, and it would be safer to have the child among his immune classmates than among the neighbors' susceptible children.

## A NEW APPARATUS FOR PROCTOCLYSIS.

BY WILLIAM D. MININGHAM, M. D.,  
Newark, N. J.

For a great many conditions it is desirable to introduce solutions into the rectum by the drop method. Each of the many devices for this purpose has its merits, but all are more or less faulty and very prone to get out of order. Most of them require the constant attention of some one to regulate the flow otherwise the solution will cease to flow or be expelled by the rectum. Nurses to whom this task is entrusted appreciate only too well the difficulties encountered in attempting to intro-

duce large quantities of fluids into the rectum. With most drop apparatus the water is cold when it reaches the rectum regardless of what the temperature may be in the container, unless hot water bags are used, which are objectionable for many reasons. A continuous flow of cold water into the rectum is not only undesirable but is less readily absorbed than when warm. From suggestions made by Dr. Edward J. Ill, I have had made an apparatus which has given us entire satisfaction. By means of this apparatus it is possible to introduce from four to eight ounces of a

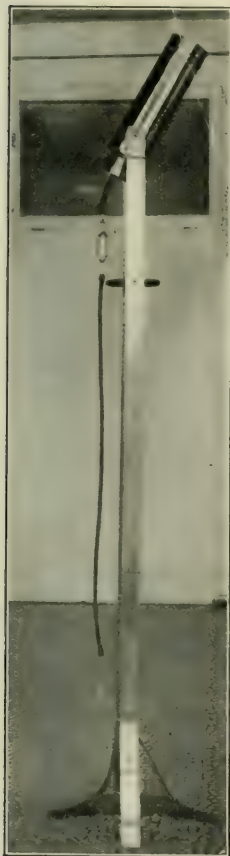


FIG. 1.—Apparatus complete.

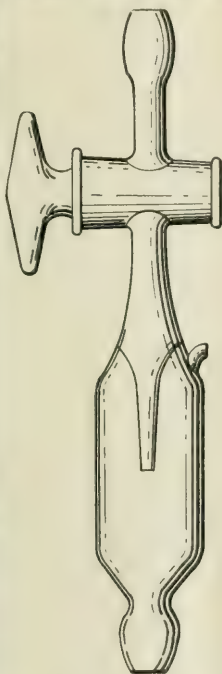


FIG. 2.—Dropper.

warm solution at a uniform temperature every hour without giving the slightest discomfort or soiling

of the bed, and with a minimum amount of trouble. The bottle need not be filled oftener than every five hours, depending upon the amount desired.

The apparatus<sup>1</sup> consists of a vacuum bottle with a specially fitted brass stopper containing an outlet tube for the fluid and an inlet tube for air extending to the bottom of the bottle. The bottle is mounted on a stand with outstretched legs for steadiness. The writer is well aware that the vacuum bottle has been in use for this purpose for some time. The dropper, however, is original and

has filled a long felt want. It consists of a glass barrel having an inlet tube with a stopcock attached and an outlet tube. The most important part of the dropper is the air vent which serves a double purpose. It not only eliminates any tendency towards a vacuum formation which would inhibit the flow, but also permits of the free expulsion of gases from the rectum without in any way contaminating the fluid in the container.

Next to venous infusion and hypodermoclysis, proctoclysis is the most valuable asset we possess in the treatment of shock and hemorrhage. It is a ready and efficient means of supplying fluids to the postoperative patient who is more or less nauseated and has usually been depleted of fluid by purgation. Inactive kidneys become active and toxins well diluted. Thirst is satisfied and a feeling of well being predominates. Drainage cases will drain and so rid the system of poisons which would otherwise be retained. We have frequently given peptonized milk by means of the dropper and have on many occasions seen patients tided over critical periods by furnishing a continuous supply of a readily absorbable material.

448 HIGH STREET.

### Therapeutic Notes.

#### Postoperative Treatment of Anal Fistula.—

Engel, in *Progrès médical* for April 26, 1913, reports good results from the use, after operation, of sitz baths in a solution of formaldehyde of varying strengths in water. Already on the day after the operation, while the patient's bowels are being kept locked up with opium pills, two sitz baths are given, each of twenty minutes' duration, with a two per cent. solution of formaldehyde. Later, the strength of the solution is gradually increased to eight per cent.; this percentage is generally attained on the tenth day after operation. At first the patient experiences a slight sensation of burning, but this soon disappears. The inflammatory process is rapidly brought under control as a result of the baths, and in most instances the operative wound is healed before the patient begins to go to stool. The same is true when the baths are employed after operations for hemorrhoids. In the case of anal fistula, the patient removes in the bath the wick previously inserted along the morbid channel; a dry dressing is applied after the bath. After Whitehead's operation the use of formaldehyde solution yielded most satisfactory results. The perianal catgut sutures were absorbed less rapidly after the baths than where these were not employed, and as a consequence the anal mucosa never became loose nor receded in the rectum. The postoperative treatment of fistula in ano was often markedly shortened through the use of these baths.

**Use of Opium in Incipient Gangrene.**—G. W. Gay, in the *Therapeutic Gazette* for July, 1913, points out that pain in the feet, and especially in the toes, of elderly people may be the initial symptom of an indolent ulceration which may terminate in gangrene. Most of the patients are victims of arteriosclerosis, and upon inspection of the limbs clear evidences of impaired local circulation will be

<sup>1</sup>Made by Louis Stilling, Newark, N. J.



found, such as a dark, purplish color, slow return of blood after pressure, altered sensation and temperature, and lack of distinctness of the tibial vessels. To improve the blood flow in the extremities and increase nutrition, besides relieving discomfort, opium has appeared to the author to be far more effective than any other agent. The initial doses should be small. Ordinarily the author begins with two or three drops of the tincture, deodorized or simple, night and morning. This may be increased by one or two drops every four to six days until some improvement is evident either in relief of the pain or in the appearance of affected parts. The moment this is noted, the dose is to be maintained, or perhaps lessened a little. The author has never had occasion to exceed twenty drops in divided doses in the twenty-four hours. One of his cases has taken ten drops daily for about two years with benefit and no harm. The drug has seemed to act as a tonic, like strychnine, except that the improvement was much more apparent under the opiate than under the strychnine.

The drug should not be left in the control of the patient, nor need he know what he is taking. The physician or some reliable person should have charge of the "drops," to insure the proper dose and due restriction of the amount taken. With good management the drug can be used indefinitely with benefit. The stomach and bowels are not disturbed to any extent. Large doses would defeat the objects of the method, besides bringing about habituation. Cases are reported by the author illustrating the favorable effects obtained from the use of the drug.

**Treatment of Pernicious Anemia.**—J. A. Stealy, in the *Lancet-Clinic* for February 15, 1913, recommends Croftan's plan of administering hydrochloric acid to all cases of pernicious anemia showing diminished gastric acidity. The stomach being considered in these cases as an inert sac with scarcely any digestive or propulsive function, rich food is poured into it and artificial digestants—chemically pure HCl and pepsin—added. Ten to fifteen drops of the acid are given in mucilage water a few minutes after each meal, and the dose repeated in thirty minutes. For the preparation of the mucilage water, which is employed to prevent injury to the gastric mucosa by the acid, one ounce (thirty grammes) of pulverized acacia to one quart (1,000 c. c.) of water is used. One half glassful of the mucilage water is used to each dose of the acid.

It is important to carefully regulate the dose of the acid, for if too little is given the patient will not reap the benefit of the treatment, while if too much is given he will not retain the acid. In cases of complete achlorhydria, twenty drops of the strong acid may be given, generally in two thirds of a glassful of the mucilage water, while in some cases where the hypochlorhydria is slight but five drops may be needed. The dose should be changed in each individual case from time to time, less of the acid being required as the patient improves and the gastric production of hydrochloric acid increases. It is unnecessary to make periodic examinations of the gastric contents for the purpose of regulating the dose. One can tell from the patient's symptoms

whether or not the dose is suitable. Excessive burning in the stomach or emesis after taking the dose is proof of the production of too great an acidity.

In addition to the acid treatment, the author administers sodium cacodylate daily by deep intramuscular injection, commencing with three quarter grain (0.05 gramme) doses, finally to reach a six grain (0.4 gramme) dose, and then gradually diminishing in frequency to every other day, every third day, etc. The diet is made a generous one, the various articles of food being prepared and served in the most appetizing way; psychotherapy is practised in the sense of giving verbal encouragement to the patient.

**Treatment of Seasickness.**—Auerbach, in *Semaine médicale* for June 25, 1913, is credited with the statement that to prevent or relieve seasickness a combination of caffeine, theobromine, and camphor is especially useful. The object of giving these remedies is, in particular, to overcome ischemia of the brain, which is believed to be an important factor in the production of seasickness. In adults, Auerbach prescribes 0.2 gramme (three grains) of camphor, together with 0.5 gramme (seven and a half grains) each of caffeine and sodium salicylate and of theobromine and sodium salicylate. It is necessary that these drugs be given in keratin coated capsules, in order that contact with the gastric mucosa, which would increase the nausea already present, may be avoided. Where a rapid effect is necessary, hypodermic injections of caffeine and sodium salicylate may be used. In particularly serious cases, moreover, intravenous injections of epinephrin might be of value.

**Codliver Oil with Iron and Iodine.**—C. Diete, in *Journal de Médecine de Paris* for June 28, 1913, is quoted as recommending a mixture prepared as follows: In a small flask are placed:

R Ferri redacti, .....	5i (4 grammes) ;
Iodi, .....	gr. cxxiii (8.2 grammes) ;
Etheris, .....	3iiss (70 grammes) .

The components are shaken up until the formation of iodide of iron is complete. There is then heated in an evaporating dish on a water bath:

R Olei morrhue, .....	5viiss (200 grammes) .
-----------------------	------------------------

Finally, after the burner has been turned out, the ether mixture is added to the oil and the product carefully stirred and then heated again to drive off the ether. After cooling, the mixture is filtered.

**Treatment of Acute Myocardial Disease.**—Sevestre, in *Paris médical* for July 5, 1913, is credited with the following combination, to be administered to children in whom the heart action becomes feeble or actual collapse supervenes in the course of infections such as diphtheria, typhoid fever, etc.:

R Caffeine, .....	ââ gr. xxv (1.6 gramme) ;
Sodii benzoatis, .....	ââ gr. xxv (1.6 gramme) ;
Spiritus sacchari, .....	3iiss (10 grammes) ;
Syrupi tulitani, .....	3iiss (50 grammes) ;
Aque destillate, .....	3ii (60 grammes) .

M. Sig.: One tablespoonful twice a day.

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## THE EARLY DIAGNOSIS OF INFANTILE SCORBUTUS.

Koplik urged, some time ago, the importance of an early diagnosis in infantile scorbutus. The importance of this statement is increasingly asserting itself. It is too often the lot of consultants to witness even advanced cases of the disease treated as instances of rheumatism, syphilitic epiphysitis, poliomyelitis, osteomyelitis, rachitis, purpura, infantile myxedema, and other disorders which include in their symptomatology one or more symptoms of scorbutus. De Sagher (*Annales de Médecine et de Chirurgie Infantiles*, VI, 1913, p. 165) recently referred to a number of patients in whom coxalgia, osteomyelitis and pseudoparalysis of syphilitic origin had been diagnosticated, and in one instance, as to the last named disease, by a highly competent pediatrician. This emphasizes sufficiently the need of avoiding the oversight committed by the practitioner who, according to Northrup, admitted in consultation that he had "clean forgotten infantile scurvy."

As urged by Hutinel, infantile scorbutus should always be thought of first in every case of painful paraplegia in an infant, even when a child shows any degree of uneasiness when its legs are touched or when there is any tenderness on handling. These

signs are usually first noticed when the babe is bathed. Even the paresis may not be noticeable, there being a voluntary tendency, in a child who has already learned to walk, to avoid doing so owing to the pain it causes. The latter is elicited especially when the pressure is exerted upon joints and bones, the tibiae for instance, the joints being perhaps slightly swollen. There is also a tendency to anorexia and anemia, the blood showing in some instances, marked hemoglobinemia, with corresponding reduction of the erythrocytes, and a failure to gain weight. Then may appear more typical signs of the disease: swelling or discoloration of the gums, ecchymoses, and hematuria. Either one of these phenomena may be the first to appear, however, along with the tenderness of the legs which is often taken for rheumatism or so called "growing pains." The swelling and purplish discoloration of the gums seldom appear unless there be teeth; when present as initial symptoms, they are often mistaken for difficult dentition and the gums lanced without, of course, the least benefit. On the whole, there is probably no disease which proves more misleading to the general practitioner; and it is probable that it is only regarded as a rare disease because it is very seldom recognized.

That infantile scorbutus is due to food deficient in materials needed by the child to carry on adequately the nutritional process is too familiar to require emphasis. Prominent as a cause, however, is exaggerated sterilization of the milk fed to the child. While sterilization at proper temperature cannot be definitely proved to deprive the milk of these properties (apart from its clinical effects) any degree of heat approximating the boiling point is known to be destructive to all the enzymes to which the milk owes its chemical properties. But this is not the only pathogenic factor; as stated by Crozier Griffith, the majority of infants with scurvy have been fed upon some proprietary food. This fact, the early symptoms mentioned, the age of the child—nearly always between the fifth month and the end of the second year—and finally, the wonderful curative effects of a change of diet and of fresh fruit juice, particularly that of the orange, are diagnostic features which should do much to prevent errors that entail a fatal issue in practically every instance.

## THE TREATMENT OF PUERPERAL FEVER.

The frightful ravages of puerperal septicemia, until recent years, constitute an appalling and oft told history, and it is a well attested fact that the propriety of abolishing all lying in hospitals on account of the great mortality resulting from it in them was at one time repeatedly discussed. Even

as late as 1879, Mayfair considered this a debatable question. The only excuse on the part of the medical profession for such a condition of affairs was the total lack of comprehension of the true causes of puerperal infection. Thanks to the labors of the great pioneers, Semmelweis and Sir James Y. Simpson in Europe, and Oliver Wendell Holmes here, and to a host of others since their time, the marvelous change we now witness has been brought about; and, instead of the aggregation of parturient women being considered a risk almost too great to be undertaken, it is found that the mortality in the best lying in institutions is considerably less than in general obstetrical practice. The statistics of puerperal fever have been often rehearsed, but it may not be uninteresting to glance for a moment at a few figures from New York city records. In the eight years from 1868 to 1875, inclusive, there were reported in the city (comprising the present boroughs of Manhattan and the Bronx) 1,947 deaths from this cause—an annual average of 278.14, or a monthly average of about 23.18. As during most of this period the population was considerably less than 1,000,000, only reaching that number in 1875, and the population is now over 5,000,000, it is necessary to multiply these amounts by at least five to compare them with the present mortality. Now, for ten ten years preceding 1912, the average annual mortality from puerperal fever was 330, a decrease of 158 from the decennial average. In 1912 there were only 147 deaths, or a monthly average of 12.25. During the first six months of 1913 the deaths amounted to 147, a monthly average of 24.5. At present, however, there is a weekly average of but three deaths from this cause, and if this should continue to the end of the year, it would bring the monthly average down to 18.75.

While, therefore, the mortality from puerperal fever has been markedly reduced in the last few years, it still remains larger than it should be, and the fact that in this city there are more deaths from it this year than last emphasizes the need of still further improvement in the manner of both prevention and treatment. At the meeting of the American Medical Association in 1912, in consequence of the expression of two widely divergent opinions in the discussion of a paper by Dr. T. J. Watkins on the treatment of puerperal infection, a committee was appointed to make a collective investigation of the subject. This committee, consisting of Dr. B. C. Hirst, of Philadelphia, Dr. R. L. Dickinson, of Brooklyn, and Dr. J. B. DeLee, of Chicago, made its report at the meeting this year, and it is now published in the journal of the association. From this we learn that the majority of accoucheurs and

surgeons consulted, clean out the septic uterus at once, though a very considerable number hold that it is safe to trust the expulsion of its infected contents to nature; some assisting this by mild measures such as antiseptic douches and packing. The experience of the minority has shown that ovarian remnants, even though infected, do not set up such dangerous conditions as was formerly supposed, and, moreover, there are many instances in which the infection is of such a nature, or the resistance of the patient so feeble, that the introduction into the system of the quantity of bacteria and toxins always resulting from curetting would prove fatal. This brings up the great desirability of distinguishing the benign from the pathogenic bacteria, but, as the committee says, we have as yet no method of making such a differentiation. Other points of interest brought out by the investigation were that quite generally the tampon is used to stop hemorrhage in infected cases (there being apparently little fear of greater absorption from damming up the infection), and that almost invariably it was emphasized that when the uterus has once been emptied it should not again be invaded by either finger or curette, while few would permit antiseptic douches.

#### THE TYPHOID FLY.

When all the evidence shall have been garnered the domestic fly will appear as the greatest offender known to the sanitarian. Not only is this pest a mechanical carrier of infection, but, as shown by recent experiments performed by V. Ph. Berezoff at the Institute of Experimental Medicine in St. Petersburg (*Roussky Vrach*, June 29, 1913), it harbors pathogenic bacteria in the interior of its body for long periods. This investigator obtained from the hospitals of St. Petersburg about 150 hibernating and frozen flies. After carefully disinfecting and washing the exterior, he dried the flies and made cultures from the contents of the intestinal tract. Powdered and emulsified flies were also injected into animals. By these methods, the author succeeded in isolating staphylococci, proteus and colon bacilli, streptococci, twenty-four varieties of nonpathogenic micrococci, a sarcina, twenty-five varieties of bacilli, two species of fungi, and some unidentified bacteria,—quite a formidable list. These bacteria, then, remained viable in the intestinal tract of the flies for four to five months. Another experiment performed by the author shows the menacing possibilities of the house fly still more forcibly. In the early spring, when the flies awake from their winter sleep, he fed a number of flies on cultures of pathogenic bacteria, the typhoid bacillus, the para-



typhoid, the pyocyaneus, streptococci, diphtheria bacillus, and the cholera bacillus. In the course of a week the flies, having laid their eggs, died. The dead flies were then allowed to remain for a month or more and then treated in the same manner as the hibernating flies. In each case a pure culture of the organism on which the fly was fed was obtained, with the exception of the diphtheria bacillus, the paratyphoid A, and the cholera bacillus. These experiments prove that the fly may act as a splendid incubator for pathogenic bacteria, retaining them in a living state for months. It would seem that the usual method of swatting the fly is not free from danger, as the bacteria in the intestines may thus become liberated. Dead flies should either be washed down into a sewer or else cremated, the latter being probably the preferable method.

### THE PSYCHOLOGY OF CROWDS.

In a section of his recent book, *The Psychology of Revolution* (Putnam's), Le Bon epitomizes the principles enunciated in his former work, *The Crowd, A Study of the Popular Mind*, and which he applies in the later work. Among these principles are: The man in the crowd is a very different being from the same man as an isolated individual; his conscious individuality vanishes in the unconscious personality of the crowd itself. Common passions and sentiments provoked by certain events are oftentimes sufficient to create the mentality of the crowd, which is entirely dominated by unconscious elements. Affirmation, contagion, repetition, prestige, constitute almost the only means of persuading crowds; reality and experience have no effect upon them. Their credulity is infinite; their sensibility is exaggerated; they are shortsighted, and incapable of responding to the influence of reason. The least excitement will lead them to act with the utmost fury. The man in the crowd becomes for the time being a savage, with all a savage's faults and qualities (good and bad), with all his momentary violence, enthusiasm, and heroism; such a man becomes a child with all its irresponsibility. In the intellectual domain the crowd is always inferior to the isolated unit. In crowds gestures and physical actions are extremely contagious.

It would seem, however, that in all his notable books devoted to the exposition of psychology of crowds, Le Bon has dwelt very little, perhaps not at all, on the physical mechanism underlying the phenomena with which he has so brilliantly dealt; such mechanism is, however, easily understood in medical science. In the crowd the conscious has

suffered inhibition, while the subconscious mentality has for the time being become supreme. The individual is in such deplorable circumstances precisely as one hypnotized; suggestion from without supplants the "kingship of all that is under one's hat" (to borrow Carlyle's noble expression); for the time being the nerve centres latest developed in human evolution—reason, judgment, selfpoise, intelligence—are shortcircuited; and the more primitive, fundamental, reflex ganglia, dominating the instincts and the emotions, are in control; the cerebrum has been debased, the spinal cord exalted. Le Bon has, as noted, well observed the contagious quality of gestures and actions in crowds. In the physical mechanism essential to such phenomena the action is suggested through the senses, a flow of blood, a congestion, is immediately determined to the motor area dominating the muscles concerned; and so all or at least many in a crowd at once duplicate the given act. Thus in the epidemic emotionalism characterizing some religious revivals those hideous movements, uncontrollable while strength remains by the Holy Rollers, the Holy Laughers, the Barkers, and the like are done in unison.

### SAFEGUARDING THE SALE OF BICHLORIDE TABLETS.

The Commissioner of Health of the City of New York has proposed for consideration two ordinances, one restricting the sale of mercuric chloride tablets to prescriptions, the other requiring that these tablets shall be sold only in the form of a triangle colored blue. This latter suggestion is the one put forth by the NEW YORK MEDICAL JOURNAL several months ago and we are pleased to see that it has commended itself to Commissioner Lederle. Several ill considered bills on the subject have been introduced in Congress. The National Drug Trades Conference, comprising representatives of all the national organizations interested in pharmacy, has been petitioned to take up this matter and will probably evolve some legislation which will safeguard the sale of this dangerous drug in a satisfactory manner. In the meantime manufacturers should refrain from offering it for sale in the uncolored discs which so closely resemble the remedies in tablet form which have such widespread popular use. An interesting note on the subject appears in this issue, in our department of Miscellany, which indicates that the present excitement on the subject is largely due to the sensational exploitation in the daily press of a comparatively small number of cases of poisoning.

## PRELIMINARY NOTE ON BEDBUGS AND LEPROSY.

David Thomson cites in the *British Medical Journal* for October 4, 1913, the reports made simultaneously by Long and by Sandes which state the finding of acid fast bacilli in a considerable number of the bugs fed on lepers, and he says that this leads to the presumption that these insects may play an important rôle in the spread of infection in this disease. Although Thomson has experimentally fed 105 bugs upon lepers, and has caught thirty-five from the beds of lepers, he has never been able to find a single *lepra bacillus* in any of the total of 140 bugs examined. Controls were run and were also free from acid fast bacilli.

### News Items.

**Changes of Address.**—Dr. Edward Jackson and Dr. William H. Crisp, to 318 Majestic Building, Denver, Colorado.

**The Harvey Society Lectures.**—The fourth lecture in the series will be given at the New York Academy of Medicine, on Saturday evening, November 20th, by Professor G. H. Parker, of Harvard University, on the Nervous System, Its Origin and Evolution.

**National Antinarcotic Meeting.**—The American Society for the Study of Alcohol and Other Narcotics will hold its forty-third annual meeting in Philadelphia on December 3d and 4th. Dr. Alfred Gordon, 1812 Spruce Street, is chairman of the local committee, and full particulars regarding the meeting may be obtained from him. Physicians and laymen are invited to be present.

**The Montefiore Home.**—The president and board of directors of the Montefiore Home have issued invitations to a reception to be held on the occasion of the dedication of the new buildings of the institution situated at Gunhill Road (East 210th Street) adjacent to Jerome Avenue, on Sunday, November 30th. The hours of the reception are in the morning from eleven to one o'clock, and in the afternoon from two to five.

**The Washington Society of Nervous and Mental Diseases.**—At the seventh annual meeting of this organization, held recently in Washington, D. C., the officers were all reelected as follows: President, Dr. Tom A. Williams; vice-president, Dr. W. M. Barton; secretary, Dr. W. M. Hough. The society has a limited membership, but welcomes all physicians and surgeons who are interested in neurology and psychiatry. It meets monthly, on the third Tuesday, at the Cosmos Club.

**Radiotherapy of Uterine Fibroids.**—At a meeting of the Section in Obstetrics and Gynecology of the New York Academy of Medicine, to be held on Friday evening, November 28th, addresses on the subject of radiotherapy of uterine fibroids will be delivered by Professor Krönig and Professor Gauss, of the University of Freiburg, Germany. The subject will be discussed by Dr. George C. Johnston, of Pittsburgh, Dr. George E. Pfähler, of Philadelphia, Dr. Lewis Gregory Cole, of New York, and others.

**County Medical Society Brings Suit against Proprietary Medicine Concern.**—The Medical Society of the County of New York has brought suit against Edward J. Woods, Inc., of New York, on the ground that this concern is practising medicine without a license by marketing a medicinal preparation labeled with an explanation as to how the remedy should be taken by patients suffering from the disease it is supposed to cure. The case has been called for a hearing in the Supreme Court, but has been adjourned to some future date. The County Medical Society has issued a warning to all other manufacturers of preparations similarly labeled that it intends to begin a wholesale prosecution of such interests, in the event that it is successful in its suit against the Woods concern.

**Sea View Hospital Opened.**—This new city institution for the treatment of tuberculosis, situated on Grymes Hill, Richmond Borough, was formally opened on November 12th. It has been in course of construction during the last three years, and when entirely finished it will have cost the city about \$3,500,000. There are eight buildings which furnish accommodations for one thousand patients. Dr. Edward S. McSweeney is superintendent of the new institution.

**Ohio Valley Medical Association.**—The following officers were elected at the annual meeting of this association held recently in Evansville, Ind.: President, Dr. A. D. Willmoth, of Louisville, Ky.; first vice-president, Dr. E. O. Smith, of Cincinnati; second vice-president, Dr. G. M. Young, of Evansville, Ind.; third vice-president, Dr. J. Riley East, of Indianapolis; secretary and treasurer, Dr. Benjamin L. W. Floyd, of Evansville, Ind. Next year's meeting will be held in Evansville.

**Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.**—Monday, November 24th, Section in General Medicine of the College of Physicians, North Branch of the County Society, and the Germantown Branch of the County Society; Tuesday, November 25th, West Philadelphia Medical Association; Wednesday, November 26th, County Medical Society; Friday, November 28th, Neurological Society, Northern Medical Association, South Branch of the County Society, and the board of directors of the Medical Club.

**Radium and Radioactivity.**—At a meeting of the Section in General Medicine of the College of Physicians of Philadelphia, to be held on the evening of December 15th, the programme will consist of a symposium on radium and radioactivity. The discussions will show the growing importance of radioactive substances in the treatment of disease, and both the scientific and practical sides of the subject will be considered. Among those who will participate in the discussions are Dr. Robert Abbe, of New York, and Dr. Howard A. Kelly, of Baltimore. A more complete programme will be issued later.

**Personal.**—Dr. Jay F. Schamberger has been appointed attending dermatologist to the Philadelphia General Hospital, to succeed Dr. E. S. Gans, who resigned recently.

Dr. Aaron Aiken has been appointed professor of bacteriology and pathology in the University of West Virginia, and William Henry Schultz, Ph.D., has been appointed professor of pharmacology and materia medica in the same institution.

Sir Rickman John Godlee, president of the Royal College of Surgeons of England, had the honorary degree of doctor of laws conferred upon him by Toronto University, at a special convocation of the university on November 5th.

**Clinical Congress of Surgeons of North America.**—The following officers were elected on Thursday, November 13, 1913: President, Dr. John B. Murphy, of Chicago; vice-president, Dr. George E. Armstrong, of Montreal; secretary, Dr. Franklin H. Martin, of Chicago; treasurer, Dr. Allen B. Kanavel, of Chicago; business manager, Mr. A. D. Ballou, of Chicago. The next meeting of the Congress will be held in London, England, the fourth week in July, 1914. A special committee was appointed to take up the work of the standardization of surgery. This committee is composed of Dr. Lewis S. McMurtry, of Louisville, Ky., chairman; Dr. Charles A. Peck, of New York; Dr. Henry P. Newman, of San Diego, Cal.; Dr. William L. Cousins, of Portland, Me., and Dr. Charles A. Davison, of Chicago.

**Anniversary Meeting of the Section in Laryngology and Rhinology of the Academy of Medicine.**—The fortieth anniversary of the Section in Laryngology and Rhinology of the New York Academy of Medicine, which was originally the New York Laryngological Society, will be celebrated on Tuesday evening, November 25th, in Hosack Hall. The exercises will consist of an address by the founder, Dr. Clinton Wagner; an address of commemoration and the presentation of a bronze tablet and memorabilia, by Dr. D. Bryson Delavan, and the address of acceptance by Dr. William Wesley Carter. The committee having the matter in charge is composed of the following members: Dr. D. Bryson Delavan, chairman, Dr. Thomas R. French, Dr. William K. Simpson, Dr. William Wesley Carter, and Dr. Cornelius D. Van Wagenen.

**Associated Physicians of Montclair, N. J.**—This association held its first meeting for the season on Monday, October 27th. The paper of the evening was read by Dr. Henry Dwight Chapin, of New York, on a Plea for a Broader Conception of Infant Feeding. A general discussion of the subject followed, among those participating being Dr. M. J. Synnott and Dr. J. F. Areson, of Montclair, and Dr. Henry L. Coit, of Newark. The next meeting of the association will be held on November 24th.

**American Association of Clinical Research.**—At the fifth annual meeting of this association, held in Chicago on November 7th and 8th, under the presidency of Dr. Frank H. Blackmar, of Chicago, the following officers were elected to serve for the ensuing year: President, Dr. Leonard K. Hirschberg, of Baltimore; first vice-president, Dr. Edgar B. Smith, of Detroit; second vice-president, Dr. George MacKenzie, of Philadelphia; registrar, Dr. J. D. Gibson, of Denver; secretary and treasurer, Dr. James Krauss, of Boston.

**New Haven County Medical Association.**—At the 120th semiannual meeting of this association, held in Waterbury recently under the presidency of Dr. Thomas M. Bull, of Naugatuck, the following officers were elected to serve for the ensuing year: President, Dr. Henry G. Anderson, of Waterbury; vice-president, Dr. P. W. Gailard, of Branford; executive committee, Dr. Charles S. Rodman, of Waterbury, and Dr. Max Mailhouse, of New Haven; censors, Dr. William Sheehan, of Meriden, Dr. W. F. Verdi, of New Haven, and Dr. Thomas M. Bull, of Naugatuck.

**The Hermann Knapp Memorial Eye Hospital.**—This institution has opened its new building at the corner of Fifty-seventh Street and Tenth Avenue, New York. It was founded in 1866 by the late Dr. Hermann Knapp under the name of the New York Ophthalmic and Aural Institute, and for forty-four years it has been in uninterrupted activity at 44 and 46 East Twelfth Street. On the occasion of its removal to a new building in a new location, the board of trustees decided to change the name of the institution in honor of its founder. The new building is seven stories in height, fireproof throughout, and is equipped with all modern appliances for the treatment and study of diseases of the eye.

**In Memory of the Late Doctor Fitz.**—A memorial meeting to the late Dr. Reginald Heber Fitz was held in the Harvard Medical School on Monday evening, November 17th. Addresses were made by Dr. W. W. Keen, emeritus professor of surgery in Jefferson Medical College, Dr. Charles W. Eliot, ex-president of Harvard University, Dr. Henry P. Walcott, chairman of the Board of Health of the State of Massachusetts and chairman of the board of trustees of the Massachusetts General Hospital, Dr. William S. Thayer, professor of clinical medicine, Johns Hopkins University, and Dr. William T. Councilman, Shattuck professor of pathological anatomy, Harvard Medical School.

**First Convocation of the American College of Surgeons.**—The convocation exercises of the American College of Surgeons were held in the Gold Room of the Auditorium Annex, Chicago, November 12, 1913. The names of the surgeons who were made members of the college were read by the secretary, Dr. Franklin H. Martin, of Chicago, and the president, Dr. J. M. T. Finney, of Baltimore, pronounced them Fellows of the college. The number of Fellows admitted was 1,050. Sir Rickman J. Godlee, president of the Royal College of Surgeons of England, read a message to the members of the college from the Council of the Royal College of England. In the message felicitations were conveyed to the Americans and hopes expressed that the college would grow and prosper and that by its influence the ideals and standards of surgery in America would be advanced and maintained on a high plane. The following were made honorary members of the college: Dr. W. W. Keen, of Philadelphia, Dr. William S. Halsted, of Baltimore, and Dr. J. Collins Warren, of Boston. President Finney in his address urged every member of the college to assist in raising the ideals of the profession and to erase the blots which now disfigured the escutcheon of the business of surgery. One of the most important functions of the college, he said, was to wage a relentless war against the evil practices with which the profession was tainted, chief among which was the pernicious practice of fee splitting and giving commissions.

**Annual Meeting of Brooklyn Alumni.**—The tenth annual banquet of the Alumni Association of the Cumberland Street and Brooklyn Homeopathic Hospitals was held on the evening of November 7th, Dr. William H. Pierson acting as toastmaster. At the business meeting which preceded the banquet, the following officers were elected: President, Dr. Nathaniel Robinson; first vice-president, Dr. Harlan P. Cole; second vice-president, Dr. Henry P. Sage; secretary, Dr. Robert L. Wood; treasurer, Dr. George F. Lazarus. Dr. George H. Iler, president of the Cumberland Street Hospital, was elected necrologist for the ensuing year.

**Southern Illinois Medical Association.**—The thirty-eighth annual meeting of this association was held in Duquoin, Ill., on Thursday and Friday, November 6th and 7th. There was a good attendance of physicians from St. Louis and the southern part of Illinois, and the meeting was in every respect a great success. At the closing session Mount Vernon was chosen as the meeting place for 1914, and officers to serve for the ensuing year were elected as follows: Dr. C. W. Lillie, of East St. Louis, president; secretary, Dr. A. B. Cape, of Shawneetown; assistant secretary, Dr. H. E. Wilson, of Centralia; treasurer, Dr. J. W. Armstrong, of Centralia.

**Treatment of Surgical Tuberculosis at Otisville Sanatorium.**—The open air treatment of surgical tuberculosis has received much less attention in this country than abroad and the favorable results obtained at the Sea Breeze Hospital, Coney Island, fully warrant the extension of this work by the city. Provision has been made to care for a certain number of such cases at the Municipal Sanatorium at Otisville, N. Y. Applications for admission should be made, as for adults, through the Associated Tuberculosis Clinics, which will, in turn, forward the application to the Hospital Admission Bureau, 426 First Avenue, Manhattan.

**Smallpox in Pennsylvania.**—While it is reported that smallpox is prevalent in several localities throughout the State of Pennsylvania, the Department of Health is not alarmed over the situation, as every precaution is being taken to prevent the disease from spreading. The records of the department show that there are sixteen cases in Carbon County, six in Altoona, four in South Lebanon, two in North Cornwall, one in North Lebanon, and one on the outskirts of Lebanon. It is said that a case of smallpox was discovered at Scranton, but it has not been officially reported. A few cases still remain in quarantine at Millhill, Clinton County, and several on the outskirts of Lewistown, but no new cases have been reported from these localities for several weeks.

**The Free Prescription Fraud.**—In a number of publications advertisements are appearing which state that the person whose name is attached was saved from death from a serious disease through some wonderful prescription written by a physician of unusual skill who would not allow his name to be used because of medical ethics. The offer is then made to supply this prescription without charge. This prescription contains a number of ordinary ingredients and then, under a technical name, calls for a large proportion of some patent medicine or proprietary drug. The government can not reach these people under either the Food and Drugs Act or the Postal Laws, because the scheme is so planned as to evade government laws. The United States Department of Agriculture therefore warns the public against this fraud.

**A New Course for Nurses at the University of Pennsylvania.**—A course in public health work for graduate nurses will be given at the Henry Phipps Institute of the University of Pennsylvania, by the University Medical School. The course, which will cover eight months, is divided into two terms, two months at the Phipps Institute Hospital and six months in the social service department. The basis of instruction will be the treatment of and care of tuberculous patients, but every phase of sanitation in the home, every condition affecting the cleanliness of streets and dwellings, and the well being of the people in general will be considered. Dr. Walter S. Cornell is to give a course of lectures on the subject of medical inspection of school children and the segregation and care of mentally deficient pupils. Dr. Carl Kelsey and Dr. Scott Nearing, of the University of Pennsylvania, will deliver sociological lectures. Other lectures will be given covering every phase of the work, the staff of speakers including Dr. H. R. M. Landis, Dr. Paul A. Lewis, Dr. C. M. Montgomery, and Dr. Charles J. Hatfield.



## Pith of Progressive Literature.

### MUNCHENER MEDIZINISCHE WOCHENSCHRIFT.

September 2, 1913.

**The Pause in Audible Breathing.**—R. Geigel noticed that in listening to the quiet breathing of a healthy individual there is at the end of expiration before inspiration a pause, during which the breathing continues, but is not heard. In feverish patients with increased respirations this pause disappears, and returns again stronger when the temperature declines and the respirations become less frequent and deeper. Therefore the presence of this pause, particularly in sleeping children, is not without diagnostic value.

**Spirochætæ in the Brain of Paralytics in Animal Experimentation.**—H. Berger, encouraged by Noguchi's findings of spirochætæ in the brain cortex of paralytics, vaccinated the testicles of rabbits with the brain substance obtained from a paralytic. In all, twenty animals were vaccinated and observed for longer periods. In seventeen of the animals no syphilitic changes were demonstrable notwithstanding the minutest macroscopical and microscopical examinations. Only three cases showed in the substance of the testicle or epididymis slight local changes—whitish nodes and local foci of disintegration, the syphilitic nature of which could only be proved by the presence of the living spirochætæ. The vaccinated cases could not be distinguished clinically from the unvaccinated ones.

**Complement Forming Reactions with Cerebrospinal Fluid in Carcinoma.**—Dungern, and Halpern out of twenty-eight tested cases of carcinoma found five which gave a positive complement reaction with cerebrospinal fluid, although no disease of the cerebrospinal nervous system was present. The cerebrospinal fluid reacted negatively in all other diseased cases with the exception of lues. This proves that in carcinoma, even without clinical metastases, changes are present in the organism which point to a species of general infection.

**Colloidal Palladiumhydroxydul Leptynol.**—Gorn is able to corroborate Kaufmann's claims about the prompt and harmless influence upon adipsitas after the injection of leptynol. In none of the twenty-five cases thus treated was there the slightest complications or local reactions or aggravated general symptoms. The use of the correct technic for the injections is of utmost importance to success. It must be injected into the fat at least from two to three centimetres deep. The second condition for a successful cure is adherence to a strict dietary. The marked stimulation which the oxidation processes produce in the organism after the injection gives rise to the hope that the various psychoses, particularly akinetic obsessions in hebephrenics, may be, to a certain degree, favorably influenced.

**Treatment of Malignant Tumors.**—Lunckenbein makes a plea in this article for the use of subcutaneous injections of autolysat, i. e., tissue extract of the tumor in cases of malignant growth according to the suggestion of Von Rorsing. We commence with one cubic centimetre and when this

initial dose is well borne, the dose is increased to from five to ten cubic centimetres. The autolysat can be kept fresh on ice for some time, although it gradually loses its effectiveness. This procedure gives the opportunity of active treatment, even in nonoperable cases of malignancy.

September 9, 1913.

**Salvarsan and Neosalvarsan Injections.**—E. Schreiber answers the question, whether in place of the usual weak salvarsan and neosalvarsan solutions, a more concentrated solution with the corresponding lessened amount of fluid should be used in the following manner: When salvarsan is used a weak solution is best, since it is decidedly less toxic than the concentrated solution; when using neosalvarsan the concentrated solution is urgently recommended, since the danger of autooxidation is decreased in direct proportion to the lessened quantity of water used to make the solution. Physiological salt solution is the best vehicle, ten c. c. for 0.75 gramme of neosalvarsan. These injections are well borne, and are almost wholly without reactionary symptoms.

**First Biological Radium Action.**—Walkhoff emphasizes the fact that in 1900, that is one year before Becquerel he discovered the biological action of radioactive substances, and not accidentally, as was later the case with Becquerel, but from purely experimental procedures.

**Serology in Psychiatry.**—A. Fauser reviews critically his own and the work of other investigators along these lines and illustrates with new serologic procedures particularly interesting psychiatric cases.

**Metabolism in the Mentally Diseased.**—A. Bornstein says in many cases of progressive paralysis, and still more in epileptics, an increase of the lecithin of the blood serum is found. That this increase in the lecithin in the mentally unbalanced is a sign of the breaking down of the brain substance is proved by Fauser's discovery, after Abderhalden's method, that in the insane the brain substance itself is attacked and decomposed. In dementia præcox, in the vast majority of cases, a marked decrease of the initiative takes place. The author is inclined to correlate this with the disordered functioning of the sexual glands, and explains this decrease in dementia præcox as a pathological intensification of a condition that accompanies normal puberty.

**Acute Leucemia, with Genuine Transition Forms and Their Significance for the Independence of these Cells.**—H. Reschad and V. Schilling report a case of acute leucemia characterized by an increase in the large mononuclears and transitory forms (so called splenocytes). Besides the myeloid and leucemic leucemias a new variety of leucemia is added, the splenocytic leucemia; and thus the splenocytes must be recognized as a distinctive cell.

**Bacteriological Examination of the Urine in Acute and Chronic Nephritis.**—A. Menzer answers Scheidemantel (*Münchener medizinische Wochenschrift*, No. 32) to the effect that ten years ago he insisted upon the etiological rôle of the excretion of bacteria in chronic nephritides, and

therefore urged a decided change in our present therapy of this disease.

**Etiology of Infantile Paralysis.**—J. Bruno's observations in the transmission of this disease by house pets make this etiological factor almost a certainty. Two small children, living in an isolated suburb of Heidelberg, were stricken with infantile paralysis without having come in contact with other persons. A few weeks previously a large number of imported ducks were stricken with peculiar paralytic symptoms and many of them died. It is to be noted that the whole family was sick for a few days—gastrointestinal symptoms, rheumatic pains and pains in the nape of the neck and small of the back. Bruno refers to other cases of a similar nature reported in the vicinity of Heidelberg.

September 16, 1913.

**Arsenregenerin and Regenerin.**—K. Dietl reports that regenerin (ovolecithin with 0.6 per cent. iron and 0.1 per cent. manganese, and arsenregenerin (regenerin with 0.04 per cent. nitrate of arsenic and lithium cacodylate) are indicated in the treatment of cases where iron arsenic preparations are required. They are effective and have no untoward action.

September 22, 1913.

**Experimental Arteriosclerosis and Cholesterinemia.**—L. Nacker and W. Hueck find that by increasing the cholesterol content of the blood of rabbits for months it was possible to produce a diseased condition of the aorta which resembled in its main points an arteriosclerosis in the human aorta. From these experiments it may be concluded that in the pathogenesis of human arteriosclerosis hypercholesterinemia is etiologically important. This supposition harmonizes with the long established fact that all those factors which favor the appearance of an arteriosclerosis, as undue consumption of meat, muscular exertion, dyspnea, and certain poisons (narcotics) also increase the cholesterol content of the blood.

September 30, 1913.

**Blood Serum of Gouty Patients.**—K. Bass answers Ehrmann's and Wolf's article in No. 38 of this journal. In conjunction with Wiechowski he has proved that atophan has no effect in the first hours of its administration upon the uric acid in the blood, but later invariably causes a decrease. Also that the red blood cells are the chief source of the purins of the blood and the latter are not decreased in amount; further that uric acid is a constituent of normal blood. In its quantitative determination in the blood the use of certain definite methodical precautions are necessary.

**Abderhalden's Dialysis in the Well and the Sick.**—Third Report. Lampé and Fuchs report in this and in the previous issue that the serum of those suffering from Basedow's disease always disintegrates the thyroid glands in Basedow's disease and also to a less extent the thyroid of normal individuals. At the same time a reduction is observed, in most of the cases, of the thymus and generative glands. In myxedema disintegration of the thyroid gland tissue is also frequently present. In endemic goitre Abderhalden's reaction is positive for the thyroid gland.

## ZENTRALBLATT FÜR CHIRURGIE.

October 11, 1913.

**Resection of Carcinoma of the Esophagus in the Cardiac Segment.**—Eugen Bircher made a transverse incision and then one perpendicular to it along the ends of the ribs on the left side, broke in the ends of the ribs and thus obtained a large field for operation. The cardia was dissected free, its nutritive vessels ligated, the hiatus esophagus opened by blunt dissection, the tumor, which reached about one centimetre into the mediastinum freed in the same manner and brought down. The esophagus was tied off, the stomach seized with forceps on the ventral side of the tumor, and the tumor removed. As it seemed hopeless to try to unite the esophagus and stomach again, the end of the esophagus was invaginated, and a gastric fistula formed. Unfortunately the patient died a few days later from pneumonia.

## PARIS MÉDICAL.

October 18, 1913.

**Colpotomy in the Treatment of Grave Puerperal Infection.**—F. Jacoulet asserts that incision through the vaginal vault is indicated whenever, in conjunction with severe general symptoms of infection, the uterus is found large and tender, the vaginal cul de sac bulging downward, painful and fluctuating, and fetid fluids, with placental remnants, are observed issuing through the half open cervix. It is also indicated where, the examination showing nothing but uterine involvement, curettage fails to relieve the general infectious symptoms in twenty-four to forty-eight hours. In cases seen some time after delivery or abortion, i. e., where the condition is not septicemic but represents a pelvic localization of the infection, a hard tense mass being found in the cul de sac of Douglas, or where there is suppuration between the layers of the broad ligament, colpotomy is likewise to be recommended. In case of doubt as to whether there is exudate in the peritoneal cavity, the operation should be performed nevertheless. In many instances anesthesia is unnecessary. Careful curettage of the uterine cavity should precede. The vaginal incision should be made transversely, a few millimetres below the line of union with the cervix, and should be about four centimetres long. If, as is sometimes the case, the pus then fails to appear, the finger should be used to explore behind the uterus, the tube being opened, if indicated, with a curved clamp slipped along the finger. A long cross shaped drain should be inserted behind the uterus to its fundus. The aftertreatment should be that appropriate for peritonitis. Even when but little fluid is evacuated by the incision, much benefit may ensue, and with the field for colpotomy extended in accordance with the indications already stated, unexpected recoveries from severe puerperal infection will often be obtained.

**Treatment of the Anemia of Rheumatic Patients.**—H. Dausset states that in the anemia, sensitiveness to cold, and local tenderness often remaining for some weeks after an attack of acute articular rheumatism, as well as present in chronic rheumatism, diminished heat production in the body

and impaired vasomotor regulation are important accompanying or causative conditions. He recommends applications of hot air to one half the body, electric light baths, baths in hot water gradually cooled, or diathermy, to make up for caloric deficiencies, reeducate vasomotor control, and also to promote elimination of toxins by virtue of the sweating induced. The first named measure is carried out with the lower limbs in the hot air apparatus. After air at a temperature of about 100° C. has been applied for fifteen or twenty minutes, slight discomfort may be experienced, the pulse rate rising to 80 or 100 and general perspiration appearing. The apparatus is now removed, and cologne water applied over the entire body with a cold, wet cloth, thus diminishing radiation of heat and arresting perspiration. If the procedure is interrupted when only slight sweating has taken place, no secondary depressing effect will follow. Electric light baths should be given, not in a closed cabinet, but with the patient and bulbs enclosed merely in an ordinary sheet. Both the general and local conditions are greatly benefited by a series of such baths administered daily or on alternate days.

#### PRESSE MÉDICALE.

October 22, 1913.

**Distribution of Arsenic in the Viscera after Salvarsan Injections.**—Jeanselme, Vernes, R. Bertrand, and M. Bloch estimated the amount of arsenic in various organs of three patients who died of intercurrent causes at varying intervals after salvarsan treatment. In two, treated respectively, a week and nine months before death, the spleen contained the largest proportion of salvarsan, but the order of arsenic content in the other organs differed considerably in the two cases. In a third patient, dying of interstitial nephritis about eleven weeks after a badly borne intramuscular salvarsan injection, the largest portion was found in the kidneys; in this case the customary discharge of arsenic in the urine several days after the injection had not taken place. In a fourth patient, probably with amyloid degeneration of the kidneys, who developed anuria after an intravenous injection of 0.1 gramme of salvarsan, one sixth of the arsenic introduced was found in the blood stream during the period of anuria, showing that, when renal elimination is blocked, the drug remains in the circulation some time before being deposited in the tissues. After comparing their results with those of previous investigators, the authors conclude that in different cases the arsenic may become fixed by preference in the spleen, liver, nervous system, or lungs, without there being any apparent reason for such selective localization. Where the function of the kidneys fails, however, the arsenic seems to accumulate there.

#### REVUE MÉDICALE DE LA SUISSE ROMANDE.

September, 1913.

**Paraoxyphenylethylamine.**—A. Mayor and B. Wiki have found this substance, one of the active principles of ergot, of relatively low toxicity in animals; 0.25 to 0.3 grammes intravenously per kilogramme of body weight being required to produce death in rabbits. In small doses it stimulates the

heart and constricts the vessels, causing a rise in blood pressure. The vasoconstriction is the result of stimulation of the end organs of the vasomotor system in the vascular walls. This substance is a powerful excitant of the uterus. In large amounts it causes convulsions—due, unless the dose is such as to cause prompt death, to direct stimulation of the central nervous system,—and also direct depression of the heart muscle. Though it is chemically related to epinephrin, and can be considered as a species of mitigated epinephrin—fifty to one hundred times more being required in the rabbit to cause a rise of blood pressure than in the case of the latter substance,—it possesses certain special properties of its own, viz., the direct cardiac depression already mentioned, causing a primary fall of blood pressure after large doses and killing the animal without concomitant pulmonary edema; also, the production of bradycardia in the absence of any marked or lasting action on the vagus centres, little or no acceleration taking place, during a period of cardiac slowing, when the vagi are cut, and stimulation of the peripheral cut end of a vagus at this time almost always causing a lasting acceleration of the heart beats instead of inhibition.

**Venous Thrombosis of the Upper Extremity Following Exertion.**—P. Gautier reports two cases of thrombosis of the arm, one following an application of tincture of iodine and the other a slight exertion. He discusses various similar cases previously reported. The chief symptom is a sub-acute, firm edema of the whole extremity, usually that of the right side, coming on in apparent health, generally painless, but interfering with motion. Cyanosis and a cordlike feeling of the principal veins may be noted. A history of some slight physical effort is usually given. The condition is an aseptic one, and probably arises through a slight injury to the axillary or brachial veins. The prognosis is favorable, though recovery may be slow and interrupted by recurrent exacerbations of the trouble. The diagnosis is readily made by eliminating possible causes of pressure on the blood vessels or lymphatic channels with the aid of the x rays, excluding edema due to drugs, and likewise phlebitis of infectious or traumatic origin. The treatment consists of rest and elevation of the part, supplemented by mercury internally if syphilis is suspected. Firm compression with an elastic bandage has proved very useful in the author's experience.

#### BRITISH MEDICAL JOURNAL.

November 1, 1913.

**Hereditary Transmission of Sarcoma.**—J. S. Manson reports the histories of three patients—a mother and two of her three sons. The mother had always been a healthy woman, but at the beginning of 1896, a lump about the size of a bean appeared on the left side of her neck. This grew slowly, reaching the size of a walnut in about eighteen months. At this time the youngest son was born, and after his birth the tumor grew very rapidly, causing her death from exhaustion in February, 1898, about two years from its first appearance. This was diagnosed as a lymphosarcoma, but no sections were taken. The youngest son remained healthy until 1912, when he was fifteen years old. At this time



he noticed a lump about the size of a walnut on the left side of his neck. A piece of this was removed and proved to be round celled sarcoma. About a year and three months later he died of exhaustion, the tumor having grown very large and ulcerated. In his next older brother an inflammatory enlargement of his right tonsil and the lymphatic glands developed on the same side of his neck in 1912, at the age of eighteen. These glands were removed and found to be enlarged through chronic inflammation only. In 1913 he had bleeding from the right tonsil, which was enlarged, and at this time a tumor of small size was observed on the left side of the neck over the middle of the sternomastoid muscle. This was removed and found to be lymphosarcoma; a portion of the right tonsil removed at the same time showed inflammatory enlargement only. Local recurrence took place, involving the left tonsil and adjacent structures in the neck and floor of the mouth. Death took place in August, 1913, from exhaustion. Tracing the family history of the mother back as far as possible, no history of malignant disease was found, except in two paternal grand aunts. Manson believes that the sarcoma did not arise *de novo* in the mother of the two boys, but was the result of a germinal variation or sport. If the sarcomas in the two boys are regarded as being of hereditary origin—and for this view there seems much evidence, both in the nature of the growths and in their location—the law of anticipation is well illustrated; the boys died at the ages of fifteen and nineteen, respectively, whereas their mother died at the age of twenty-nine years. If the hereditary character of these two cases in the boys be granted, then the observation lends some support to the theory of embryonic cell rests, as offered by Cohnheim and others.

**Treatment of Scars by Multiple Incisions and Thiosinamin.**—A. H. Tubby uses a fine and strong backed tenotomy knife and makes a large number of incisions in the scar tissue, transversely to the long axis of the scar. The incisions should be not more than a tenth of an inch apart, and they should extend both into the subcutaneous fat and for about a half an inch into the adjacent healthy skin. Pressure alone is used to stop the hemorrhage, and when this has ceased, a solution of thiosinamin is thoroughly rubbed in. If the scar tissue is very thick, a few drops may be injected into the most prominent bands. As much as fifteen to twenty minims may be injected at a time in an adult. After operation and injection the part is splinted in a position of extension to the greatest possible limit without tearing the soft tissues. After healing, which takes place with little reaction and very slight pain, it may be necessary to repeat the operation and fixation one or more times. The results with large contracted scars have been so good in the hands of Manson that he advocates a thorough trial of the method by others.

**Supercorneal Sutures.**—Ernest E. Maddox's experience contradicts the general idea that sutures should not be allowed to pass across the cornea. He finds that there is no ill result from their presence if they are previously waxed to render them smooth and nonadhesive. As a result of this observation he has devised a new operation for the treatment of

conical cornea. It consists in excising a bilanceolate piece from the cone, after which a flap of conjunctiva, previously prepared and threaded, is drawn over the cornea in such a way that its tension will be at right angles to the long axis of the gap. This flap draws the edges of the gap together and at the same time closes the opening into the anterior chamber. The uniform pressure of this flap upon the whole cornea during the healing process tends to restore its rotundity. The flap does not tend to adhere to the underlying cornea.

**Persistence of the Nerve Plexus of the Iris.**—W. B. Inglis Pollock denervated the iris in albino rabbits by excision of the ciliary and superior cervical ganglia. After an interval of two weeks from the operation, in each case, histological examination showed that there remained a motor plexus with nerve cells, in both the sphincter and dilator pupillae muscles. This plexus was found to persist even after the complete separation of the iris from the central nervous system by the removal of the ganglia.

LANCET.

November 1, 1913.

**The Nature and Degree of Specific Differences among Bacteria.**—F. W. Andrewes directs attention to the fact that the criteria by which the naturalist determines species—morphological characters, capacity or incapacity for inbreeding, descent from a common known ancestor, and geographical distribution—cannot be applied to the separation of bacteria into species. Among the bacteria sexual reproduction and conjugation are unknown. This lack of sexual reproduction tends to the production of extreme variability among the bacteria, for there is no means of effacing chance variations. The doctrine of the noninheritance of acquired characters may not apply to the bacteria, for they present continuity of both germ plasm and somatic plasm. The influences of environment upon bacteria can become apparent in a very short time, on account of the extreme rapidity with which these organisms multiply. These considerations explain the existence of a very high degree of variability among bacteria, especially in relation to their pathogenic properties. Andrewes suggests that the increase in virulence of a given strain of organisms which is brought about by animal passage is to be explained upon the basis of the "survival of the fittest," that is, only those among the organisms introduced which retain pathogenicity survive, and it is from these that the new strain arises. Many other physiological characteristics can similarly be developed, such as various powers of fermentation, etc. Therefore, he says: "It follows that it is only with extreme caution that such characteristics as pathogenicity or metabolic capacity can be regarded of specific value. Of the criteria employed by the ordinary naturalist in discriminating between species only one can be used by the bacteriologist—namely, the morphological one." It is possible, readily to arrive at a classification into certain wide families of bacteria, such as, the cocci, spirilli, bacilli, etc., among which we encounter Gram positive, acid fast, and other distinct genera. "If the foregoing facts are true—and I do not think they will be disputed—we are

entitled to conclude that, although bacteria are more variable than the majority of living creatures, they are by no means indefinitely variable. The variations are seen within the generic group limits, but do not transgress these." While there are definite species to be found among certain genera of bacteria, Andrewes believes that, among the bacteria which are pathogenic for man, rigid specific limits are often wanting. From a close study of the streptococci from a statistical basis Andrewes concludes: "They are a labile group from which types are emerging, which can be recognized by suitable methods, but which are at the present day for the most part undeserving of specific rank." Much the same may be said of the coli group. Regarding the chemical properties of bacteria, Andrewes feels that these are, like the morphological properties, subject to evolutionary laws, and that it is, "a question of adaptation of the organism to its environment and survival of the chemically fittest."

**Two Years' Experience with Salvarsan.**—Malcolm Morris and Henry MacCormac base their remarks upon the results of 350 injections of salvarsan and 150 of neosalvarsan. They believe that the newer drug is inferior to the older one, being decidedly less active even in equivalent amounts, and being very liable to undergo decomposition in solution, with the production of highly toxic bodies. All of the author's injections were given intravenously, and by the use of freshly distilled, autoclaved water they have almost completely eliminated fever as a sequel to the administrations. They always use full doses unless there is some definite contraindication. Their results lead them to believe that the remedy is of the utmost value in bringing about a very prompt disappearance of symptoms, particularly in the first and second stages of syphilis, and they state that, the earlier in the disease the remedy is given the more pronounced and rapid will be the benefit derived. They do not hesitate to give repeated doses, but they do not advocate their use as a general practice. They believe that salvarsan can hardly be considered as a cure for the disease, and emphasize the necessity for the continued use of mercury for at least two years after the administration of salvarsan.

**Pituitary Tumor and Sellar Decompression.**—Wilfred Harris and Cecil Graham report a case of such tumor in which this operation gave prompt but temporary relief. They call attention to the fact that most pituitary tumors reach such a size, before they cause definite symptoms, that it is impossible to remove them through the floor of the sella. They, therefore, advocate decompression, which they perform as follows: An incision is made in the exact middle line of the nose and is carried clear back to the nasopharynx in this line, separating the two layers of the nasal septal mucosa but not entering the nasal cavity. The middle turbinates are forced apart by pressure with a metal glove stretcher and the sphenoidal ostia are thus exposed. The mucosa covering the anterior wall of the sphenoid is gently elevated to give a perfect view of the ostia. The floor of the sphenoidal fossa lies about ten centimetres from the junction of the nasal vestibule with the upper lip. A probe, marked at a point ten centimetres from its tip, if placed against

the floor of the vestibule of the nose at the junction with the upper lip, and directed in a plane which corresponds with a line running from the nasolabial junction backward and upward to form a tangent with the lower and outer margin of the orbital cavity, will, when introduced for ten centimetres, impinge upon the floor of the pituitary fossa. The floor of this fossa is then removed by chisel and burr, and the decompression can readily be completed.

#### BOSTON MEDICAL AND SURGICAL JOURNAL.

November 6, 1913.

**Hereditary Chorea, with Report of a Case.**—William A. Boyd reports a case of Huntington's hereditary chorea, which developed in a patient twenty-six years old, an age that is much younger than usual, and in whom no suicidal tendencies have as yet been observed. The patient has been under sanitarium treatment for about a year. A chart showing four generations of the family demonstrates the hereditary character of the disease.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

November 8, 1913.

**Neurasthenia an Increased Susceptibility to Emotion,** by H. T. Pershing.—See this JOURNAL for July 5th, p. 46.

**Uterovesical Cysts; An Operative Procedure for Their Relief,** by J. R. Caulk.—See this JOURNAL for July 5th, p. 48.

**The Implantation of the Ureters into the Large Bowel,** by C. Beck.—See this JOURNAL for July 5th, p. 48.

**The Repair of Defects of the Ureter,** by D. N. Eisendrath.—See this JOURNAL for July 5th, p. 48.

**Verruga Peruana, Oroya Fever, and Uta; Preliminary Report of the First Expedition to South America from the Department of Tropical Medicine of Harvard University, Headed by Prof. R. P. Strong.**—From the remotest historical times the inhabitants of Peru are said to have suffered severely from the obscure disease, verruga peruana and Oroya fever. From its investigations the commission concludes that these represent two distinct diseases. The former is due to a virus which may be transmitted to animals, producing definite lesions in them, while the latter is due to a parasitic organism in the red blood corpuscles sufficiently distinct from the other hematozoa to be placed in a new genus. This parasite, which so far has not been successfully transmitted to the lower animals, produces in man fever and, in severe infections, a rapid and very pernicious form of anemia, frequently resulting fatally. From the present evidence it would appear that the organism observed in the blood in Oroya fever belongs to a group of microorganisms intermediate between the protozoa and the bacteria. Verruga peruana is a disease particularly characterized by an eruption on the skin and occasionally the mucous membranes, especially of the mouth and throat, which presents great variations in appearance. The distribution of the cutaneous eruption somewhat resembles that seen in yaws, but in many other respects the lesions of the disease are entirely distinct. In uncomplicated cases the parasites of neither Oroya fever

nor malaria are present in the blood. It is quite evident that verruga peruana represents an entirely distinct disease, and that it is not a form of framboesia or of syphilis. The investigation showed that uta, another ancient disease in Peru, is due to a species of Leishmania. The flagellate stage of the organism was obtained, and animals were successfully inoculated from a human case. In both Surco and Otao (the latter town deriving its name from the prevalence of the disease there) a large proportion of the inhabitants are either afflicted with uta or show the disfiguring scars on the face, arms, or legs which have resulted from a previous attack.

**Untoward Results of Nephrolithotomy.**—M. Krotoszyner calls attention to the mortality following this procedure and such results as hemorrhage, perineal infection, septic nephritis, and fistula, and then compares pyelotomy and primary nephrectomy with nephrolithotomy. He concludes (1) that nephrolithotomy is connected with serious immediate and remote untoward results; (2) that it should be, whenever feasible, replaced by posterior pyelotomy; (3) that nephrectomy is the simplest, quickest, and safest curative method for pyonephrotic stone kidney, provided the function of the other organ is satisfactory.

**Decidual Reaction in the Appendix in Intra-uterine Pregnancy.**—G. W. Outerbridge states that, so far as he has been able to ascertain, the occurrence of this reaction in the appendix has been observed in but one instance, reported by Hirschberg in 1905. Although in this case the appendix was closely adherent to the gestation sac, Hirschberg ventured the opinion that the presence of such adhesions is not to be considered a *sine qua non* for the occurrence in the former of decidual reaction. That he was right in this assumption and that, moreover, decidual reaction can occur in the nonadherent appendix in connection with normal, intra-uterine pregnancy, is shown by a case which the author reports in detail. In this instance, he says, the intense appendicular inflammation present undoubtedly furnished the irritative stimulus necessary to produce the reaction. That a similar reaction is not found in all inflamed appendices removed during normal or ectopic pregnancy is probably to be explained in the same way as its failure to occur, in some instances, in the tubal mucosa or in any other of the numerous extrauterine situations in which, in other instances, it does develop. In a note he states that after he had corrected the proof of his article a second instance of distinct decidual reaction in the appendix in conjunction with normal pregnancy came to his notice.

#### MEDICAL RECORD.

November 8, 1913.

**Neurovascular Gangrene.**—M. D. Bloomfield is convinced that what so often is considered a distinct disease is in reality only a "stage," a manifestation of the phenomenon first thoroughly elaborated by Raynaud, who reported it in 1862 under the heading, "local asphyxia and symmetrical gangrene of the extremities." On this continent the disease is most frequent among Hebrews. Males are more commonly affected, and most patients pursued an occupation necessitating long hours of

standing or work requiring pressure on the feet, or were exposed to the severities of all weathers—conditions interfering with the venous circulation. It seems probable also that microbic infection may be concerned in the etiology. The disease may manifest itself in three forms, regional ischemia, regional cyanosis, and regional hyperemia. Whether the gangrene is preceded by a neuritis or whether the lumen of the veins and arteries becomes occluded by thrombi is difficult to determine. The disease may shorten life, but in itself is not fatal. The author believes that this is a surgical malady, though the patient should, of course, be given a fair opportunity to receive conservative medical treatment. Personally, he has tried almost every known remedy, but has found none to which he could ascribe any curative powers. He holds that if amputation were done early, suffering would diminish appreciably, exhaustion be prevented, and a greater degree of safety to the life of the patient and a better chance of recovery be offered. Lines of demarcation should never be waited for; when they come it is too late to amputate. Mental diversion and heat, with plenty of nourishment, are the best means thus far at our command from a medical standpoint.

**The Neuroses and Psychoneuroses of Children: Their Mode of Development and Treatment.**—In these affections, B. Rosenbluth says, the pathologist can find nothing but immaturity of the child's brain. The most frequent manifestation of juvenile mental disturbance is a motor expression of a spasmodic character, and a large number of the motor neuroses of children are those of facial grimaces. The management of these cases is very trying. They demonstrate a disturbance, the manifestations of which are due to faulty environment. This environment being created by the family and friends, these have to be trained, so that the environment may be changed. Having referred to a neurosis consisting of a bilateral tic of the eyes, he states that of the more complex psychoneuroses, the one most frequently met with is a motor expression of mental disturbance which is characterized by general spasmodic movements of the entire body. Nocturnal enuresis and night terrors are also treated of. The most fixed and common neurosis of childhood is that of defective speech, represented by stammering and stuttering. In concluding, he says that in the child, whose sphere of action is limited, it is easy to lay bare the psychological content of any given experiences, and, by the early training of minds which have not been trained to adjust themselves to their proper environment, we can prevent more grave maladjustment in later life.

**Is Sterilization Destined to Be a Social Menace?**—In this paper G. F. Lydston, a pioneer in the matter of sterilization of the socially unfit and still believing it of great value, discusses some of its possible evils. In speaking of sterilization as a possible menace to the State he says that the assumption of the responsibility of procreating and rearing children demands a certain degree of self abnegation which many of both sexes gladly avoid. Not only will sterilization appeal to the male sex, but also to the female, perhaps in some instances more strongly, because the burden falls



most heavily on the female. *The Economic Phase of Sterilization.*—The increased cost of living bears particularly on the expense of rearing a family, and as economic conditions are likely to grow worse instead of better, the proportion of marriages will necessarily decrease. Sterilization obviously is an answer to some of the problems which confront society in reference to the expense incidental to raising a family. *Moral Aspect.*—While it may be an open question whether sterilization will increase the proportion of marriages, there can be hardly any doubt as to its demoralizing effect, according to present ethical and moral standards of sex relations. *Sterilization as a Substitute for the Abortionist.*—Sterilization may prove to be a social factor which will greatly limit the present widespread practice of abortion. *Relation of Sterilization to Illegitimacy.*—Should sterilization supplant the abortionist as a social institution, it will be a saving factor for certain of the unborn. If the bastard child were the arbiter of its own destiny, it never would be born. *Individual Rights versus State Rights.*—The law to protect society against the criminal and other unfit classes by sterilization must soon logically be followed by laws to protect society against sterilization; such laws being in the way of regulation of the operation on "the fit."

#### AMERICAN JOURNAL OF TROPICAL DISEASES AND PREVENTIVE MEDICINE.

September, 1913.

#### Amebæ and Their Relation to Dysentery.

E. R. Whitmore sums up our knowledge of the intestinal amebæ of man by stating that there are two species: *Entamoeba coli*, a harmless commensal, found commonly in the intestinal contents of healthy men, and *E. tetragena*, producing ulcerative dysentery. He maintains that the amebæ hitherto obtained in cultures from the intestinal contents and liver abscesses in man have nothing to do with the true parasitic amebæ. They are the free living amebæ found everywhere, and have gotten into the cultures as cysts that have been taken in with the food, or by contamination of the culture material in handling, or again, in some cases, through having taken up a parasitic or semiparasitic existence in the intestine.

#### Serums and Vaccines in Undulant Fever.

A. P. Hitchens refers to the fact that within the past two years cases of undulant (Malta) fever have been reported from Texas and Arizona, and reviews the attempts so far made to prepare serums and vaccines for use in the prevention and treatment of this disease. Some measure of success has attended the therapeutic use of vaccine. The *B. melitensis* seems, however, to have a special tendency to make for itself a nidus in the tissues and, as a consequence, offers resistance to the antibacterial powers of the blood, even if raised by specific treatment. An attempt is being made by the author to prepare a more efficient serum than has hitherto been produced. The bacteria are washed to free them from traces of the culture medium on which they have been grown, in order that very large doses may be given intravenously to horses without causing toxic or anaphylactic symptoms. Serum has been obtained which shows an agglutination titre

of one to 2,000 and gives complement fixation with a *melitensis* antigen; but the practical value of the serum has not as yet been tested.

**Cultivation of Malarial Plasmodia.**—C. C. Bass and F. M. Johns, in a former paper, pointed out the necessity of adding dextrose to the culture material used for growing the *Plasmodium falciparum* *in vitro*. They now report that they were able to grow the organism in the blood (defibrinated) of a patient presenting both glycosuria and malaria, the sugar present in it evidently taking the place of that customarily added to the culture material. I. I. Lemann, in a clinical note on the same patient, states that the fever and malarial plasmodia persisted in this case in spite of an amount of quinine sufficient to control the usual case of malaria.

#### ANNALS OF SURGERY.

September, 1913.

**Spinal Fractures.**—Charles A. Elsberg believes that unless the patient's condition is so poor that any interference is contraindicated, an operation is called for when there is evidence that there is compression of the cord by bone or blood, or when there has occurred considerable contusion of the cord. Operation is indicated in all of these patients even if the symptoms of a cord lesion are not well marked; that is, there is only a partial loss of power below the level of the fracture, sensation is well preserved over considerable areas below the level of the lesion, many of the reflexes are preserved, the control of the bladder and rectum is little or not interfered with. In those patients with "incomplete" cord symptoms, an x ray examination should be made as early as possible, in the patient's bed, and evidence of bone pressure thus obtained. A lumbar puncture should be done at once, for this will show whether there is a large amount of blood in the dural sac. If the x ray fails to show any marked bony deformity, and the lumbar puncture reveals little blood within the dura, then it may be fairly certain that the symptoms are to a great extent due to a contusion of the cord. Contusion of the cord is soon followed by an edema of a very destructive nature or by bleeding into the spinal substance. The edema is very apt to cause, within a few days, a complete and irremediable transverse lesion of the cord, but its spread can be prevented by the decompressive effect of the laminectomy, to which may be added a direct incision into one of the posterior columns of the cord near the posterior median septum (Allen). A small collection of blood within the cord substance may be safely withdrawn by means of aspiration with a fine needle, and the formation of a hematomyelia cavity in the cord prevented.

#### The Hernial Sac in Its Relation to Concealed

**Intestinal Injuries.**—Charles M. Remsen calls attention to the history of trauma applied to a hernial sac, followed by acute abdominal signs and symptoms: the tense rigidity of the abdominal walls in concealed abdominal ruptures; and the soft, tender, fluctuant and bulging hernial sac, an evidence of the escape of intestinal contents into this latter cavity. When coupled with the shock and general symptoms and signs which one would expect from such an injury, there is formed a group

almost positively indicating a concealed injury or rupture of bowel contained, at least at the time of the accident, in the sac which has suffered the trauma.

**Subdiaphragmatic Abscess.**—D. L. Despard says that if a mass presents in front, it should be reached through an abdominal incision without opening the general peritoneal cavity if possible, or if this danger cannot be eliminated, the peritoneum should be opened below the abscess and the general cavity be protected by gauze before evacuating the abscess. If the abscess is situated in the subhepatic fossa or is retroperitoneal on either side, it can be reached through a loin incision alone, or in conjunction with an abdominal incision through which the lower limits of the abscess can be determined and the dissection which is conducted through the loin incision aided and guided to the abscess without opening into the peritoneum. This accomplished, the abdominal wound can be closed by an assistant who has remained clean for the purpose. If there is reason to fear that the peritoneum may be entered in the effort to reach the abscess, the intraperitoneal site may be walled off from the general cavity of the peritoneum by gauze packs introduced through the abdominal wound. When the physical signs are well marked at either base the lung is apt to be displaced upward and the diaphragmatic and parietal layers of the pleura are frequently adherent, or in contact, so that they may readily be united. The transpleural operation is preceded by an exploring needle provided the operation is to follow at once, keeping in mind the danger of infecting the pleural cavity; this danger may be lessened by leaving the needle in place until the pleura is incised and, if necessary, the two surfaces united by sutures. The operation may be conducted in two stages, the first of which consists in resecting a rib, or ribs, and uniting the pleural surfaces and a day or two later exploring beyond these.

#### JOURNAL OF THE MEDICAL SOCIETY OF NEW JERSEY.

October, 1913.

##### Psychoses Associated with Childbearing.

William C. Sandy bases his observations upon the study of fifty-two cases which seemed to have been definitely associated with pregnancy, the puerperium, or lactation. He finds that there is no one form of psychosis which is peculiar to these periods. Of the cases in his series over fifty-three per cent. belonged to the manic depressive type. Of these manic depressive cases, sixty-two per cent. began in the lactation period. Exhaustion delirium was the form in twenty-three per cent. of the series; three per cent. were infection deliria. Seventeen per cent. of the cases were of dementia præcox. From this it is obvious that a large proportion of the conditions of mental alienation occurring during childbearing are of favorable prognosis and end in recovery. About fifty-seven per cent. of the total number developed during lactation, and only fifteen per cent. during pregnancy. The average age of all the cases was just below thirty years. Seventy-three per cent. of the patients were multiparæ. Only five per cent. showed any distinct puerperal infection. In eleven per

cent. there was more than one attack. Illegitimacy played a very minor rôle, there being but two such cases. Of the total number of cases, fifteen per cent. showed some hereditary influence. In no less than eighty-four per cent. the "make-up" of the patients seemed normal. There were only about five per cent. who could be considered actually inferior. In the six patients who had had more than one attack each, the etiological factors of the different attacks showed little in common, and it seems that the associated factors are quite as important etiologically, if not more so, than the mere childbearing state.

#### LONG ISLAND MEDICAL JOURNAL.

October, 1913.

##### Diagnosis of Cardiac Disease.

Richard C. Cabot bases his remarks upon a series of 1,144 cases. Of this number only 425, or about a third, belonged to the rheumatic group and fifty-nine to the syphilitic group. There were 328 nonvalvular cases secondary to the effects of arteriosclerosis; 280 of the class known as kidney hearts; and forty-seven were associated with exophthalmic goitre. In 3,000 autopsies there was but a single case in which death was due primarily to mitral insufficiency; usually some other factor is present to account for the death and the valve lesion is but one feature of the picture. On the other hand, mitral stenosis caused death in eighty-one of the 3,000, and in a majority of these the diagnosis was made correctly during life. It has been said that mitral stenosis is commoner in women than in men, but in a total of 150 autopsies in which this lesion was found the sexes were divided equally. Like mitral insufficiency, aortic insufficiency is very seldom the cause of death, this resulting usually from other factors, the valve lesion being merely a concomitant phenomenon. Syphilis is the primary cause of ninety per cent. of the cases of this lesion, and is therefore the primary cause of death. In the non-valvular cases, which comprise about two thirds of all cardiac cases, those due to arteriosclerosis predominate, followed closely in number by those secondary to renal lesions. In both there is an increased blood pressure, and the sphygmomanometer is the most trustworthy means for their diagnosis that we have. Cabot calls attention to the unreliability of the dial instruments, and recommends the mercurial manometers only. It is often difficult to determine whether the condition is due to arteriosclerosis or to interstitial nephritis, and it is, therefore, important to remember that the former condition is the more frequent in older persons, while the latter is the commoner in the young adult. Nephritis does not usually last so long nor begin so late in life as arteriosclerosis, and both uremia and anemia are commoner in nephritis than in arteriosclerosis.

#### SURGERY, GYNECOLOGY AND OBSTETRICS

September, 1913.

##### Management of Puerperal Thrombophlebitis.

—P. Findley says that the Trendelenburg operation—ligating the thrombosed veins above the advancing clot—is surgically correct in theory, but

as a practical proposition it is a questionable procedure. The difficulties involved in the making of an accurate diagnosis before opening the abdomen are, as yet, insurmountable; furthermore, it is not possible to judge with accuracy the extent of the infection within the veins or elsewhere after the abdomen is opened. It is in direct violence to the rules of practice to traumatize tissues in the immediate neighborhood of a virulent infection. Furthermore, the risk of dislodging a thrombus in exploring the pelvic veins must be reckoned with. It is a physical impossibility to ligate all the veins leading from the genital organs, and, unless all channels are blocked there can be no assurance of checkmating the infection. The physical resistance of all cases of puerperal infection is far below par, a fact which should make one cautious in adding further to their burdens. We may rob them of the little resistance they possess. The writer believes that little dependence can be placed on serums and vaccines in these cases. Whatever may be the views on the question of ligation of veins or upon the administration of serums and vaccines, all agree that the body resistance must be supported by fresh air and nourishing food.

**Iodine in Sterilization of the Skin.**—Hunter Robb, performing a number of experiments on dogs, states that the older and more complex method of cleansing the skin gave eighty-six per cent. healing by first intention, while with the iodine technic only thirty-six per cent. showed perfect healing. From his experiments he concludes that there is still no certain method of sterilizing the skin: that tincture of iodine in all probability possesses a definite inhibitory action upon the growth of bacterial forms, and that sterilization with tincture of iodine is not to be relied upon, and should be used only when more elaborate forms of sterilization are contraindicated. To remove iodine alcohol is the most effective agent, for it has itself a distinct bactericidal power. Hypophosphite of soda forms with iodine the soluble sodium iodide, which may be washed off with sterile water. This works best when the solution is quite warm, but it is not as effective as a solution of potassium iodide. This substance in a ten per cent. solution can be thoroughly sterilized by boiling, and acts as a good solvent for the dried iodine. Later the surface is flushed off with sterile water.

**Factors in the Formation of Skin Striations during Pregnancy.**—F. J. Taussig states that only thirteen out of the sixty primiparae studied were free of skin striations. Skin striations occur most frequently at several points and usually make their first appearance about the sixth or seventh month of gestation. In girls under twenty years of age they are decidedly more pronounced and more frequently found than in older women. Obesity, particularly rapid increase in weight during pregnancy, predisposes to the formation of striae, especially those about the breast and thighs. Lack of abdominal support during pregnancy, as in those who wear no corsets, favors the formation of abdominal striae. On the other hand, tense and inelastic skin in which such striae are found is to some extent a factor in subsequent abdominal relaxation. At any rate, abdominal muscular re-

laxation and abdominal skin striation go hand in hand. Perineal tears have apparently no relationship to skin striation. In treating the condition the writer gives the following instructions to his patients: After a warm bath, moisten the finger tips in glycerin, pick up the skin in folds and gently rub it to and fro. Particular attention should be paid to the lower abdominal quadrants running from Poupart's ligament to the umbilicus. Over the hips and the breasts a similar light skin massage should be employed, the whole procedure lasting about fifteen minutes, every day. It is important that no deep pressure is exerted in this massage. The only reason for using glycerin in massaging the skin is that a lubricant makes the procedure less irritating and that glycerin is a clean and inexpensive lubricant.

#### **An Operation for the Cure of Rectocele and Restoration of the Function of the Pelvic Floor.**

—George G. Ward has utilized the following operation for the past two years with uniform success: A gauze sponge on a spongeholder is inserted into the rectum as a guide. Short bullet forceps are caught at each posterior caruncle immediately below the orifices of Bartholini's glands, care being taken not to occlude them. A third forceps is attached to the posterior vaginal wall in the median line, marking the crest of the rectocele. Traction is made on these tenacula and the resulting triangle is outlined with a scalpel. This triangle represents the excess vaginal wall which is to be subsequently removed. By inserting the blades of blunt pointed scissors in the line of cleavage and opening them widely, the vaginal wall is entirely separated from the rectal wall from side to side and as high up as the culdesac of Douglas. The rectum having been completely mobilized, a catgut suture is passed through the vaginal wall in the median line as high up as possible in the region of the cervix. The suture is brought down and made to catch up the lower portion of the rectum and made to emerge through the vaginal wall in close proximity to its original insertion. When this suture is drawn up and tied, it obviously carries the dilated rectum up with it far beyond the limit of the subsequent resection of the vaginal wall. The rectocele having been disposed of, the excess vaginal wall which entered into the formation of the rectocele is cut away along the lines marked out with the scalpel at the commencement of the operation, and the cut vaginal edges are then sutured together with catgut. A pair of closed scissors are then passed through the fascia in the vaginal sulcus. They are opened widely, and withdrawn, thus making a large buttonhole which opens into the space in which lies the levator. The index finger locates the anterior edge of the levator and the muscle is caught with a pair of sponge forceps and drawn out of the buttonhole. The opposite muscle is secured in the same manner, and they are sutured together in the median line with chromic catgut. The outer edges of the fascial buttonholes are next sutured together over the approximated muscles with catgut. The operation is then completed by passing three or four silk-worm gut sutures from the skin surface behind the entire muscular approximation.



## Proceedings of Societies.

### CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

GEORGE EMERSON BREWER, M. D., President.

The opening meeting of the fourth annual session of the congress was held at Orchestra Hall, Chicago, November 10, 1913, at 8.15 p. m.

Dr. E. W. ANDREWS, chairman of the committee of arrangements, welcomed the members of the association, after which he introduced Sir Rickman Godlee, president of the Royal College of Surgeons of England, who said that he had had the opportunity of seeing the work that was being carried on by the congress. He was impressed with the enormous amount of clinical material which he saw at all of the hospitals he had visited, and was greatly impressed with the methodical way in which instruction was carried on at these institutions.

Dr. MURRAY McLAREN, president of the Canadian Medical Association, congratulated the officers and members of the congress upon the remarkable success which had attended the organization from its inception. It was a happy circumstance that its membership embraced both the profession of the United States and of Canada. Medical science knew no territorial limitations. Canada might not care for reciprocity in trade, but she welcomed the closest associations and intermingling of the peoples of both countries. The progressiveness, the enthusiasm, broad views, broad education, well trained able minds, and skilled hands had all had their effect in placing American surgery on an eminently high plane. They in Canada looked to American surgeons and received freely from them much information, much suggestion, much instruction, and always accompanied with kindness and courtesy.

**Presidential Address: A Preliminary Report on a Simple and Rapid Method of Pyloric Closure in Gastroenterostomy.**—Dr. GEORGE EMERSON BREWER, of New York City, reviewed the various methods of pyloric closure which had been suggested in the past; and referred to a series of experiments lately published by Tappliner, showing that all simple methods of closure, as by ligature with or without contusion, the employment of a submucous plastic, a pedunculated seromuscular flap from the anterior abdominal wall, or closure by infolding suture, were not to be relied upon to bring about a permanent stenosis. Ligature by means of a strip of fascia taken from the rectus sheath, as suggested by Wilms, seemed to have better results; but in the opinion of the author, the only safe method was the unilateral pyloric closure suggested in 1895 by von Eiselsberg. This rather complicated operation could be relied upon to permanently exclude from the duodenum any stomach contents, but it had the disadvantage of being a difficult and prolonged procedure, often requiring from thirty to forty minutes for its performance. Doctor Brewer emphasized the fact that the present de ideratum was for a method which could be as quickly and simply executed as simple ligature, and at the same time be as permanent in its results as

the prolonged operation of von Eiselsberg. His method consisted in constriction of the pylorus by an aluminum band, which was easily passed around the tube at this point, and quickly rolled with the fingers into an unyielding ring with sufficient compression to obliterate the lumen of the tube, but not to compromise the vitality of the compressed tissues. Nine experiments upon dogs were reported, and the specimens thus obtained shown by lantern slides. From a study of these experiments, it was evident that this method of closure produced a complete occlusion of the pylorus, as proven by the fact that water would not pass the constricted point where the stomach was distended; and also by the fact that sections through the pylorus and aluminum ring showed by gross and microscopic examination, not only that the pylorus was closed, but that the vitality of the tissues was not impaired. A second series of experiments showed that the same method could be applied to the pyloric antrum, and also that the pylorus which had been closed for some months could have its function again restored by a second laparotomy and removal of the aluminum band. Although Doctor Brewer had not employed this method in the human subject, the animal experiments were so conclusive, that he believed it to be the simplest and safest method yet proposed for these cases.

**Report of a Series of 156 Gasserian Ganglion Operations.**—Dr. HARVEY CUSHING, of Boston, reported 156 cases of operations upon this ganglion with two fatalities. These fatalities occurred in the earlier cases. In 100 consecutive cases operated on there were forty-six males and fifty-four females. The neuralgia affected the right side in sixty-two cases; the left in thirty-six cases. Both sides were involved in two cases. He stated that it was the impression that these neuralgias occurred very much more commonly on the right side, but in the last fifty cases there had been an unusual number of left sided neuralgias which had brought the percentage up to thirty-six, whereas previously the ratio between neuralgias of the right and left sides was about three to one. Two of the patients operated on were eighty and ninety years of age respectively. The average age at operation was fifty-five years, the youngest twenty-six, and the oldest eighty-six. The average age at onset was forty-five years, the youngest eighteen years, the oldest seventy-four years.

Dr. JOHN B. MURPHY, of Chicago, said that two monuments should be erected to Doctor Cushing, one for his courage for leaving the promising field of general surgery and taking up the unpromising field of tumors and surgery of the brain, and one for his final achievement of success in this line of work. When Doctor Cushing reported 119 consecutive operations without a single death it was an achievement of which he and the medical profession of the world should be proud. The speaker had done twelve of these operations with four deaths. In the future he would not endeavor to remove the gasserian ganglion, but would adopt the method of extracting the root, which involved a little more work, a little more risk in the way of time and patience, but which gave splendid final results, as reported by Doctor Cushing.

**Gastric Hemorrhage.**—Dr. JOHN B. DEEVER, of Philadelphia, said gastric hemorrhage or the copious effusion of blood into the stomach was, as a rule, followed by hematemesis, and resulted from a number of disturbing factors in the mechanism of the upper abdominal circulation. In the minority of cases the blood was not at once ejected, but was passed subsequently by the bowel in the form of tarry stools. Cases of gastric hemorrhage fell into two groups, the surgical and the nonsurgical or medical. It was as great a mistake to operate on a nonsurgical case as it was to withhold operation in surgical bleeding. The exploratory operation, therefore, was not available for diagnosis, and successful treatment demanded a high degree of diagnostic skill in deciding for or against operation. Profuse and even fatal hematemesis without demonstrable ulceration of the stomach had been observed in a considerable number of cases, both at autopsy and at operation. Dieulafoy had described a variety of hemorrhages due to the formation of minute mucous erosions, single or multiple. Such erosions had been observed as linear or stellate fissures in the act of bleeding during the operation. Of 459 of their cases of upper abdominal disease, hematemesis occurred in only twenty-five per cent. of instances, and twenty per cent. of those cases were either simple ulcer or cancer of the stomach. A knowledge of the hemorrhagic possibilities of active congestion of the stomach could not be learned at the mortuary slab, but only by witnessing its bleeding surface in the living. Hemorrhage more or less acute might result from the formation of the typical acute peptic ulcer, the vessels beneath the muscularis mucosa being opened by the ulcerating process. Such hemorrhage was rarely fatal; the vessels opened were small and their walls soft and normal, permitting retraction and contraction with the formation of an occluding clot as the blood pressure was reduced by hemorrhage. In many cases acute ulcer announces its presence by bleeding and if appropriate measures were taken the hemorrhage was rarely dangerous and seldom repeated. While it was true that sudden massive hemorrhage did occur in chronic gastric and duodenal ulcer, it was also true that it was not a characteristic of ulcer to bleed profusely. Occult blood or small recurring hemorrhages were far more characteristic of ulcer, and it was, therefore, incumbent upon the diagnostician, in the presence of diffuse hematemesis, to adduce considerable evidence in the way of history or examination before concluding that ulcer was present. The hemorrhage due to malignant disease of the stomach, like that of ulcer, was not commonly profuse and sudden. In the early stages it was slight, even occult in the stools. It was more apt to be persistent than the hemorrhage of ulcer and tended to become progressively more marked. The hemorrhage from malignant ulceration was, as a rule, a slow seepage which gave rise to little systemic effect of bleeding, but revealed itself by the process of coffee ground vomitus or melena. Sudden hemorrhage was one of the modes of termination of gastric carcinoma, but in all but the rarest instances such an event was but the termination of an already established and evident malignant cachexia. During the past year there oc-

curred in the practice of one of his Philadelphia colleagues a case of death from hemorrhage of an ulcerated myoma of the stomach. The growth was round, encapsulated, about six centimetres in diameter and its growth was chiefly inwards into the cavity of the stomach, much like a submucous myoma of the uterus. Operation might be indicated in gastric carcinoma when hemorrhage chanced to be an early symptom and there was still hope of cure; or it might be indicated in advanced or otherwise inoperable cancer when hemorrhage was so profuse and persistent as to shorten even the period of prognosis given to cancer. In this case the measures to be adopted were excision, gastroenterostomy, or jejunostomy in accordance with the pathology found at operation. But four most essential questions remained to be settled: 1. The recognition of suitable cases; 2, the time to operate; 3, the type of operation to be performed; and, 4, the proof of our position by mortality statistics. The diagnosis of chronic eroding ulcer must be clear to warrant operation in acute gastric hemorrhage. Not only must the conditions which simulate it be considered and eliminated so far as possible, but we must be in possession of a history which pointed strongly toward the existence of chronic ulcer. The most important point was a history of long continued persistent painful indigestion definitely related to the ingestion of food. In reviewing the literature thirty-three cases of operation for acute gastric hemorrhage, exclusive of his own, were collected since the independent reviews of Tuffier and Connell in 1905. In those thirty-three cases there were eight deaths (24.2 per cent.). This was to be compared with Tuffier's collective mortality of 36.3 per cent. in 1905, with Rodman's mortality of 37.5 per cent. in 1901, and with Savariaud's figure of 62.6 per cent. in 1898. It was easily seen that the mortality was becoming less, a fact attributable doubtless to various causes, but in part, at least, to increasing accuracy of recognition of the proper type of cases in which surgery was to be employed.

Dr. A. J. OCHSNER, of Chicago, stated that we must not look upon gastric hemorrhage primarily as a surgical emergency. An idea which had permeated the surgical conscience, as a result of the surgical possibilities of the last few decades, had given the feeling that when any very serious condition arose, we must attack it surgically. This was true only when the good judgment of the surgeon indicated that the patient was in such a condition that surgical treatment would give the greatest possibility of cure. A careful and accurate diagnosis was the foundation for this judgment, based upon a thorough knowledge of the history of such cases. The actual death rate from chronic hemorrhages of the stomach was undoubtedly large and must be considered from the standpoint of ulcer of the stomach, and that treatment must again be based upon a diagnosis which now could be made with a great degree of certainty.

**The Operation of Gastrojejunostomy and the Principles Which Should Determine Its Use.**—Mr. HERBERT J. PATERSON, F. R. C. S., of London, said that there was little doubt that the immediate results of the posterior operation were better than

those of the anterior. The patients convalesced more smoothly, and vomiting was less common, while after the anterior operation it might be necessary to wash out the stomach once or twice during the first few days. As to the remote results, he was inclined to think that the advantage rested with the anterior operation. After the posterior operation some patients, few in number, it was true, after remaining well for months or years, began to suffer discomfort. In some instances this was due to a mechanical defect at the site of the anastomosis, such as a constriction produced by contraction of the mesocolon encircling the anastomosis. He was quite clear that the mesocolon should be sutured to the stomach a little distance away from the suture line, and not to the jejunum or to the suture line as was commonly taught. In other cases the defect was due to a kink produced by contraction of a dilated stomach, or to the formation of adhesions, or to rotation of the jejunum on its longitudinal axis during the process of suturing. For a good many years he had been advocating the view that gastrojejunostomy was a physiological one. Sir Berkley Moynihan had expressed his belief that the "physiological explanation of gastrojejunostomy is rot." He would endeavor to give the reasons for his belief. First, in view of the allegation that gastrojejunostomy was a drainage operation, we must inquire, what was the effect of this operation on the evacuation of the stomach. His experience was that in cases in which there was no organic stenosis of the pylorus, the evacuation of the stomach was slightly accelerated. Usually the stomach was emptied in from three to four hours after a meal. Another means of comparing the motility of the stomach before and after operation was afforded by the study of the amounts recovered after a test meal. In sixty per cent. of a series of investigated cases the amount recovered after a test meal was less after operation than before, but the difference was not very great. In sixty-six cases the average amount recovered one hour after a test meal was 190 c.c. before operation, and 180 c. c. after operation. As a rule, when there was organic pyloric stenosis, the motility of the stomach was improved by gastrojejunostomy. He thought, therefore, we could conclude that in those cases in which the gastric motility was markedly impaired by pyloric stenosis or by adhesions, the operation resulted usually in a marked improvement in the evacuation of the stomach contents. In those cases, on the other hand, in which before operation the motility was unimpaired, gastrojejunostomy usually slightly hastened, but occasionally retarded, the evacuation of the stomach; but inasmuch as this retardation or acceleration fell within physiological limits, we were justified in saying that in cases in which, before operation, the motility of the stomach was unimpaired, the evacuation of the stomach was unchanged by gastrojejunostomy. Notwithstanding the absence of Gmelin's reaction in twenty-seven per cent. of his cases, he believed that the presence of bile in the gastric contents was a constant and very important feature after gastrojejunostomy. His reason for this statement was the observation that in ninety per cent. of his cases there was, after gastrojejunostomy, an increase of the mineral chlo-

rides in the gastric juice. This increase was not due to greater activity of the gastric mucosa because, as a rule, there was in seventy-five per cent. of his cases a diminution of the total chlorides. If this increase in the mineral chlorides was not the result of greater activity, it must be due to chlorides added from without to the gastric contents. For example, take the operation of appendicectomy, was there an increase in the mineral chlorides after this operation? In twenty-six per cent. of his cases of appendicectomy there was a marked decrease, in the remaining seventy-four per cent. there was an increase; but whereas after gastrojejunostomy the increase in mineral chlorides was accompanied by a decrease in the total chlorides, after appendicectomy the increase in mineral chlorides was accompanied, as a rule, by an increase in the total chlorides. After a gastrojejunostomy there was a constant increase in the mineral chlorides of the gastric juice. This increase must be due to chlorides added to the gastric juice by the entrance of bile and pancreatic juice; because, 1, the total chlorides of the gastric contents were diminished; 2, undoing gastrojejunostomy diminished once more the amount of mineral chlorides; 3, if an enteroanastomosis be performed the increase in the mineral chlorides did not occur; 4, in cases in which there was a marked excess of mineral chlorides; 5, as a rule, the increase in mineral chlorides did not follow operations other than gastrojejunostomy. Doubtless part of this increase was due to the neutralization of free hydrochloric acid and the consequent formation of sodium chloride. This did not affect his argument because, 1, this neutralization must be caused by the carbonates of the bile and pancreatic juice; 2, if, before gastrojejunostomy, free hydrochloric acid be absent from the gastric contents, there was still an increase in the mineral chlorides after gastrojejunostomy.

To his mind the conclusion was irresistible, that gastrojejunostomy was a physiological operation. It was easy to ascertain the changes in the gastric contents which followed gastrojejunostomy, but at present we must admit that we could only speculate as to which of those changes was the important factor in the relief of the patient. As he had already pointed out, a most striking feature after gastrojejunostomy was the diminution of the total acidity. The four practical lessons to be learned were these: 1. That the type of gastrojejunostomy employed is of less importance than the manner in which it is performed; 2, that if gastrojejunostomy be a physiological operation its use for the treatment of gastric hemorrhage is correct and explicable; 3, that occlusion of the pylorus is an unnecessary complication of gastrojejunostomy and is based on erroneous pathology; 4, that if gastrojejunostomy be a physiological operation, then it is as efficient a treatment for ulcers of the body of the stomach as for ulcers near the pylorus; in other words, gastrojejunostomy is preferable to excision.

Dr. CARL BECK, of Chicago, stated that Mr. Paterson was the father of the theory of the physiological effect of gastrojejunostomy, and what he had said in regard to the anterior and posterior operations, as well as the relative merits of each, was



very important and suggestive. As to whether pyloric exclusion was practically useless, further experimentation in the workshops of surgeons would determine. At present, surgeons could only take the say so of Mr. Paterson for it. As to the frequency of cancer of the stomach when ingrafted upon ulcer, notwithstanding the authority of Kocher, he still believed that the authority of the pathologists at Rochester was just as good, and their proof just as convincing as the pathological reports which had emanated from the laboratory of Kocher.

(To be continued.)

## Letters to the Editor.

### CORRECTION.

173 LEXINGTON AVENUE,  
NEW YORK, November 16, 1913.

To the Editor:

I shall thank you for correction of the typographical error in my letter Kymograph and Kymatograph published in your esteemed JOURNAL of November 15th, namely "dam" instead of "damn."

A. ROSE, M. D.

## AMORPHOUS PHOSPHORUS IN SENILE ARTERIOSCLEROSIS.

631 EAST 168TH STREET,  
NEW YORK, November 13, 1913.

To the Editor:

The author has used the red amorphous phosphorus in senile arteriosclerosis for several years. Given originally as a substitute for ordinary phosphorus in senile debility, it was found that it was eliminated as amorphous phosphate of lime and that the lime elimination was thereby increased. Weil's experiments showed that the lime elimination in arteriosclerosis was diminished. Phosphorus has the property of combining with lime and increasing the lime assimilation. In the small doses which can be given when the ordinary phosphorus is employed, the phosphorus will combine with the lime of the food and increase the amount of lime salts in the body. When given as amorphous phosphorus the dose is two grains or more several times a day, and with a lime-free diet, the lime required for the combination necessary to secure the elimination of the phosphorus excess, is drawn from the abnormal lime deposits. This appears to be the rationale of the treatment and explains the good results obtained from its use.

I. L. NASCHER, M. D.  
225 HENRY STREET.

## TOUCH DISEASES.

NEW YORK, November 16, 1913.

To the Editor:

It remained for a few fortunate physicians to discover what our masters in medicine, past and present, have overlooked.

No one till just lately ever knew that there were actual diseases and "touch" diseases. One hears now the following diagnosis: A touch of the gripe, a touch of bronchitis, a touch of asthma, a touch of pneumonia, a touch of consumption, a touch of appendicitis. It would seem that in one case the pathogenic organisms cause the gripe, bronchitis, pneumonia, consumption, and appendicitis, while in the other case the organisms just touch the part, and before they have time enough to cause a real pneumonia or consumption they are frightened away by the doctor. Is there anything more absurd? A physician with any respect for himself and his profession surely feels disgusted at this new medical nomenclature.

J. EPSTEIN, M. D.

## CONCLUSIONS OF FREUDIAN SCHOOL.

1517 SOUTH KEDZIE AVENUE,  
CHICAGO, November 11, 1913.

To the Editor:

In view of the fact that the JOURNAL for November 8th was on the press before you received the revised and corrected proof of my paper entitled "If Certain Conclusions of the Freudian School Were True," which appeared in that issue of the JOURNAL, the article as published contained a number of errors and omissions, some of which are so important that, although they will all be checked up in the reprints, I feel that the attention of your readers should be specifically called to them.

On page 914 "practically always" on line 7 should read "usually"; "the dreams" on line 12 should read "most of the dreams"; "all the dreams" on line 13 should read "most of the dreams"; "every possible mental state" on lines 18 and 19 should read "almost every possible mental state"; "not a thought" on line 20 should read "hardly a thought."

On page 915 "always of sexual etiology" on line 46 should read "always of sexual etiology, when the condition is of primary origin."

On page 916 "psychological basis" on lines 24 and 25 should read "psychobiological basis."

May I ask that you publish this letter in your columns?

MEYER SOLOMON, M. D.

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*An Introduction to the Study of Infection and Immunity.* Including Chapters on Serum Therapy, Vaccine Therapy, Chemotherapy, and Serum Diagnosis. For Students and Practitioners. By CHARLES E. SIMON, B. A., M. D., Professor of Clinical Pathology and Experimental Medicine at the College of Physicians and Surgeons, Pathologist to the Union Protestant Infirmary and the Hospital for the Women of Maryland, etc. Second Edition, Revised and Enlarged. Illustrated. Philadelphia and New York: Lea & Febiger, 1913. Pp. x-325.

The second edition of this work, the first edition of which, the author tells us, has been exhausted within one year, embodies the most notable achievements of the last twelve months. This statement means much to those who are familiar with the vast amount of work done in the study of infection and immunity throughout the realm of experimental medicine. In physiological chemistry alone, for example, which is but a subdivision of the subject in point, the annual aggregate of articles published amounts to thousands! Besides, the author has added sections on autotherapy and normal serum therapy, on the chemotherapy of pneumococcus infections and of cancer, and on the serum diagnosis of pregnancy. We bespeak for this new edition the same kindly reception accorded its predecessor.

*Diseases of Women.* Medical and Surgical Gynecology. By CHARLES A. L. REED, A. M., F. C. S., M. D., Fellow of the College of Surgeons of America, Professor in the University of Cincinnati, Gynecological Surgeon to the Cincinnati Hospital, etc. With 448 illustrations in the Text. New York and London: D. Appleton & Co., 1913. Pp. xxxv-944.

The author of this work on Gynecology appreciates the point that an excess of descriptive detail might induce one not properly drilled and apprenticed in surgical technic to undertake difficult and unfamiliar operations, and in this way become a source of possible danger. Still the book is marked by that very minuteness of detail and wealth of illustration which one finds lacking in most treatises of this kind. Individuality has been repressed, the actual status of each subject at the time of writing seeming more important to the author.

The surgical aspects of gynecology are well considered, the working details of over two hundred operations being given. Many of the sketches of the more than four hun-

dred illustrations were made in the operating room, not a few by the author himself. The book is wholly intended for everyday use and to that utilitarian end the author has expended all his best efforts. This volume is well worthy a place on the practitioner's table along with his best reference and working books.

*The White Lumen Nurse.* By FLEANNOR HALLOWELL ABBOTT. With Illustrations by HERMAN PREIFER. New York: The Century Company, 1913. Pp. 276. (Price, \$1.)

One of the most charming novels which have appeared lately dealing with the life of a physician is the book before us. It contains a charm which hardly a reader, if he is a physician, can escape. A young Canadian girl arrives in New York with the intention of becoming a nurse. The most prominent figure in the hospital which she enters is the leading surgeon, a man over forty, whose first marriage was a union of convenience, and proved a failure. It left the surgeon with a child whom he loves dearly but to whom he is unable to give the necessary care. Nurse and surgeon are thrown together, and a marriage follows with an ending which should satisfy everybody.

*A Manual of Otology.* By GORHAM BACON, A.B., M.D., Professor of Otology in the College of Physicians and Surgeons, Columbia University, Aural Surgeon, New York Eye and Ear Infirmary, etc. Sixth Edition, Revised and Enlarged. With 164 illustrations and Twelve Plates. New York and Philadelphia: Lea & Febiger, 1913. Pp. 536. (Price, \$2.25.)

The necessity for the sixth edition of this valuable little manual bespeaks the popularity which has been accorded it. The revision of the text has been, as far as permitted in the limited space of a manual, in accordance with the rapid strides which have of late taken place in the otologic branch of medicine. The description of the anatomy of the labyrinth is unusually clear and comprehensive for such a small book. The portion relating to suppurative labyrinthitis and the submucous resection of the nasal septum have been wholly rewritten and somewhat enlarged, while the subject of otosclerosis has been considered important enough by the author to be recast. The significance of vaccine therapy and the early examination of the cerebrospinal fluid in leptomenigitis is duly emphasized, while attention is also called to the modern excision of the tonsils. The cuts throughout are unusually clear, instructive, and are invariably accompanied by a concise, elucidating description. A continuation of the popularity shown earlier editions is justified for this one.

*Military Hygiene and Sanitation.* By Colonel CHARLES M. MELVILLE, M.B. Edin., D.P.H., Royal Army Medical Corps, Professor of Hygiene, Royal Army Medical College, Member of Council, Royal Sanitary Institute. With Diagrams. New York: Longmans, Green, & Co.; London: Edward Arnold, 1912. Pp. vii-418. (Price, \$3.50.)

We have been tardy in the review of this unique and valuable work for several reasons. We were forced to read it through and through, finding it so interesting and at the same time so entertaining, that we could not call a halt until the entire, really classic unit had passed in review. Having read the volume, much time was required for inspection and retrospection. Favorable comment and justice due would demand that we quote pages of our author's experience. To be appreciated this work must be read *in toto*. The duties of a military sanitary officer are aptly and pertinently defined, especially for younger medical officers. "The duty of the military sanitary officer in time of war, is, like that of every other individual in the army in time of war, to defeat the enemy. The price of success in war is human life and suffering, and it is for the commander to decide on the terms of payment. He may decide to pay the price in exhaustion and disease, or in terms of bayonet and gunshot wounds. He will choose, presumably, that method of payment which seems to him the most convenient and the cheapest, but in any case the choice rests with him, and not with the medical authorities." His definition of marching is unique. "Marching means walking; wearing certain clothes in a certain manner; carrying a certain load, disposed on the body in a certain manner; as one unit in a body of men; at a pace regulated by the average physical conformation of that body, and not by the per-

sonal peculiarities of any particular individual." He adds, note the forceful language! "The greatest enemy on the march is heat. Water on the march should be treated with as much care as ammunition. 'Water discipline' is as essential to good marching as 'fire discipline' is to good fighting." Furthermore "we must consider the question of walking as it affects the foot plus a boot, and we must make the best of it. This is to a great extent a disciplinary measure." The chapters on Food and Dietetics and The Soldier's Ration, bristle with facts and up to date practical and logical suggestions, and Field Service Rations, covers all that is worth knowing on the subject and his opinions are "gospel truth." About the Purification of Water, he goes into detail and considers all methods to date, and remarks, in concluding, of filtration or chemical purification: "If germs are not removed from water by filtration they may be killed in the water, and this is done either by light, heat, or chemicals. Light is used in the form of the ultraviolet rays. Undoubtedly we have in sterilization by ultra violet rays the most promising method yet put forward."

His methods of Disposal of Waste Matters in the Field are most interesting and his experience is exactly the same as that of our own United States Army sanitary officers. He urges incineration, the use of oil or lime and he places reliance on the use of some strong smelling chemical obnoxious to the fly. He looks on an efficient system of latrine and urinal construction and management as being the keystone of practical sanitation in the field. "Generally speaking, meddlesome sanitation is a mistake and apt to cause friction, but when a crisis occurs, as an epidemic of infectious disease, the medical officer must take personal charge of the situation. If the private soldier sees that the medical officer considers the special rules he has made are of sufficient importance for him to sacrifice his own comfort and leisure to insure their efficient observance, that astute individual will accord to those rules a respect, which, in course of time, he will probably extend to their promulgator." When referring to the exanthemata we are disappointed that he makes no reference to measles nor does he condemn the use of straw in filling bedding sacks or on the picket line. As to the chapter on Disinfection the author's experience coincides with ours, commending as the best chemical one of the phenol group, after incineration and boiling. This book ought to be found in every medical library. It appeals especially to every man in the Reserve Medical Corps of the United States Army. For all medical officers in the service of the United States, regular army, or national guard, especially to the younger officers, it must prove a boon companion.

## Meetings of Local Medical Societies.

MONDAY, November 21st.—Medical Society of the County of New York (annual).

TUESDAY, November 25th.—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Dermatological Society; New York Psychoanalytic Society; Metropolitan Medical Society of New York; New York Medical Union; New York Otological Society (annual); New York City—Riverside Practitioners' Society; Valentine Mott Medical Society, New York; Washington Heights Medical Society, New York; Alumni Association of Seney Hospital, Brooklyn; Rome, N. Y., Medical Society; Buffalo Academy of Medicine (Section in Pathology).

WEDNESDAY, November 26th.—New York Surgical Society (annual); New York Society of Internal Medicine; Medical Union (Buffalo).

THURSDAY, November 27th.—New York Physicians' Association; Bronx Medical Association; New York Celtic Medical Society; Hospital Graduates' Club, New York.

FRIDAY, November 28th.—New York Academy of Medicine (Section in Obstetrics and Gynecology); Academy of Pathological Science, New York; New York Society of German Physicians; New York Clinical Society; Manhattan Medical Society; Italian Medical Society of New York; Hospital Graduates' Club, Brooklyn; Audubon Medical Society, New York.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending November 15, 1913:*

**Earle**, Baylin H., Passed Assistant Surgeon. Directed to proceed to Anacortes and Hoquiam, Wash., and make inspection of these ports relative to quarantine matters and medical relief of seamen. **Frost**, W. H., Passed Assistant Surgeon. Detailed to attend a meeting of the Association for Preventing the Pollution of Rivers and Waterways, to be held at Chicago, Ill., on November 11 and 12, 1913. **Glanville**, W. J., Assistant Surgeon. Relieved from duty at Ellis Island, N. Y., and directed to report to the director of the Hygienic Laboratory for temporary duty, under Surgeon L. L. Lumsden, in making a sanitary survey of Berkeley County, West Virginia. **Goldberger**, Joseph, Surgeon. Directed to proceed immediately to Rochester, N. Y., for the purpose of investigating certain cases of suspected typhus fever. **Gutierrez**, Castro, Acting Assistant Surgeon. Detailed to attend the Sixth Pan-American Medical Congress at Lima, Peru, November 9, 1913. **Hasseltine**, H. E., Passed Assistant Surgeon. Directed to proceed to McNeil Island, Wash., for the purpose of making an inspection of the United States Penitentiary at that point to ascertain what improvements, if any, should be made in the sanitary condition of that institution. **Jenkins**, Luther W., Assistant Surgeon. Directed to proceed to Seattle, Wash., and report to the commanding officer of the Revenue Cutter *Tahoma* for temporary duty on special relief work in Alaskan waters. **Lloyd**, B. J., Surgeon. Directed to investigate suspected cases of beriberi on bark *Dundee* arriving at Bellingham, Wash., from Finland. **Lumsden**, L. L., Surgeon. On the request of the State and local authorities, directed to undertake a systematic investigation of typhoid fever in Berkeley County, West Virginia. **Mullan**, E. H., Passed Assistant Surgeon. On request of the State Department of Health of New York, detailed to attend the annual conference of health officers of the State to be held in Utica, N. Y., on November 19 to 22, 1913. **Parker**, H. B., Passed Assistant Surgeon. Relieved from duty at Guayaquil, Ecuador, effective November 15, 1913, and continued on duty at Ellis Island, N. Y. **Phelps**, Earle B., Professor. Detailed to attend the meeting of the National Association for Preventing the Pollution of Rivers and Waterways, to be held in Chicago, Ill., on November 11 and 12, 1913. **Robertson**, H. McG., Passed Assistant Surgeon. Directed to assume temporary charge of the Service at Philadelphia, Pa., from November 10, 1913, in addition to present duties, until an officer is assigned permanently to the station. **Schereschewsky**, J. W., Surgeon. Detailed to attend the Fourth Annual Meeting of the American Association for the Study and Prevention of Infant Mortality, held in Washington, D. C., November 14 to 17, 1913. **Stimpson**, W. G., Surgeon. Relieved from duty at Philadelphia, Pa., and directed to report at the bureau, Washington, D. C., on November 14, 1913, for duty. **von Eadorf**, R. H., Surgeon. Detailed to represent the Service at the annual meeting of the Southern Medical Association, to be held at Lexington, Ky., November 18 to 20, 1913, reporting at the bureau en route.

### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending November 15, 1913:*

**Baker**, David, Major, Medical Corps. Joined Fort Sill, Oklahoma, on November 6th. **Bevans**, J. L., Major, Medical Corps. Leave of absence extended ten days. **Bradley**, A. E., Lieutenant Colonel, Medical Corps. Ordered on an inspection trip from Philadelphia, Pa., to Fort Monroe, Virginia. **Castlen**, C. R., First Lieutenant, Medical Corps. Joined his station, at Fort Columbia, Washington. **Hillsman**, C. C., First Lieutenant, Medical Corps. Granted twelve days' leave of absence. **Lyster**, W. J. L., Major, Medical Corps. In addition to his duties in the Army Medical School,

Washington, D. C., is assigned to duty in the surgeon general's office. **Magee**, James C., Captain, Medical Corps. Is detailed as a member of the examining board at Fort Leavenworth, Kansas, appointed in paragraph 4, Special Orders No. 246, October 21, 1913, War Department, vice Captain Thomas D. Woodson, Medical Corps, who is relieved. **Porter**, R. S., Captain, Medical Corps. Ordered to accompany the Fifteenth Cavalry (Third Squadron) from Fort Sheridan, Ill., to Fort Bliss, Texas. **Shaw**, H. A., Lieutenant Colonel, Medical Corps. Granted twenty-five days' leave of absence. **Trinder**, John H., First Lieutenant, Medical Corps. Joined the Second Division, Texas City, with Fourth Field Artillery. **Woodson**, T. D., Captain, Medical Corps. Ordered to accompany Second Squadron, Fifteenth Cavalry, from Fort Leavenworth, Kansas, to Fort Bliss, Texas, about November 27th.

## Births, Marriages, and Deaths.

### Married.

**Cummings—Groh**.—In Philadelphia, on Wednesday, November 12th, Dr. Michael P. Cummings, of Reidsville, N. C., and Miss Bessie Groh. **Grainger—Costa**.—In Boston, on Wednesday, November 12th, Dr. William H. Grainger and Miss Jessie J. Costa. **Monahan—Thompson**.—In Somerville, Mass., on Wednesday, November 12th, Dr. Edward J. Monahan and Miss Olive Thompson. **Warncke—Chumar**.—In Elizabeth, N. J., on Wednesday, November 5th, Dr. Frank Hermann Warncke and Miss Blanche Chumar.

### Died.

**Boult**.—In Honeoye Falls, N. Y., on Friday, November 7th, Dr. Charles E. Boult, aged forty-five years. **Cameron**.—In North Yakima, Wash., on Thursday, October 30th, Dr. John M. Cameron, aged fifty-three years. **Colburn**.—In Homer, Mich., on Thursday, November 6th, Dr. Carl A. Colburn, aged seventy-three years. **Carroll**.—In Albany, N. Y., on Sunday, November 9th, Dr. Terence Lathrop Carroll. **Clements**.—In Glasgow, Ky., on Saturday, November 8th, Dr. A. J. Clements, aged eighty-one years. **Davis**.—In Pittsburgh, Pa., on Friday, November 7th, Dr. Frank M. Davis, aged forty-five years. **Denner**.—In Paterson, N. J., on Friday, November 14th, Dr. Edward F. Denner, aged forty-one years. **Engel**.—In Tryon, N. C., on Tuesday, October 28th, Dr. William Royal Engel, of Charlotte, aged thirty-five years. **Finnell**.—In New York, on Thursday, November 6th, Dr. Thomas C. Finnell, aged forty-eight years. **Hall**.—In Memphis, Tenn., on Tuesday, October 28th, Dr. A. M. Hall, aged ninety years. **Higbee**.—In St. Louis, Mo., on Monday, November 3d, Dr. Edward H. Higbee, aged sixty-six years. **Hill**.—In Baltimore, Md., on Monday, November 10th, Dr. J. Harvey Hill, aged seventy years. **Homan**.—In Everett, Mass., on Wednesday, November 5th, Dr. John Milton Homan, aged thirty-nine years. **Jenkins**.—In Kilbourn, Wis., on Monday, November 3d, Dr. George W. Jenkins, aged ninety years. **McCarrell**.—In Washington, Pa., on Monday, November 3d, Dr. James McCarrell. **McClelland**.—In Pittsburgh, Pa., on Saturday, November 15th, Dr. James H. McClelland, aged sixty-eight years. **Miller**.—In Pittsburgh, Pa., on Friday, November 14th, Dr. Zachariah Taylor Miller, aged sixty-six years. **Moose**.—In Asheville, N. C., on Friday, November 7th, Dr. Gurley D. Moose, of Mount Pleasant, aged thirty years. **Mullin**.—In Philadelphia, on Thursday, November 13th, Dr. William Pennington Mullin, aged fifty-two years. **Murray**.—In Toronto, Canada, on Thursday, November 6th, Dr. Charles Stuart Murray, aged sixty-three years. **O'Neil**.—In Long Beach, N. Y., on Thursday, November 13th, Dr. Simon J. O'Neil, of New York, aged fifty-two years. **Prevost**.—In Saranac Lake, N. Y., on Thursday, November 6th, Dr. Leandre Coyteux Prevost, of Ottawa, Canada, aged sixty-three years. **Stewart**.—In Curtis, Neb., on Saturday, November 1st, Dr. Charles Roy Stewart. **Walker**.—In Philadelphia, on Thursday, November 13th, Dr. John S. Walker, aged sixty-six years. **Williams**.—In Ridgway, Pa., on Saturday, November 8th, Dr. Walter L. Williams, aged sixty-nine years.



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### Original Communications.

#### THE CURE OF ATAXIA.

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#### GENERAL CONSIDERATIONS.

In tabes, ataxia has two components, a physical component—the characteristic structural changes occurring in the peripheral, spinal, vestibular, and cerebellar parts of the neuromuscular mechanism which subserves coordination; and a psychic component—the changes in the psychic control which has been gained by education over reflex movements in order to permit voluntary action. These structural lesions and those psychic changes tend to incoordination. At any moment the tendency to ataxia, or coefficient of ataxia, must be equal to the ratio between the incoordinating tendencies or complexes and the actual coordinating power.

Ataxic influences or complexes.  
Coefficient of Ataxia=  $\frac{\text{Ataxic influences or complexes}}{\text{Actual coordinating power}}$

—The ataxic influences or complexes thus comprise organic structural changes and functional psychic derangements. The actual coordinating power depends upon the inherent cerebral capacity, upon the training in the function of coordinated movement, and upon the nutritional and morbid alterations which the brain has undergone.

When this ratio equals unity, the ataxic threshold is reached; when it is less, coordination persists; when greater, ataxia is evident. To cure ataxia we must reduce this ratio below unity. We must diminish the numerator, the ataxic complexes; and increase the denominator, the actual coordinating power. The combating of the physical element, the structural changes, in the ataxic complex is rarely attended with much success. I wish here neither to dwell upon the causes of this customary failure nor to discuss the relative merits of the various remedies against the emasculated, and often more or less innocuous *Spirochæta pallida* detectable in tabes, and therefore blamed both for the banal syphilitic proliferations which it does cause, and for the primary tabetic degenerations which it does not cause.

Apart from the removal by medicinal means of the syphilitic tissue overgrowth which in the meninges may impair function without producing permanent destruction of the entering and emerging reflex paths, it is doubtful if we can by any

measures directly affect to an appreciable extent the reflex mechanism in the spinal cord. Experiments upon the spinal reflexes of animals in which by transpositions and graftings the reflex paths were altered, showed that some influence may be exerted, that a readaptation, reeducation, can occur, even at the level of the spinal segment. But this influence is slight, slow, and uncertain. Efforts to relieve ataxia by way of the physical component, in spite of the knowledge which Sherrington Head and others have given us of it, are therefore not likely to be much rewarded. The tremendous influence which can be wielded through the psychic component has long been known. Indeed, a physician recently reported to me a case in which a faith healer cured severe ataxia when more customary methods in the hands of several physicians had failed. Ataxia, once it is established, comes to be among the readiest of the emotional expressions of unpleasant states in the tabetic. Anger, grief, fear, fatigue, depression, all increase ataxia. *All are externalized partly as an increase of the ataxia. Ataxia is, in the ataxic tabetic, in part, an emotional expression.* One of the chief elements in the psychic component of ataxia is fear. The attitude of the typical ataxic is partly a motor expression of his fear. His broad base, his constant use of a stick, his small steps, his gaze fixed on the ground, are all partially fear affects. So also are the curious muscular contractions which he acquires and perpetuates in his attempts to balance.

Fear is one of the most potent causes of ataxia. The effect of fear upon ataxia is evident in every ataxic. Practically every ataxic walks better in private than in public; his fears increase at the slightest provocation; he dreads open spaces, changes of level, street crossings, traffic, etc.; and as he dreads, his ataxia increases. I have recorded instances where fear alone increased the value of the ratio in our guiding formula above unity and precipitated a patient from the preataxic into the ataxic stage. Just as fear increases ataxia, so reassurance diminishes it. We can therefore reduce the numerator of our ratio, we can reduce the force of the psychic complex of ataxia, we can reduce the value of the coefficient of ataxia and decrease ataxia, by alleviating fear.

Since the dawn of intelligence, man has known that practice perfected movement. Leyden, Goldschieder, and the Swedish school of gymnasts showed that what prevailed in health did not cease in disease; that movement was most excellent therapy in all morbid conditions wherein the function of movement was disturbed. Frenkel, since 1897, has

done much to organize and to popularize this movement therapy in the cure of the ataxia of tabes and the service which he has rendered is acknowledged in styling the movements, Frenkel's exercises.

The importance of fatigue we have long known, but it has of late years received a new and exaggerated value from the excellent work and writings of Edinger.

We are still ignorant of all but these crude facts regarding the psychic mechanism of progression; but that removal of fear, emotional control, relief of fatigue, and educational exercises are strongly indicated in the psychic treatment of ataxia, is incontrovertible. By these measures we may diminish the psychic component of ataxia, and increase the coordinating power also; we may, therefore, diminish the value of the coefficient of ataxia; and if the diminution brings the coefficient below unity, we may restore a patient to a condition of outwardly perfect coordination.

The faith healer removed fear alone, and ataxia disappeared. Electricity, massage, hydrotherapy; glandular extracts, lecithin, and other organic substances; practically every inorganic substance in the pharmacopeia; suspension, chiropractic, and osteopathic manipulations; and treatment by local irritations and other manoeuvres, all have cures to their credit. All doubtless contain elements which confer benefit. Mechanical and chemical agents may produce advantageous nutritive effects upon both nerves and muscles. But the efficiency of these measures depends mainly upon the administrator. A physician can incite hope by any treatment, and hope begets courage. Every treatment the efficacy of which depends mainly upon the personal reaction of the patient to the physician is limited in its usefulness mainly to the sphere of the physician who believes in it. Only when therapy is directed against the essential cause of a symptom can improvement be expected from the hands of all physicians. Even then the improvement will vary; even then the personal reaction will markedly influence the result. But when the personal reaction is slightest the intrinsic value of the treatment remains, and improvement still ensues.

The only treatment which so far has proved of universal value is that which Frenkel has popularized. This treatment by educational exercises mainly tends to increase the denominator of our guiding formula, to increase the actual coordinating power. The influence which it has upon the numerator is merely that due to the reduction of fear which follows the diminishing of ataxia and which confidence in the treating physician inspires.

In my hands the Frenkel system did not yield results as good as I desired; so far as I can judge from personal observation, in the hands of others it also falls short of what one would wish to attain. There are few cases which do not improve to any degree by the Frenkel method. There are equally few which improve to a degree that permits unaided walking in public. Complete failure is exceptional. Indeed if some degree of improvement is not attained it may be more the fault of the physician than of the method.

But, as a rule, the Frenkel system achieves only partial success. The Frenkel treatment may

achieve more in special cases such as some of those who develop acute ataxia from psychic causes, some slight cases, and some cases with indomitable will and unearthly persistence. It may also achieve more in the hands of the few who are as Frenkel.

It is illogical to criticise a system for the failures of its disciples. But no system of therapy is harshly judged from its average results. The system which is only satisfactorily efficient in the hands of the few is a system which lacks what only these few can provide, and to that extent is an imperfect system.

Frenkel insists upon the control of movement by vision as indispensable to success. The patient must follow every movement visually. That an elaborate training should be conducted by the aid of the visual mechanism—a mechanism which may be implicated in the disease—and that patients should depend on sight when vision may be complicated by ptosis, ocular palsies, ataxia of the ocular muscles and optic atrophy, is not so irrational as it seems. The main function of the vision, I believe, in this process of reeducation is not the directing of movement, but the directing of attention, or rather the directing and limiting of attention, to movement. Frenkel, so far as I know, does not admit this.

The value of visual fixation as a prop to attention is a matter of common knowledge. The partially deaf who are misguidedly taught lip reading often improve in hearing thereby. We usually fix our attention by looking while we listen, or feel, or smell. But to concentrate our attention to the utmost degree in listening or in smelling, *we close our eyes*. To devote our whole attention to muscular sense impressions we ought also to close our eyes. Physicians have more or less recognized that for over thirty years. Frenkel himself says: "*Blindness*. In this connection we have to mention two interesting facts which have not yet been sufficiently explained, namely, that tabetics who lost their sight at an early stage of the disease seldom developed much ataxia and, that developing blindness is accompanied by a marked improvement in the ataxia already present." It seemed to me, from clinical and experimental evidence, to be a law that of two tabetics at any stage of the disease, *one blind, the other seeing, other things being equal, the blind is less liable to be ataxic—more liable to persistently coordinate*. Therefore the use of sight during the training is a hindrance not a help to coordination. The principle underlying the improvement in ataxia which results from blindness may be crudely stated as follows: The less vision monopolizes attention, the less the distraction, the more perfect the discrimination of sensations from other spheres. The sphere in which the ataxic needs enhanced perception is the sphere of the muscular sense impressions. Blind tabetics teach us, and the personal experiences of Doctor Wachsmann and of myself, have recently proved clinically, that the way to teach ataxics to perceive their residual muscular sense impressions, is to eliminate vision. Movement should not therefore be taught as Frenkel teaches it; the patient should not be directed to follow every movement with his gaze; he should be taught to move blindfolded.

Chesterton when he defined a pessimist as one who looks at his feet, was telling in jest a truth the

importance of which cannot be overestimated. To make vision an essential guide to movement is to make a visual automaton out of a man, and to lay the foundation for an anxiety neurosis. For if he is taught not to move unless he looks, he soon fears to move unless he sees, and then fears everything that he does not see. The vicarious and unnecessary use of vision by ataxics is, I think, one of the most fruitful sources of the fear from which tabetics suffer and which so greatly disturbs their coordination. An ataxic should be taught to move blindfolded, first, because of the greater ease with which he can thus be taught; secondly, because no gross movement visually controlled can ever be anything but awkward; and thirdly, because of the serious handicap which the necessity of sight imposes upon movement. I would insist upon the value of blindfolding from the very beginning of the exercises, from the first lesson.

The Frenkel treatment takes practically no cognizance of the effect of fear upon ataxia. By using visual control in the movement exercises it handicaps the patient in the speedy and perfect acquiring of movements, and it may actually engender and perpetuate fear which tends to increase ataxia. The typical straddle-legged, artificially supported, contorted attitude of a man consumed with anxiety is the usual result. I wish to state that in making these remarks I do not aim to disparage the Frenkel treatment, but merely to explain why I sought some more effective means of treating this distressing symptom, ataxia.

While I was a house physician at the National Hospital, London, I was disappointed in the degree of improvement which ambitious, intelligent ataxics attained by the Frenkel system. The fact that the blind tabetic was less ataxic than the seeing, at least, in part because of his blindness, led me later to teach ataxics to move blindfolded. Improvement occurred more rapidly than when they were taught without being blindfolded.

After observing how fear increased ataxia, after encountering two cases which I have since published in which fear was the immediate inciting agent of the ataxia, and after finding from literature and report that such cases were not infrequent, I added to blindfolding certain measures to alleviate fear. The method of curing ataxia which I now practise has been gradually evolved from these two basal considerations,—the concentration of the attention by blindfolding during the coordinating exercises and the elimination of fear.

#### TECHNIC OF THE TREATMENT OF TABETIC ATAXIA.

The patient is not informed about his disease, or its cause, and is reassured regarding its course. He is thus spared much mental anguish. Appropriate measures are taken for information regarding the activity of the original infection and the usual medicinal treatment is instituted.

**Mechanical Measures.**—Ataxia itself is a fertile source of fear. If we relieve the ataxia we, to that extent, relieve fear. To attempt to mitigate ataxia and fear, for the one hour every second day that the patient spends in the physician's office, and during the other forty-seven to allow a whit more staggering than is unavoidable, is seriously to handi-

cap treatment. For this reason I begin the treatment of ataxics who are not bed or chair ridden by utilizing simple mechanical aids to minimize ataxia when walking. A high shoe or boot, specially strengthened with leather on the outer side of the ankle, increases the support at the ankle and prevents the foot turning in. The heel is low, wedge shaped, the base of the wedge being on the ground, and is continued along the outer side of the shoe. A welt as broad as the patient will permit (usually about one quarter inch projects) surrounds the sole. A steel plate is (in the beginning in severe cases) placed in the sole to prevent bending. The shoe should be as light as is consistent with maintaining its shape. When the shoe is on the ground it rests with its whole bearing surface. The patient gets support from every part of this broadened surface simultaneously. He does not oscillate every time he puts his foot down. He feels more secure. He is more secure. He is readily weaned from the straddle legged attitude which is so disconcerting to coordinate walking. As he feels more secure, he fears less, and the psychotherapy of the physician does not cease with the medical visit. Most tabetics have faulty arches. Appropriate arch supports are of the greatest value. The first step in treatment is to minimize the mechanical disabilities of the ataxic. The occasional sudden "giving" at the knees and ankles has a very demoralizing effect upon ataxics. The "giving" is mainly due to the loss of muscular tone, but may partly arise from the overstretching of the hypotonic muscles inducing the reflex, *umkehr*, contraction. To avoid the "giving," I lightly support the knees by a bandage of elastic webbing.

**Blindfolding and Relaxations.**—The patient is made to lie down, blindfolded. He is enjoined to dismiss all thoughts of extraneous affairs, to allow his mind to tranquilize, and to attend strictly to what he is told. The room is maintained as quiet as possible to avoid distracting him. He is then ordered to relax the muscles first of his face, then of his neck, then of his trunk and then of his limbs. Each order is repeated and restated, first alone, and then linked with the preceding order. The whole process is conducted slowly and with suitable pauses. From these relaxation exercises, practised blindfolded, three results are attained: First, ineffective, often useless, and sometimes completely disconcerting muscular contractions which have been acquired in attempts to balance, are got rid of so that the coordinating exercises can be begun on an unstrained musculature and not superimposed upon existing habit contractions. Secondly, active relaxation confers a great training in attending to muscular sense impressions. Thirdly, the patient becomes less fearful and more receptive because, in so far as fear is maintained by its motor expressions in his attitude, it is diminished. Patients report spontaneously that these blindfolded relaxation exercises greatly improve their sleeping power. They tend to sleep excessively. Arrears of sleep are made up and pains often disappear under the improved mental condition which now ensues.

After general relaxation has been practised, attention is specially directed to one region, say the right lower limb. Relaxation of the ankle, knee, and hip



muscles is then insisted upon. First each is separately considered, then reconsidered, and finally all are linked together so that as great a degree of muscular relaxation as possible is obtained in the chosen limb.

*Movements.*—Next movements are begun. Passive flexion and extension of the ankle is first practised. The foot is placed in extreme flexion, and the patient is instructed to count slowly while the physician at a uniform rate moves the foot to a position of complete extension, pauses, and then returns the foot to complete flexion. The purpose of the passive movements is to teach the correct direction and extent of each movement. Next the patient lightly but steadily resists the passive movement. Then the movement is practised with the patient performing and the physician aiding and guiding. The physician's aid gradually lessens as improvement occurs. And then the movement is executed by the patient alone. Finally, the movement is made against resistance. It is essential that the movement should always be completed by the return of the limb to the position from which the movement started. During every movement the patient counts rhythmically. The purpose of the counting is to educate the patient to move easily and uniformly, at a regular *tempo*. After the ankle, first the knee and then the hip of the same limb are educated. Besides flexion and extension, all the simple movements which can take place at the joint are practised. All exercises are done without shoes; artificial aids should not be employed during the exercises. In every case, first relaxation, next passive, then passive resisted, then passive combined with active, then active unaided, and finally active resisted movements are practised. When the ankle movements have been acquired then movement exercises are begun with knee movements; when knee movements have also been acquired then ankle and knee movements are repeated before each attempt at the hip movements; and so forth. The repetition, after relaxation exercises, of a movement which can be proficiently performed is a great aid in the learning of the next new movement.

The limb movements which are practised in the recumbent posture may also, if possible, be practised, as occasion permits, in the sitting posture. From the right lower limb we proceed to the left, relaxation, passive, resisted passive, combined passive and active, active and active resisted movements at each joint are practised as before.

Before any attempt is made to teach progression the trunk muscles must first be coordinated by relaxation and movement. This is usually easy for, the upper limbs being seldom ataxic, may be used to practise lateral and forward thrusts, elevation to the sitting and resumption of the recumbent posture, with aid and against resistance.

The head and neck muscles are similarly treated. Their treatment is just as important as that of any other part. The position of the head largely governs the attitude of the body.

Too great stress cannot be laid on this preliminary training in attitude. What may be called static coordination is a vital essential to correct progression. We know from the experiments of Vierordt and others that all local movements are

but maximum expressions of a general muscular change. The general muscular change must not be neglected in favor of the local movement. Co-ordinate movement of the lower limbs can produce only a travesty of walking if the trunk and head are wobbly. The whole body must be taught to move harmoniously. The first essential of stability in walking is stability at rest.

After the exercises in the recumbent and sitting postures have been completed the first attempt at progression is made. Kneecaps similar to those used by carpenters, but well padded, are tied on the knees and the patient is instructed in creeping. The change from the recumbent to the creeping posture does not unduly strain the patient's confidence in his powers of unaided blindfold progression. The creeping movements are conducted with the back as horizontal as possible; squatting must not be permitted. The *tempo* of the movement is again carefully regulated by counting. The direction is insured by means of a strip of carpet or linoleum upon which the creeping is performed.

After creeping has been practised for some time, first, changing from the creeping posture to kneeling up, and then, rising from the sitting posture to the upright are attempted.

In the erect kneeling posture progression is practised. Progression in the creeping and erect kneeling postures trains a person to move his body *automatically* with his lower limbs. This training is invaluable as an aid to walking. The dire dilemmas, which to move first, the body or the leg, how much to move the one without the other, are obviated, and the transition from standing to walking occurs almost imperceptibly.

Finally walking is taught. To maintain direction during blindfold walking, strips of carpet or linoleum are again used. These strips should be arranged parallel with the walls of the room so that the patient may at first "feel" his way. As proficiency increases the patient passes from a forty inch width of carpet or linoleum to thirty, twenty, fifteen, and even ten and five inch widths. I have at present one patient formerly very ataxic who can place the heel of one foot in front of the toe of the other and thus advance on a five inch strip for a distance of about twelve feet.

These outlines roughly comprise the system of motor reeducation which I teach tabetics.

Relaxation should be as zealously practised as are movements. The patient should be exhorted not only to relax daily at definite intervals for definite periods, but also to avail himself of every opportunity to relax. When during the exercises, performance is unsatisfactory, the indication is relaxation. After a few minutes relaxing, improvement will be again evident. Every movement must be performed without strain. The moment effort becomes manifest, movement must cease and relaxation begin. To push exercises till the pulse rate rises over 110, or, as I recently saw advocated over 140, is to waste time and to incur risk. When tachycardia affects an ataxic patient he cannot properly attend to movement. In the beginning, the education of the muscular sense impressions must come mainly through relaxation exercises reinforced by blindfolding and passive movement.

Vision is useful only as an aid to the special qualities of movements. These qualities we attain, in spite of blindness, by passive movements and directing strips of carpet. The harmony with which ataxics, taught in this way, learn to move, amply justifies the trouble taken with counting and passive movements. As progress is made the movements are gradually quickened, and coincidentally the passive guidance is terminated.

I have worked with some patients for two hours at a single sitting, but this is seldom advisable in the interests either of the patient or of the physician. Usually I devote from three quarters to one hour on each patient every second day. Less often than twice weekly is not enough. An ataxic thinks as much of his complaint as does any patient with an acute malady. The oftener he is seen the more satisfied he is and the quicker he progresses. I do not outline his treatment beforehand to him. Each day he receives only the task for that day. He must not be permitted to anticipate the treatment to attempt too early movements which are difficult. He must be made to follow the régime accurately and methodically.

The duration of the treatment naturally depends greatly on the physician and on the patient. My most rapid success was in a patient who had a very slowly advancing ataxia for several years. This patient, sent to me by Doctor Sorapure, of New York City, had difficulty in negotiating stairs, walked on a broad base, kept his gaze fixed on the ground, used a stick for support at every step, and had a typical but not marked ataxic gait. In less than a month he walked well, without a stick, in public. Another patient, sent to me by Dr. Vincent Williams, of College Point, New York, with whom I demonstrated at the Post Graduate Medical School, became practically preataxic in less than four months. He came under my care in November, 1912. I last treated him in March, 1913. During that time I saw him once weekly. He now (October, 1913) walks almost perfectly, uses no aid, carries no stick, conducts a large business successfully, although it necessitates much traveling, and mixes freely with his customers and others without exciting comment. He tells me, however, that when he meets anyone of special importance to him for the first time, he still feels embarrassed and has to brace himself up. This patient when he first came under my care was totally incapacitated and entered my office supported on either side by sticks and aided by an attendant.

Two cases which for years had been treated by the Frenkel method without much success I have been able to improve almost to the same extent. One of these, sent to me by Dr. J. J. Walsh, of New York City, I demonstrated at the Post Graduate Medical School. In them, however, I have not so far been able to produce sufficient confidence to induce the patients permanently to discard their sticks.

About twenty other cases of locomotor ataxia have been treated to a greater or less extent by this method. All have shown a degree of improvement greater than that which I used to obtain when I employed the Frenkel method. The improvement has not only been greater, but it has

also been more rapidly reached. I shall later publish these cases in detail. At present I mention them merely to show that the method has already demonstrated its advantages.

The degree and rapidity of improvement is not a personal result. In the hands of two other physicians, who learned and applied the method, its efficacy has been equally proved. No failures have been reported. Both had had experience with the Frenkel method; one, indeed, had practised the Frenkel method since it was first published. Both have informed me that their success, so far, by my method has been greater and more rapid than with the Frenkel method.

I have had no relapses. Those patients whom I have discharged now tell me they have never felt better, that they have continued to improve, that now they understand their trouble, they are not alarmed by it, and if they feel any unsteadiness they have only to relax and exercise, and it disappears.

It is reported that Sir Henry Thompson acquired his wonderful facility with the lithotrite by practising, while in his carriage, the extraction of peas from his sleeve by the instrument. I exhort my patients to relax in street cars, in trains, and under every circumstance where it is possible. They must seek coordination as the upright seek virtue. They keep a tally of the time they spend each day in relaxation and in exercise, and those who do not co-operate as earnestly as they ought and can, are disciplined.

My final instructions to them are, to practise their exercises every night and morning, to relax at all possible intervals during the day, and to avoid using a stick.

*Treatment of Fear.*—One point still remains to be considered—the treatment of fear. The modified shoes and the slight bandaging have a very important tranquilizing effect. The blindfolding, the relaxation exercises, the careful graduation of the movements, all encourage. The removal of the ataxia is itself a treatment of fear. The correction of attitude also mitigates fear. An erect man cannot easily be terror stricken. For the immediate combating of fear it is valuable to explain to the patient the origin of his fears, to teach him to analyze a fear as soon as it arises, and to subdue it. Deep breathing is his best weapon for this purpose. So long as he breathes deeply he cannot become much afraid. The James Lange theory that the fear is caused by the visceral changes and not the visceral changes—quicker heart and respiration rate, etc.—by the fear, may not be wholly true, but if a person breathes deeply and thus keeps his heart's action from becoming unduly fast he cannot develop any great degree of terror.

Since I devised this method I have been surprised to find how little is essentially novel in it. The value of coordinated movements in the cure of ataxia I learned from Frenkel; the other parts I devised myself. The blindfolding which, at first, I thought I alone had conceived, I found later had been practised as far back as 1881, when Mortimer Granville in the *Practitioner* taught, that a patient with ataxia should be treated with preliminary excitations by mustard or cold water, and then made

to stand in a bath with his eyes closed; he furnished a rail, but the patient was instructed not to use it unless in imminent danger of falling.

Doctor Wachsmann, director of the Montefiore Home, New York, to whom I was expatiating upon the value of this method which I had then been practising for about a year, surprised me by stating, he also from the same premises had concluded that the blindfold was the more logical method; he had used it then for three months, and had had most gratifying results from it. I had the pleasure of demonstrating two of his excellent results at the International Extension Course in Nervous and Mental Diseases, held here in September, 1912.

The value of mechanical aids has long been established. Schwab and Allison in an excellent study of the tabetic foot had, unknown to me, anticipated and improved upon some of my efforts to increase the stability of the shoe. Relaxation exercises had been taught by many, particularly by those who practised here what was commonly but erroneously termed the Delsarte treatment; and a faith healer had cured ataxia by allaying fear.

#### CONCLUSIONS.

This method avoids fatigue, promotes confidence, relieves fear and teaches coordinate movement expeditiously. It thus diminishes the coefficient of ataxia in our guiding formula (see page 1045) both by decreasing the value of the numerator and by increasing that of the denominator. Hence, the coefficient rapidly reaches unity, and coordination appears.

Coordination may not invariably be attained by ataxics through this method. The tabetic structural changes may be more extensive than the psychic mechanism can compensate, and the psychic processes may be so disintegrated by concomitant cerebral disease, that the educational and other psychotherapeutic influences which the method exerts, can avail little.

Apart from such exceptional cases, effective coordination can quickly be reestablished by the procedures I have outlined in this paper. I believe this effective coordination is less rapidly, less completely, less easily, and less permanently attained by Frenkel's method than by mine. My experience certainly substantiates this belief. When sufficient data have been accumulated from the experiences of others, a thorough comparison of the results of the two methods will be published.

40 EAST SIXTY-SECOND STREET.

## THE DIAGNOSIS OF ARTERIOSCLEROSIS.

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Diagnosis is a peculiar and complex operation. It must include a certain measure of prognosis, a certain expression of opinion as to the existing structural conditions, a review of disordered physiology, and, in the end, one is expected to name some one of a list of disease terms as appropriate to

be applied to the person under observation. So there has grown up a long series of names that are used to express results of diagnosis. This list is part of the mental furniture of each individual, whether physician or layman.

The layman often does not get further than stomach trouble, or heart trouble, or rheumatism, with a big "R," though some of them have recently appropriated blood pressure, hardening of the arteries, and even arteriosclerosis.

The terms that physicians carry in their minds have a great deal of individuality. We have all heard of the doctor of ancient times, who told every one who came to him, not having some very definite disease, that he was suffering from a "slight diathesis," and history records that this man's clients were perfectly satisfied.

In the diagnosis of arteriosclerosis there is this fundamental difficulty—that the disease has never been satisfactorily defined.

Only lately, Dr. Eugene Lyman Fisk sent me a great deal of literature concerning the work of the conservation of health, because I had expressed my interest in the work undertaken by a life insurance company. With his permission, I quote from *American Life Waste*, in which appears a chart showing that the death rate in 10,000 of population from degenerative diseases has increased in Massachusetts 67.3 per cent. since 1880, and in registration States 103.7 per cent. I would add that correspondence with Dr. Brandreth Symonds confirms the fact of the continued increase in this class of deaths:

This chart shows a truly remarkable increase in the mortality from degenerative diseases—i. e., affections of the heart, bloodvessels, and kidneys, "dropsy," etc.—104% since 1880. No matter where statistics relating to these diseases are sought, the same decided upward trend is found. The figures for all the degenerative affections have been combined in the above chart, in order that any possible misinterpretation, due to the more exact reporting of some particular form of disease, should be avoided. It must be apparent that, while improved diagnosis or greater accuracy in reporting, might be responsible for a marked increase in heart disease, or kidney disease, nevertheless, even in the state of knowledge that obtained thirty years ago, a death from any one of these degenerative affections would have been reported under one of the subdivisions covered by the chart. In other words, while changes in the manner of reporting might alter the mortality figures within this group, the total mortality rate, as shown in the chart, could not be affected by such influences.

Furthermore, these statistical results simply confirm a belief that has been growing among the most experienced physicians, who have observed an increasing number of such cases in their private and hospital practice.

Even if no increase could be shown, surely we should be justified in regarding a failure to reduce the mortality from these maladies as a reproach upon our civilization.

I am disposed to include a large number of these deaths under the general term, arteriosclerosis, giving this name to the degenerative disease of the body in which the heart and bloodvessels take the most prominent part, but which is not essentially and primarily a disease of the arteries alone. This is the view that those competent to form an opinion on the subject have been driven to. Many have expressed the belief that there is no worse named disease in the world than arteriosclerosis of this type.

A very little study convinces one that there is an entirely separate disease, that is essentially a disease of the bloodvessels, that should be named arteritis



or endarteritis. It is surprising to me how many of our best clinicians confound the two things, namely, a local disease of the bloodvessels and the general degenerative disease, and there are even individuals at the present time who have not found out that atheroma, as shown by calcareous deposits, is almost physiological in its development, and has very little to do with arteriosclerosis, the general degenerative disease, or endarteritis, the localized arterial disease.

The attempt to include the general degenerative disease, arteriosclerosis, in the group with endarteritis, leads to an attempt to explain symptoms on a purely mechanistic basis, while, in fact, the symptoms are only explainable on the basis of biochemistry.

My own theory as to this disease that is carrying off so large a proportion of those who die at the present time, is that it is due to sensitization of the cells to particular proteins, either of food or bacterial origin, the continuous action of which leads to progressive damage to the cells.

The therapeutic test is a valuable aid in diagnosis. If an individual, with a blood pressure in the neighborhood of 200 mm. Hg., precordial pain on exertion, albumin and casts in a urine of low specific gravity, profound depression of spirits, high hemoglobin and some numbness of one half of the body or slight aphasia, who is put upon a low protein diet, subjected to a phlebotomy, compelled to exercise, deprived of his salines, and given suitable treatment of the intestines, does not make a comparative recovery, I am inclined to believe that he is suffering primarily from endarteritis, disease of the kidneys, or other localized organic disease. But if such a subject does make a comparative recovery, in that his blood pressure falls to his *optimum* pressure, he recovers from his depression and cardiac pain, and he is able to resume his normal occupation, I am confirmed in the belief that he is suffering from a degenerative disease of the whole body, of metabolic origin and, under suitable supervision, no account need be taken in the diagnosis of the bugbear of progressive sclerosis.

A recognition of this matter and the proper appreciation of its relation to mortality would do more in one minute to prevent the great increase in deaths noted above, than the endarteritis idea will do in a thousand years. A plea is made here to those who treat degenerative disease to take a broader view of cardiovascular disease, when making a diagnosis, than is comprised in the mapping out of pathological changes.

54 WEST FIFTY-FIFTH STREET.

## THE MEDICAL TREATMENT OF SURGICAL CASES.\*

By JOHN H. JOPSON, M.D.,  
Philadelphia.

The attempt to bring within the scope of a paper such as this, a consideration of even the outlines of the subject assigned to us, would seem to be a well nigh impossible task.

When one remembers the many forms of medical treatment, including pharmacotherapy, dietotherapy, serotherapy and bacterinotherapy, hydrotherapy and mechanotherapy, psychotherapy, and others in constant use, and most of them applicable at one stage or another in a large proportion of surgical cases, their mere enumeration will suffice to indicate the vastness of the subject. It is selfevident that any one of these methods alone could furnish the subject for a prolonged discussion which would indicate only the outlines of the field and not fill in one little corner with the technical details. If, for example, we should confine our attention to a consideration of medical treatment in its narrowest sense, namely the use of drugs as an adjuvant to surgical measures, we could scarcely indicate the general principles of therapeutics as applied in surgery, whether before, during, or after operation in the uncomplicated case, to say nothing of the intelligent discussion of the many medical problems which may arise during the progress from sickness to health of the individual who suffers from a surgical ailment.

It is apparent that the subject must be studied from a different standpoint than the enumeration of lists of drugs with their indications. Again, it is not our intention to discuss the error into which medical men sometimes fall, by persisting in the medical treatment of cases which properly belong to the domain of surgery or habitually adopting internal treatment as an alternative to the knife. Such medical treatment of surgical cases, while common enough even at the present time, is fortunately becoming less and less frequent, and there are indications that, in the judgment of some profound thinkers, and we would include some surgeons in this category, the pendulum has already swung too far in the direction of surgical intervention in certain fields, and that we are being urged or encouraged to undertake operations for certain disorders, the causes of which are found in morbid chemical processes of nervous origin, rather than in mechanical or other localized pathological processes.

It is rather to a résumé of some of the well recognized principles which guide us in the internal treatment of surgical cases, that we would call your attention. These include a recognition of the necessity for, and of the relative importance of those measures which can be grouped under the head of medical treatment in various types of surgical cases, and their relation to preexisting medical conditions. Also the modifications of medical treatment which are called forth by surgical complications arising in connection with such preexisting disease and the desirability of special training in the handling of them; the necessity of organizing our hospital work so that the medical treatment of surgical cases may be amply provided for; and finally, the wish that something may be offered for discussion which will stimulate us in our efforts to improve our methods of treatment, for that such improvement is possible or needed, the initiation of this discussion would seem to indicate.

There are certain broad and universal indications for medical treatment in all surgical cases which

\*Read before the College of Physicians of Philadelphia, October 1, 1913, in a Symposium on Medicine in Surgery.

it may be as well to define at the outset. We may take, for example, such treatment as is indicated in what may be somewhat incongruously termed the "normal" surgical patient. By this we mean the individual who comes for an operation, it may be for a benign tumor or for a malignant growth in its early stage, or for an intercurrent operation for some chronic condition which has not as yet seriously affected the general health; an individual whose metabolism is normal and whose functions in general are not seriously embarrassed. In such case the problem is the performance of a major operation for a local condition which is uncomplicated by other morbid states and in which medical treatment, barring complications which develop as the result of the operation, may be reduced to a minimum.

Medical treatment would then include the preliminary preparation in the way of diet and attention to the gastrointestinal tract, which is usually considered necessary to the administration of a general anesthetic, and the performance of a major operation, modified in some degree by the region which is to be invaded. If, for example, an operation on the upper abdomen, the gallbladder or the stomach, is contemplated, the preparation may differ somewhat from that for an appendectomy, and this again, from that required for an extra-abdominal operation.

At the time of operation certain medical measures may be demanded, usually of an emergency nature, to combat by internal means such complications as shock and hemorrhage. Following operation, pharmacotherapy, to allay postanesthetic discomfort and vomiting, to secure sleep, to relieve pain, to insure proper action of the bowels, to conserve kidney function, is often indicated, while a continuation of treatment for such complications as occasionally arise as a result of the operation *per se*, if such exist, will of course be demanded. The general care and oversight of the patient will cease only when he or she is restored to complete health, and the responsibility of the surgeon is usually considered to terminate, only when such a stage has been arrived at. Such are the indications, briefly enumerated, in the "normal" surgical case.

We can easily define several other classes of cases almost equally numerous in which the indications for medical treatment are more acute as well as much more numerous. These would include the large groups of surgical emergencies in which a severe or dangerous condition develops before the patient reaches the hands of the surgeon, either as the result of trauma, or of the nature of such surgical disorders as fulminating appendicitis, the internal or external strangulation of the bowel or one of the many surgical accidents which admit of scanty preliminary preparation and treatment. In such cases intervention must be undertaken not regardless of, but in spite of the general condition and complicating ailments. Shock, hemorrhage, and sepsis will be more frequently encountered than in the first group we have considered. Medical treatment of an energetic nature, usually in such forms as the surgeon is most familiar with, is constantly demanded, and often in the guise of methods

of treatment which have developed in the hands of the surgeon himself in response to the frequent demands which he encounters in his daily work.

There remain other classes of cases in which the indications for medical treatment are equally urgent and more complicated. For example, a surgical emergency frequently arises in the course of a serious acute medical illness for which the patient is under treatment or as a direct sequel of the same, as for example, the perforation of an intestinal ulcer in the course of typhoid fever, a gangrenous cholecystitis developing under the same circumstances, or an empyema which follows closely on the heels of a croupous pneumonia. We have added to the original pathological process for which the patient is under treatment, a complication which, while it may for the time overshadow in importance the original ailment, and call for the institution of a new train of remedial agents which are adjuncts to surgical intervention, and are necessitated by the new indications arising as a result of the surgical complication, cannot displace entirely those therapeutic measures which were demanded for the illness from which the patient still suffers or from which he has only just been relieved. In such cases, medical treatment in all its forms assumes an importance which transcends that present in the groups we have already considered, and by reason of which the therapeutic resources of surgeon and internist alike may be tested to the utmost.

Again there is an equally important group in which some preexisting chronic morbid process exists in combination with an acute or chronic surgical condition, and in which said surgical condition may be independent of or directly dependent upon it, but in which the medical and surgical treatment alike are modified by its presence. Among such complicating medical ailments, it is necessary only to mention arteriosclerosis, nephritis, diabetes, chronic alcoholism, and senility as a few of the morbid processes constantly seen in alliance with surgical disorders, and all of them of prime importance in modifying the prognosis and treatment of a host of surgical conditions. Again in such cases medical treatment of a highly specialized nature may be necessary to insure a favorable result.

Finally, there is a limited group in which there is still, it may be, a fair opportunity for division of opinion as to which class, medical or surgical, the case belongs: in which the battle for possession between the internist and the surgeon still continues, or in which medical treatment must be continued until a favorable moment for surgical intervention is reached. A case of exophthalmic goitre at the top of a wave of hyperthyroidism may be fairly considered under this heading, one in which surgical treatment has not yet had a trial, or in which the preliminary ligation of the thyroid arteries is to be followed at a favorable moment by a lobe excipation, and in which medical measures are of manifest value; this will furnish a fair example of the nature of the cases which we group in this place.

A review of this more or less artificial classification will show that in a generous proportion of our

surgical patients, medical treatment is reduced to a minimum. In another class while the indications are acute they are mainly those which call for methods of treatment with most of which, as practiced at the present time, the surgeon is thoroughly familiar, and for the evolution of which he is largely responsible. In the remainder, a combination of medical and surgical indications exists, which in the more serious cases may put to the test the resources of the most expert therapist as well as the most accomplished surgeon. In the aggregate an amount of medical knowledge, and a facility in its application is demanded which should put to shame those who would classify surgery as a mechanical pursuit. These are the demands which our surgical patients make upon us. How and by whom are they to be met?

The ideal surgical attitude is not that which contents itself with the extirpation of this or that diseased focus or the correction of this or that abnormal condition, but which considers the organism as a whole and either consciously or unconsciously endeavors to restore its equilibrium. As Musser has said: "The organism which is in perfect equilibrium with its environment and has all its parts in equilibrium, is in a state of health." It should be the object of the surgeon to avoid, as Musser emphasized, "the old idea that disease is a special 'something' within the organism, the casting out or the removal of which is brought about by a special method adapted to each cause." Hence, it must be that if the responsibility for restoration to health after an operation be with the surgeon alone, to him will fall the direction of many forms of medical treatment; that is to say, if he is not to remain content with removal or correction of the cause on the one hand, or the effect on the other, without regard to the condition which, as Musser said, is the disease. The dashing surgeon in Bernard Shaw's witty but abusive travesty on the medical profession, who corrected all ills by the removal of the "nuciform sac," was probably frequently at fault in his diagnosis. But, granting that his diagnostic ability was unerring, he would still be greatly in error if his treatment stopped at the removal of the offending cause, without making provision for the after care of the case. This after care would include those therapeutic aids to restoration of the normal functions of the various secondarily affected organs and the various physical and psychical disorders which had been produced by their faulty activities.

As a consequence of this responsibility for the end result, which rests upon the shoulders of the surgeon, we find that in the great majority of instances, the medical treatment of the surgical case is left largely in his hands, except in certain of those borderline cases already mentioned.

In the main, it may be said that the medical measures employed by the surgeon are not radically different in the majority of instances from those of the internist, except in so far as they are modified by the training and viewpoint of the surgeon as influenced by the conditions which he most frequently sees.

Most of his therapeutics as applied to surgical conditions, he has learned after leaving the medical

school. As Wilbur has said, in discussing the teaching of therapeutics, "The historical element, which is such a strong factor in hampering our medical schools, still separates medicine and surgery from therapeutics. They must all go together and grow together."

In considering the treatment of the "normal" surgical case, so called, it is to be remembered that complications are few and the after treatment has been of late much simplified. We no longer consider it necessary that our patient should be tortured with thirst, refused a harmless anodyne, vigorously purged on the second day, or starved until the fourth or fifth day. As little interference as possible with the patient's comfort, and with the normal functions, is the standard of most operators. When indications for medical treatment arise in such cases, they are generally clearly cut, and the therapeutic measures employed and the drugs prescribed are comparatively few in number and those which as a rule give the promptest result with the minimum of dose. The surgeon usually aims to administer quick, decisive blows when he has to drug his patients, for postoperative conditions forbid the more slowly acting and stomach disturbing remedies which the medical man might be tempted to order. As we have already said, the surgical therapist must receive special training in prescribing. No more forcible example is needed to illustrate this fact than the experience all surgeons have in our hospital wards when a resident physician goes on duty on the surgical side, after serving his time on the medical service, especially if he be a therapeutic enthusiast whose activities have previously had full sway. We constantly find it necessary at such, unfortunately too frequent, intervals to *vider* the treatment sheets of our surgical patients, and to eliminate a long list of drugs, slow of action, inefficient, or overstimulating, and disturbing to the gastrointestinal tract, and to substitute those simpler remedies which have proved their worth in surgical practice. To a patient suffering from pain and sleeplessness after operation a hypodermic of morphine is worth many doses by the mouth of bromides, trional, sulphonal, veronal, or other forms of slowly acting hypnotics. Hypodermic stimulation for the flagging circulation, carefully watched, and such swiftly acting agents as camphorated oil and epinephrin displace the more slowly acting remedies which are habitually administered in many medical emergencies, while enteroclysis, hypodermoclysis, intravenous infusion, and transfusion, measures which the physician has quickly appropriated for his own, are in more or less constant use.

Nor is the surgeon a stranger to those preparatory methods of treatment which a careful study of his cases will often determine to be necessary. Indeed, upon the institution of proper medical treatment in the line of preparation depends much of the success of his operation and the freedom from complications thereafter. Careful physical examination and investigation by the most modern laboratory methods of each and every organ and system, cardiovascular, respiratory, gastrointestinal, genitourinary, and nervous, are indicated in all cases which admit of the time for such preliminary study.



The indications for medical treatment which such a preliminary study furnishes, may call for the transference of the case, for a time, to the internist before operation is undertaken, but in many cases the surgeon will be his own therapist in directing the preparatory treatment.

Still another line of preparatory treatment has been added to our armamentarium, and that in the form of the anoci association methods of Crile. Anoci association embraces both psychical and physical measures, many of them long employed by men of tact and judgment; others, comparatively new or entirely novel, but all put upon a systematic plane and a logical physiological and therapeutical basis by this enthusiastic and gifted surgeon.

The principles of anoci association are undoubtedly of great value, especially in those borderline cases where, as Crile has phrased it, the threshold of the brain is lowered to the entrance or effect of anoci associations. In the carrying out of the anoci association methods, medical treatment may be said to be represented in various ways, especially in the line of psychotherapy, and for their proper use not only is a well trained hospital staff of prime necessity, but the demands upon the surgeon's time in connection with them are not inconsiderable.

The question which we are attempting to solve in this discussion is: Are we giving our surgical patients the medical treatment which they should receive; or, has the time arrived for review, rearrangement, and reform?

Most surgical work is done in hospitals, where it should be done, and in these days when hospital reorganization and reform are in the air, the interests of the patient should receive the first consideration. It is unfortunate that in so large a majority of surgical cases the connection of the internist with the case ends when the diagnosis has been arrived at, and the patient transferred to the surgical ward. The internist may and should follow the patient to the operating room to see his conclusions confirmed or proved erroneous, that he may obtain the chance to glorify, or excuse himself, as the case may be, as well as to learn those lessons of living pathology of which we now hear so frequently. When the patient goes back to the ward after operation the responsibility of the physician is usually considered as ended, unless he be called upon to combat some complication of a medical nature with which the surgeon feels unable or unwilling to cope. If the patient is a private one, the medical man often follows, through necessity or desire, the postoperative course of the case and is then in a position to offer his services as a skilled therapist. But the great majority of our cases are of ward patients, and in losing touch with them, the medical man does not have those opportunities to familiarize himself with postoperative conditions and with special therapeutic indications which he might otherwise enjoy.

For the diagnosis of surgical conditions we must humbly pay our tribute to the many contributions on diagnosis which we owe to the medical man. It was Fitz, who by his studies, placed the pathology, symptomatology, diagnosis, and indications for treatment of appendicitis upon a scientific

basis, and it was Wilson who first suggested operation in typhoid perforation. If we examine more closely into the history of the improvements in pre-operative and postoperative treatment, it will be apparent that we owe them mainly to the surgeon. The notable contributions to the treatment of peritonitis, the aftermath of appendicitis, have come from such men as Murphy, Deaver, and Fowler, who, constantly associated with this and similar complications, were able to detect the necessity for something more than purely operative treatment, which would aid the peritoneum and the organism in general in limiting or overcoming such widespread inflammatory lesions. We mention this particular example as showing the evidence afforded the trained mind by continual observation of postoperative and complicating conditions.

We are far from the limits of useful knowledge in the treatment of this and allied surgical disorders as well as of complicating medical conditions, some of which threaten the success of an operation, while others add greatly to the patient's discomfort. Both patient and surgeon suffer from the lack of coordination with the internist after operation, which would certainly smooth the road to convalescence on the part of the patient, while it would lead to the discovery and adoption of newer methods of post-operative treatment by which the trained therapist would be stimulated and obtain an opportunity to develop. Both sides are the losers in this lack of cooperation following operation. It is painful, for example, to have the daily experience of seeing in consultation with men who are really expert diagnosticians, cases of appendicitis in which the physician tells us as a matter of course that the bowels have been thoroughly opened by the administration of laxatives and even more drastic purges. A few short excursions into the surgical ward would show him that he has committed a grave blunder and one which militates against the success of an operation. In this respect the surgical interne of brief experience dwells on a safer therapeutic plane than a graduate of fifteen years' standing, who has not learned the lesson that physiological rest offers the best opportunity for localization of a virulent inflammatory process and that the bowels are not inflamed in these cases because they are inactive, but that they are inactive because they are inflamed.

At the present time the problem of medical treatment in the surgical wards has still another side to it. This is due to the fact, that the purely operative side of surgery occupies so much more of the surgeon's time than was the case but a few years ago and reduces by just so much the time which he spends in the wards and devotes to the medical side of his cases. When we consider that our busiest men spend from three to six hours daily for several days a week in the operating room, and this in addition to the time devoted to office practice, to consultations, to teaching, to study, and to the preparation and the discussion of papers on surgical topics, it seems like attempting the impossible for them to continue with the entire responsibility of all cases under their care, no matter what the complications may be. This tax upon their time has resulted in the past in the adoption by many surgeons of a so

called postoperative schedule as some protection against the vagaries of a partially trained assistant. The value of such inelastic schedules is open to serious doubt. They give too little consideration to the individual and the aberrant case. Nothing can replace the careful daily bed to bed inspection by the surgeon or by a properly qualified assistant, and in the organization of surgical services to-day, the necessity for such assistance is generally recognized.

To attempt to more than hint at the necessity of thorough organization of our surgical services and the provision for something more than the oversight afforded by resident physicians is out of place at this time.

The day when one surgeon with an organization which comprised nothing more than the assistance afforded by house physicians would care for a large and active service is now out of date, and it is becoming generally recognized that we must have provision for one or more assistants in the wards whose duties are sharply defined, whose authority is recognized on all sides, and whose oversight of both medical and surgical treatment insures a maximum of efficiency on the part of both visiting and house staffs. We would not wish to be understood as saying, that in the past, all of our busy operators have not given to their patients with the assistance of their house staffs, the medical care they should. There are Admirable Crichtons in our profession too, and the devotion with which their patients repay them in after years proves that the most interested party can vouch for the completeness of the attention which he has received. But we are dealing in this discussion, not with individuals, but with general principles, and it would be a blind conservatism which failed to see some opportunities for improvement. There will always be some surgeons who excel in diagnosis; others in operative skill; and still others in medical treatment and the aftercare of their patients. Even the laity are quick to realize this, as we have frequent opportunities to learn. Homer Gage in a recent article on Some Abuses in Surgical Practice, brings out the point, that in his opinion, "the purely mechanical side of surgery has been receiving far too large a share of our attention." This view has been forced upon him by a knowledge of the indiscriminate and reckless operations performed to-day by extremely radical or by partially trained men. His remarks cannot be interpreted as meaning that the surgeon can be too familiar with the most improved methods of technic or too dexterous in their execution, if such knowledge and dexterity decrease the risk of operation or insure the most favorable result. They can only mean that such knowledge and training should not be obtained at the cost of a knowledge of pathology, of diagnosis, or of time devoted to careful and thorough preliminary examination of the patient, or to medical oversight before and after operation. Nor can manual dexterity take the place of that good surgical judgment upon which Finney has written so forcibly and eloquently, and a congenital absence of which, or the failure to acquire by hard work and long training, separates the safe from the unsafe man.

Lawson Tait at a meeting of the British Medical Association in Birmingham advised those present, including surgeons, not to waste their time on the scientific exhibits, but to visit some of the great industrial establishments and learn to imitate the manual skill of the Birmingham button makers. Such a remark probably did not add to his popularity with the committee on exhibits, and revealed a point of view not entirely in harmony with our own at the present day.

#### CONCLUSIONS.

We have tried to demonstrate in this review of the subject:

1. That in practically all surgical cases there are certain fixed indications for medical treatment, less in some and greater in others, and that while such indications can be reduced in number, they cannot be done away with entirely. In some instances they are acute, and in others complicated and demanding great therapeutic knowledge and skill to successfully cope with them; moreover, that their proper treatment is modified to some extent by the surgical conditions present, and by operative as well as non-operative surgical methods of treatment.

2. That there exists a need for special training along these lines, and that there is room for improvement in our medical treatment as seen in the rank and file of our cases and in the hands of all of us.

3. That in a thorough organization of our hospital staffs which provides for cooperation of physician and surgeon in the line of treatment at all times, there are opportunities for improvement which only such association affords. Something more than a haphazard cooperation at critical times is needed to insure success in all cases, and in our plans for hospital reorganization and reform some provision must be made in this direction. If the physician on duty, with his assistants, could pay weekly or semi-weekly visits to the surgical wards in company with the surgical staff, and go over the medical treatment of cases with the surgeon, there would be afforded the opportunity for the medical man to familiarize himself with the needs of surgical patients, and for the physician and surgeon together to foster methods of preoperative and post-operative treatment that not only would add greatly to the comfort of the patient, but would in time greatly increase our therapeutic knowledge and open new fields of medical research. A striking illustration of the value of cooperation is seen in the new field of bacterin therapy, where the association of bacteriologist and surgeon in this highly specialized form of treatment is usually considered necessary. Time does not permit an amplification of this subject, but it need only be pointed out that few surgeons, unless with special and very recent laboratory training, care to "go it alone" in this field, and now that the days of therapeutic nihilism seem rapidly vanishing, and the search for specific forms of treatment of synthetic and biological character is being so ardently pursued, we believe that every opportunity should be afforded for their development by those best qualified for the investigation.

## INFECTIONS OF THE HAND.

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The importance of properly treating infections of the hand is sufficient justification for bringing this subject often to the attention of medical men. Any one who is connected with a general hospital where acute conditions predominate soon realizes the large proportion of cases presenting injuries and infections of the hand. Here we also find the bad results from timid surgery. The importance of early recognition of the seriousness of finger or hand infections and the importance of instant and adequate treatment are almost daily emphasized by the number of surgeons themselves who have to pay the penalty for slight needle pricks or knife cuts received in the course of operations. In this morning's paper, for instance (September 30th), I notice the serious, if not fatal, illness of two surgeons from such causes.

After many years' experience with such cases, I feel that the burden of my message is—*instant, intelligent, and thorough first aid treatment.*

I shall not in this brief communication attempt to cover the entire field of hand infections. To one who would seek to learn much of the entire subject, I would refer to Kanavel on Hand Infections. There the subject is presented from the anatomical, bacteriological, pathological, and surgical aspects in a thorough manner.

First the importance of the hand in one's daily life. That is readily seen, but not so often appreciated until a hand or even a finger is put out of business by some infection.

If you need an illustration of the importance of a hand in your own life, just put one hand—it will not matter which—into a sling and live twenty-four hours without it, if you can. Or if that is too severe and unnecessary a test—put a splint on one finger for the same period. To be sure, you will lack the effects of septic infection; the pain, fever, swelling, etc., but you will have demonstrated the great need of the hand in the human economy.

To deal with hand infections successfully with the preservation of the greatest functional results, one must have a very definite mental picture of the anatomy of the part. It matters little whether you can name the structures, provided you know the function of the various structures and their relative positions. In infections, the most essential anatomical structures are the various tendons and their synovial sheaths. The tendons, because if they are destroyed or left fused together, movement in the parts supplied by them ceases. The synovial sheaths, because by their presence infections are easily disseminated and their effects rendered more disastrous. The lymphatics, which in the forearm and arm play so important a rôle in the spread of infections in those localities, may be disregarded in considering the spread and treatment of hand infections.

I shall only briefly consider the anatomy of the region. The synovial sheaths of the flexor tendons of the thumb and little finger extend to the insertion of those tendons, they also reach about an inch above the annular ligament of the wrist, and in the

palm of the hand the sheath for the little finger tendons widens out to embrace all the other flexor tendons and reaches to about the middle of the metacarpal bones. While these two bursæ are usually separate, they frequently communicate with each other, and in the presence of infection are to be considered as a single sac with thumb and little finger extensions.

The intervening fingers have separate sheaths for their tendons. These sheaths usually extend to about the heads of the metacarpal bones. There is thus an interval of about half an inch between these synovial sheaths and the large palmar sac.

Another factor in determining the seriousness of hand infections, is the almost impermeable dense fascial covering formed for the tendons and their sheaths by the annular ligament, palmar fascia, and the fibrous sheaths for the various tendons. Pus pent up within these osseofibrous pockets and channels will wreck irreparable damage to the tendons in a few hours, because there is no chance for adequate expansion, the blood supply is shut off and the tendons die. This also explains the early and pronounced systemic effects from such infections.

Pathology explains what microbic action does to the wonderfully smooth surfaces of tendons and sheaths. How the epithelium is destroyed, and how raw surfaces are left to grow together to greater or less extent. A little longer, and the tendon is destroyed and it is cast off as a dead mass and the motive force is no longer able to act upon the fingers. But this is not all, though bad enough. There is the destruction of other structures, fascial sheaths, muscles, bone and partial loss of the hand or the entire member, for such infection is not confined to the immediate locality where it began its action, but speedily, through the action of the lymphatics, is carried to distant sources, so that not only is the hand in danger of being lost, but also the whole extremity and even the patient himself may succumb to the infection.

Consider also the results which follow infections you have seen. Nothing may show but a small scar—no loss of function, or you may have seen all gradations from one finger stiffened by such an infection to not only its loss, but of varying degrees of damage to the other fingers, the hand, and the entire upper extremity.

With these oft repeated pictures fresh in your mind, what will you do when the next case of infection comes to you for treatment? That is the question. Will you "prick" the infected centre with a quarter inch cut? Here is where the trouble arises. Here is when the responsibility is laid upon the medical man. If you know what to do, do it. If you know what to do, but for one reason or another cannot carry out the right treatment, or if, frankly, you do not know just what should be done, in either case send the patient where he can get the proper treatment at once. Delay may mean function lost forever.

What to do? The principles of treatment hark back to the anatomy of the hand and the pathology of its infections. Infection, by whatever means, in either thumb or little finger, may rapidly extend to the respective flexor sheath; if this occurs, it will not be long before the palmar extension of that



tendon becomes involved, then the other palmar sac and so on to the digital extension of that sac. Thus in the case of a woman who cut her thumb on a kitchen pan. The infection extended to the flexor sheath of the thumb, to the palmar bursa, and into the little finger extension, so that I found pus not only on incising the flexor sheath of the thumb, but also on incising along the ulnar border of the palm, and irrigating fluid freely passed from one incision to the other. It may extend further beneath the annular ligament to the sac about the tendons above the ligament. Pus here is in a dangerous locality. It may easily break through the thin synovial barrier and spread uninterruptedly into the forearm.

When infection is received in the three middle fingers, it is usually limited in its spread to the finger attacked, but may extend into the palmar bursa by involvement of the intervening loose tissues along the tendons. There is no guarantee that because the infection is received in one of the three central fingers, that the palmar bursa will not be involved, just as it is almost certain that infection in the thumb or little finger will eventually involve that same bursa.

I shall not dwell upon the treatment of these conditions in their terminal stage; by that time the case is usually referred to one who has experience in these cases. I shall consider the case as usually presenting to the family doctor. The principle of treatment is just the same here as with infection anywhere else, and that is, free drainage. The difficulty lies in the multiplicity of structures which may be involved and in the lack of knowledge on the part of the doctor, just where those very important structures are. Free incision must then be made with reference to the important structures beneath the skin. The family doctor is then between the deep sea of an imperfect knowledge of the anatomy of the part and the devil of a pus pocket which he knows he must reach. He compromises with his lack of anatomical knowledge and the necessities of the case by sticking a narrow knife into the infected area, and is content with an incision a quarter of an inch long, which is promptly closed by the plug of fat forced into the little skin incision by the pressure behind. Some blood and a few drops of pus may escape. A dry dressing of iodoform gauze is usually put on the part and the patient sent home, laboring under the delusion that something has been done. Twelve or twenty-four hours later, the delusion in both minds is dissipated and both realize that "something more must be done." This may be more stabs or it may be a radical operation. I advise the latter.

What should be done? The location and extent of the infection decides. Local anesthesia may be sufficient, general anesthesia may be necessary. Take the usual finger infections. They are most often in the pulp of the finger, the clinical symptoms need not detain us, they are too well known. Cocaine or novocaine is going to be used or some other local anesthetic, for some anesthetic is necessary. The work is done aseptically; that goes without saying. Place a rubber band or a soft rubber catheter about the base of the finger, tight enough to constrict the venous return, inject the digital nerves beyond the ligature, two on each side, through single needle punctures, allow a few min-

utes to elapse and the entire finger becomes dead to pain. Now open the infected area to the bone, even if such incision opens up the tendon sheath. Swellings upon the back of the finger, unless here is the site of infection, need not be opened. The swelling here is edema and will disappear once the primary focus is drained. In cases where there is extensive infection, I do not hesitate to open the tendon sheath for its entire length in the finger. It is neither necessary nor desirable to try to save the annular ligaments in the event of such extensive infection, because it is at the site of these firm bands that tendon destruction will be caused by pressure, which shuts off the blood supply to the tendons. If this can be prevented and the tendon preserved, the annular bands will subsequently be reformed and some function be regained. Free drainage is the imperative end. It may be necessary to add to the incision opening up the tendon sheath, one or two others along the side of the finger. These incisions will close quickly when their purpose has been served. Drain by rubber tissue. Do not use gauze; it stops up the opening and is painful to remove. Rubber tissue holds apart the cut surfaces—and that is all any drain will do—it may be removed and reinserted subsequently with little pain. Let the parts bleed freely. Put in no sutures. If a digital artery is cut, pick it up with a small clamp and ligate it. The foregoing holds good for all of the fingers.

As to primary palmar infections. Put the elastic ligature about the wrist to hinder the venous flow and to confine the anesthetic. Infiltrate the skin over a long area. Make the incisions first only through the skin and in the direction of the fibres of the palmar fascia. Any incision less than an inch long is futile; it may need to be twice this. This incision divides only the skin and fatty pad down to the palmar fascia. Your anatomy tells you that there is nothing to be careful of, superficial "o" this fascia. It may be that the infection is all superficial to the fascia; if so, the work ends here. Usually the infection is deeper; it must be reached. At once visions of the palmar arch, digital vessels and nerves and the tendons come to mind. Possibly you may cut the arch. What harm? The ends of the artery can be seen spurting, and can be caught and tied. No one need get nervous and stop short of doing his duty by that fear. To be on the safe side, bore through the fascia with a pointed artery clamp, open it wide, and thus make an opening fully an inch in length. Insert the rubber tissue drain.

If the palm is more extensively involved than this, the entire hand will also be greatly swollen, a general anesthetic will be needed and a radical operation demanded. This means that the palmar sac must be opened along the anterior ulnar or radial border of the hand, free enough to pass one's finger into the infected sac from either or both sides. This case presupposes infection starting in either the thumb or little finger, whereas the palmar infection presupposes that the infection has been received in the palm itself.

If the palmar infection has reached into the bursa above the annular ligament, this should be opened by an incision along the anterolateral border on the ulnar side. It is seldom necessary to make

a similar one on the radial side, though it should be done if the pus pocket seems to extend that far. Another point; in this extensive condition, where the very life of the tendons is in the balance, and the pressure of the annular ligament is found to be constricting them, I have not hesitated to divide this structure freely and make an incision from above to below this structure, through this ligament, widely opening up the entire region. Not often is this necessary except in the neglected case. If the tendons are preserved with any function left, the divided annular ligament will firmly unite and not detract from such function. In these cases the back of the hand will be found tremendously swollen. Some stab incisions merely through the skin to allow of serous oozing may be necessary; usually these are not needed.

If one finds that the pus has worked back between the metacarpal bones, free posterior incision or incisions will be demanded. These cases, though, are the extreme ones. Added to the work on the hand there will probably be incisions needed to open up the forearm and arm possibly to the shoulder, but this is another story.

No matter where the site of the lesion, the dressing is the same—a wet dressing of boric acid with a large amount of gauze and the application of a splint to hold the parts immovable. As Ochsner says, rest is necessary to combat infection and prevent its spread. The dressing should be kept continually moistened with warm boric acid solution. It does not require changing oftener than once in twenty-four or forty-eight hours. I agree with Ochsner that the dressings should be changed with the minimum traumatism. If the drains are working it is not necessary to remove them and reinsert others. I use no irrigation, especially of hydrogen dioxide so commonly advocated. Pus will escape to the surface if the proper drain has been inserted at the first operation and brutal squeezing and forcible irrigating will not be necessary. These measures only damage the already weakened tissues and disseminate the infection. Passive or active motion should not be begun until all evidences of acute inflammation have subsided. The patient's sensations are the best guide to this.

A word to a colleague who pricks his finger at an operation. This is based on my own experience covering many years. Stop work at once; your assistant can attend to the patient for a few moments. Whip off your rubber glove and use it as a Martin bandage to drive the blood from the web to the end of the finger. Force free bleeding; from three to five minutes will be sufficient. Dry and apply tincture of iodine. Put on a clean glove and finish your operation.

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## THE CRIMINAL'S PLACE IN PSYCHIATRY.

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The subject of crime and criminals, because of its nature, would seem to be, and, indeed, has been thus far, wholly within the sphere of the jurist.

But since crime and criminals are merely phases of life, the subject comes truly within the scope of the natural and medical sciences. The biogenic nature of many subjects previously not so considered has now been given definite place by scientific researches. Now, this subject of crime, of such vast importance to civilization, is gradually finding its place in the field of medicine, but particularly in the special science of psychiatry. The goal will have been reached when criminals are some day placed definitely in the class of the insane or the otherwise mentally defective; and when the criminal act will be found to be merely a symptom or manifestation of the psychic condition; and, further, when the various crimes will be found to be symptoms peculiar to definite forms of mental disorder or defect. Even the very recent term, criminally insane, while an attempt at the recognition of the mental nature of crime, is paradoxical, for how can an insane person be a criminal, or a criminal, as such, be insane? The problem has, however, been sufficiently solved to call attention to the close relationship existing between criminology and psychiatry. We can all appreciate that the step from the old treatment of the insane by flogging out the evil spirits, to the present humane conception of proper treatment, is a longer one than that which would treat all crime as a disease manifestation of the mind.

In using the term, crime, since it cannot be freed from its relation to the legal, and especially since it is in that sense that the term is most used, it should be understood as meaning an act which injures the public in its social aggregate; it is any anti-social act. Civil wrongs, or torts as they are called, injure only the individual, though a particular act may be a tort as well as a crime, since it may injure both the individual and the public. For an act to be a crime, there must be an actual or constructive intent to commit the act committed, in a mind capable of having an intent. Intent has no import in tort. If intent, actual or constructive—in the latter where an intent to commit the act committed is construed from an intent to commit another wrongful act—cannot be shown, there can be no crime. It is the propensity of the mind for the crime that governs. How difficult this is to prove is shown by the fact that this question, of so much importance, is left to the determination of a chance jury, in the hope that their numbers will more nearly determine the truth, though it would seem that the training, education, and experience in these matters of the jurist would offer a greater chance for the *divination* of intent.

In law, crime is divided into two classes, *malum prohibitum* and *malum in se*. The former is crime only because made so by law for the better discipline and welfare of a community, such as the health ordinances, speed regulations, etc. The same acts in another community might not be wrongful, probably because the necessity had not arisen for making them so. Real crimes—*malum in se*—are such acts as are wrongful in themselves, from their nature and without regard to laws. They would be wrongful even if, so to speak, the law permitted. The dictator here is not the law but the moral sense, and the failure to possess such dictation denotes moral turpitude. It is true that with advancing civilization the moral code of what is right and

what is wrong keeps just ahead of the laws enforcing the right. Even with these distinctions, and with these limitations on the nature of crime, the subject must yet be treated very broadly, and to a large degree very unsatisfactorily, since the term must embrace a variety of conditions under a variety of social organizations, and especially because our knowledge on this subject is still very meagre. The matter has just begun to receive proper attention, and just as much of our progress in insanity as well as in anthropology lay in unlearning our errors, so that now we know less than we did previously, so will it be for a long time with this subject. Besides, the question of what is right and what is wrong can never be fixed as a definite entity, for it is as limitless as the universe itself, and will develop and change and be revised in the process of evolution.

Crime, then, is any antisocial act. It is an act which the presently constituted society recognizes as wrongful, and an unjustifiable injury to that society. Havelock Ellis says that "to be a criminal deed the crime must be exceptional in the species and must provoke a social reaction among the other members of the species." The same acts may not, however, outrage any social feelings under other conditions or among other species. "Crime consists in a failure to live up to the standard recognized in the community as binding." This failure to live up to the standard is due either to a mental inability to recognize, to appreciate, or to conform to this standard, in which case we have the out and out lunatic, or to a mental unwillingness, though there is ability, in which case we have the criminal as at present understood. In both instances it is not the act so much as the state of mind which produces the act which is in question. The mental ability to recognize the standard makes an individual responsible for his act. But aside from the speculative psychology of crime, a great deal of the crime has already been traced to the door of the insane and mentally defective. The law concedes the mental nature of all crime when it defines the malice necessary to show intent as a *depraved mind* which does not regard the rights of others. A depraved mind by its meaning is an inherent condition, but the law punishes the criminal for having it. It might as well punish him for having an appendix. Punishing such an individual is literally to flog out the evil spirit of depravity. On another theory, the criminal's conception or lack of conception might be normal for a lower or preceding state of society, which theory places the crime and its perpetrator at the door of atavism. Even so his atavism is an integral part of the criminal, for the possession of which he can in no wise be held responsible; in all probability it is an hereditary quality handed down to him from some near or even remote ancestor.

Political crimes and crimes of passion cannot be explained on grounds of insanity or defect, nor on atavism. In political crimes the forces against which they are directed may be the antisocial ones—as history has so often shown. In crimes of passion, and during the mental explosion accompanying it, the individual is bereft of the control inhibition over the volition; his acts are rather reflex in nature, for which the mind is not responsible. This, however, makes the act psychic or ultra-psychic in character. At all events such passion

explosions do not speak for a full mental development, but rather for deficiency, since civilization aims to control reflex actions, and to put more of them under the control of the volition. Education aims to teach control of natural or reflex propensities. Properly adapted education would take a great number out of the criminally inclined, especially if this tendency were discovered early. On the other hand, we find that in the assassination of prominent individuals by persons believing they have a political grievance, we are dealing usually with a lunatic whose present act is the culmination of a series of insane acts, or with persons constitutionally inferior, but previously not guilty of any insane acts. These individuals are unduly impressed by events of trivial significance, are unable to discern for themselves the true value of things, their emotions are highly magnified, and on them trivial impressions produce mental explosions culminating in the crime. But for these impressions, the result of actual but magnified events, no wrongful act would ever have been committed. Here, too, early detection and proper treatment is the remedy.

As a general rule, insane persons are presumed to be capable of no intent, and hence are not responsible for their acts. But the delusion at the base of their crime, were it a fact, must fully justify the crime. In this way a delusion of a minor injury would not justify a major crime. This distinction is a very fine one. It is more rational to place all his antisocial acts at the door of the mental disorder, and influenced by it, even though the actual connection is not apparent. It is hardly likely that a single mental concept can be affected, without influencing, by association, the others. Likewise, the law assumes a lucid interval, though without a lucid definition of the term, during which the insane person is deemed responsible. This lucidity may be only a relative lucidity, an abeyance or recrudescence in the disease, like the recrudescence after a malarial paroxysm, when the symptoms are absent though the disease is still present. In manic depressive or circular insanity, in fact, it is in the nature of the disease to have these periods of abeyance. The criminal act may be committed on a sudden rise in the cycle of the disease—in the psychopathic curve—or, to use the legal conception, during the nonlucid interval of the lucid interval—and a fall suddenly thereafter.

Responsibility is not a definite entity. It cannot be definitely determined in any case. "Responsibility varies in different individuals, and is never quite eliminated except in the absolute idiot." The rule in the famous McNaughten's case laid down by the English House of Lords, holds that "every man is presumed to possess a sufficient degree of reason to be responsible for his crimes until the contrary is proved and to establish the defense of insanity it must be clearly proved that, at the time of committing the act the accused was laboring under such defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing, or if he did know it, he did not know that he was doing what was wrong." The better rule is summed up in Lord Brannwell's remark: "Could he help it?"

Children below seven are not deemed capable of



intent; between seven and twelve, it is a question for the jury; after that they are deemed capable or *sui juris*. Now the juvenile delinquency laws have put all minor offenders in the class of juvenile delinquents, to be kept in custody till majority. In adults a great advance would be made if the question of *sui juris* would be determined by the psychiatrist or the physician, and not by the jury. For in so much as so large a number of criminal acts are committed by the admittedly insane, and since these acts in the abstracts have not the ear marks of the lunatic, but in no wise differ from the acts committed by those adjudged sane, the subject deserves more consideration.

Crime is a disease, a social one only it may be, but a disease it is, and as such is a perversion of the normal processes of nature. Crime is moral insanity or deficiency. The moral element of the mind is just as somatic as the intellectual. It is a human, normal quality to realize that a matter is wrong in itself, that it is not in keeping with the standards set by the society of the time. Even without laws the higher individual with the proper moral as well as intellectual development will abstain from an act which on moral analysis is to him a wrong. He who finds justification for his acts only in the law needs yet to develop. It is the continual ability to inhibit propensities which makes the normal. A loss of control of this power, or an unwillingness to control, makes moral disease. Crime is moral insanity in contradistinction to intellectual insanity. But in applying a prepared psych: to crime it must be accepted in a broader sense than when applied to those actually recognized as insane. It does not cover merely conditions with apparent confusion. It is a straying from the normal in any degree, or for any time and under any manifestation. "The circles of crime extend from the heavens to the very depths of hell." The circles of crime have their parallel in the circles of mental disorder and defect; both are, at the present time, at least, limitless.

In very early times the mental attitude of the criminal was recognized. "Forgive them, for they know not what they do," was said with a full appreciation of the mental calibre of the criminals represented in the mob. On sounder scientific basis the criminal is a patient. With this patient environment and social conditions play the same rôle as in mental and even physical ills. An individual brought up in an environment where crime is condoned becomes *impressed*—this word is used in its physical sense—with it and can appreciate no other code of morals. Environment leaves not only a physical impression on the mind but even on the body, as demonstrated by Boas, who showed that the shapes of the skulls of immigrant children changed to conform to the existing types.

Again, crime is due to a distinct psychic disorder, which manifests itself in complete moral perversion, or only along one line—as with the so called "Raffes." In both instances it may be said to be a paranoid confusion of the mental organs having to do with the moral senses; or it may be due to an entire moral deficiency—in which case the moral centres are crime centres, and the faculty for social harmony is lost. The studies in psycho-

genesis, which place mental disorders at the door of some mental shock, give a definite etiological foundation to many of the psychoses, and makes them amenable to cure by the removal of the shock by psychoanalysis. The psychogenic nature of crime has numberless illustrations in history. Characters such as Hipparchus, Marius, etc., who after years of upright living suddenly turn into beasts of cruelty and crime, are known to have been caused by some reverse or mental shock—which is the psychogenic explanation for their crimes. On the other hand, such geniuses of destruction as Alexander, Nero, Napoleon, etc., were epileptics, and their exploits are explained on the ground of epileptic explosions manifesting themselves in that fashion. Criminals are "psychic epileptics." Similarly, in private life, one hears of individuals turning to crime or debauchery after years of excellent lives. In many instances the psychic reasons are apparent, and even given by the criminal himself,—as injury, financial losses, love, etc. The occasional criminal act or tendency is a moral epileptic manifestation, and the emotional instability as well as the vocational instability of most criminals recall the phenomena of epilepsy.

The instinctive or born criminal is a moral defective, defective from birth or even from prenatal times; one who never had a moral control. The occasional criminal has control at times, yet not very well developed. This control organization has a tendency to become discordant on the slightest provocation. He becomes an habitual criminal when by continually losing this control, the control system becomes so habituated that it can no longer control under any circumstance. These criminals are credited with various characteristics, identifying them as distinct types. The criminal type is still, however, an uncertain quantity. It is not true in all cases. In the majority of criminals who commit crimes of violence and brutality, there is a correspondence to an anthropological and psychic average. Those who do not correspond are the standard or average deviations from this standard normal. The fine appearance of some criminals has been ingeniously explained on the ground that these form the "aristocracy of crime," their appearance being a cultivation—a stock in trade—better to carry out their crimes,—the proverbial lions in sheep's skins. The good intellect of many of these moral lunatics or moral imbeciles becomes a dangerous weapon in the hands of these psychic weaklings. Prichard defines moral insanity as "a morbid perversion of the natural feelings, affections, inclinations, temper, habits, moral disposition, and natural impulses without any remarkable disorder or defect of the intellect, or knowing and reasoning faculties, and particularly without any insane delusions or hallucinations." It is a disorder or defect of the moral sense.

The criminal type will be better understood after a thorough study of the psychic, physical, and anthropological characteristics of such individuals. And already various physiognomonic and physical characteristics have been accorded place in this criminopsychic condition. Thus physiognomy has quite a significance in criminology. The instinctive

repulsion felt for certain physiognomonic conformations is merely an expression of racial experience in this regard. Experiments have shown that even young children can distinguish between the photographs of criminals and normals. Yet good faces are found among the bad, and is explained on the principle of criminal aristocracy or exceptionalism in this regard, and vice versa, for yet unexplained reasons. Some criminologists even claim to be able to tell from the physiognomy, the kind of crimes to which the criminal is addicted. It is admitted that in part the criminal faces are imaginary; rather what we expect them to be than what they really are. Physiognomy has a value in crime as well as in many psychic and physical disorders and defects. Nearly all emotions find expression in the face—that is what the muscles of the face were intended for by Nature. Inhibition can, in a degree, control the expression of the emotions, but criminals of this type have as little control in this regard as in other matters. Their faces usually betray them. The recognized criminal type is an atavistic degeneration. The present normal is an evolution from the old. The finer feelings and broader sympathies for mankind, as for animals, find egress in the softness of expression in the face of the average normal individual. However, there can be no moral normal, in the sense that there is no improvement, since to carry the moral normal to the extreme would be to end in Utopia or beyond, if we can conceive of that.

Certain bodily characteristics possessed by human beings are now found in the normal in a very rudimentary condition or absent entirely. Lower orders of human society and our animal ancestors possessed these to a marked degree. Persistencies are called stigmata of degeneration. Stigmata of degeneration are well evidenced in the criminally and mentally defective, for which reason criminologists place a special value on them for diagnosis of the criminal tendencies. And while many apparently normal individuals possess them, yet the fact remains that they are more marked and most frequent in the criminal and the mentally defective. Stigmata are said to be atavistic or "teratological" in nature. Among the stigmata of degeneration are the pointed or oxycephalic head, with large face, which is found also in imbeciles and epileptics. This is the "primatoid" type of skull. Asymmetry is a chief characteristic. The large and massive jaws with teeth that fit accurately over each other is characteristic of an inferior race. The palate is saddle or V shaped. The ears are long and voluminous, and have the prominent Darwinian tubercles on their outer margins. Parts of them may be absent. The ability, so frequent in criminals, to move the ears signifies the animal fear and lookout characteristic as well of animals as of criminals. The rectilinear shape of the nose suggests the cretin. The peculiar pallor of the face is indicative of cerebral congestion. (Havelock Ellis.)

Criminals are shorter, lighter, and have smaller musculature, though they are very agile, probably animal fashion—the easier to get away. They are subject to much physical deformity, tuberculosis, and especially sexual anomalies and disorders. It is estimated that about forty per cent. of them are

physical invalids. Yet they show a remarkable physical insensibility to pain from any cause, and recover rapidly from even severe wounds. "They lead charmed lives." The more highly developed an individual is, the more sensible does he become to pain or injury. Animals manifest very little. Experiments have been tried in which one side of the body has been made hypnotically insensible, and a wound on it was found to heal more rapidly than on the control side. Insensibility to pain is also a marked feature in idiots, to whom, it is said, pain comes as "a welcome surprise." This condition of physical and mental insensibility best explains the criminal's act of eating and sleeping heartily just before execution, and is not the mental bravery and determination of normal development.

The criminal is ideally lazy. Were laziness made impossible much of the crime would be eliminated. He finds the needed stimulation and activity in the enormous craving and consumption of alcohol. Crime and drink are both morbid manifestations of mental as well as physical disorganization.

As a rule criminals are far below the standard intellectually. Their attention and especially their power of association are poor. Some are densely stupid, and their precocity in the way of criminal cunningness is not intelligence; it is the cunningness of the idiot or the animal, and not an associative creation of a normal. They lack the curiosity of normal mental development. A great number of the inmates of prisons and other punitive institutions have been found positively feeble-minded when measured by an intelligence scale, such as the Binet-Simon. Most prostitutes and wayward girls have been found similarly defective, making prostitution merely a manifestation of a moral mental defect. Though social adversity has a part in establishing the system of prostitution, yet it is this adversity which these defectives have not the capacity to meet, since other, but normal individuals living under similar conditions of adversity do not become victims. In the causation of crime, insanity, and prostitution, social and economic conditions are merely psychogenic factors. Criminals and prostitutes may, from lack of intelligence, be unable to engage in other occupations. These ways offer the least resistance—"the easiest way." Here, education and training, as with the moron, will make them selfsustaining, while the betterment of economic and social conditions would eliminate the exciting causes.

Many criminals are intensely religious, yet they must have the *fear* and not the *love* of their Creator. Even in this, they emphasize their lack of mental equilibrium, since they cannot see the inseparable relation of the religious and social duties. Besides, blind belief is usually a less difficult mental process than the disbelief born of thought. On the other hand disbelief is, with some, so rabid a belief that it in no wise differs from the former condition. Likewise very few criminals have positive anarchistic beliefs, probably because as an ideal, criminals are incapable of it. The community as a whole needs no archaic surveillance. The whole fabric of police organization reaches only the morally defective, who can only, if at all, be kept outwardly moral by this method.

The personality of the criminal and the criminal or antisocial act are manufactured not only by inherent or acquired mental or moral disease or defect, but also by tangible physical conditions. These include almost entirely the sex crimes of violence. Overirritation of the genital apparatus from such diseases as gonorrhea, enlarged prostate, priapism from other causes, etc., are at the root of many of these crimes. The superstition that gonorrhea is cured by contact with a virgin is familiar to all. This then gives one of the best illustrations that crime is caused by disease. In the South it is now being recognized that a major part of the crime of rape committed by negroes is the result of gonorrheal irritation. Likewise irritation of the sexual apparatus may be caused by the loss of restraint over the natural impulses, because of the lack of sexual companionship, enforced by economic conditions preventing or delaying marriage. These acts are the explosive reactions of over restraint. It will be remembered that in primitive races such causes for irritation are absent. Overindulgence is rare. In fact the savage dances and the like ceremonies are intended as periodic stimulations,—a periodicity that is somewhat after the fashion of animals.

In these conditions it is very evident that medical treatment would remove the causes in the physical cases. Progress and accommodation will remedy the social causes. Even in these conditions the individual who will impinge on the rights of others is to a larger or smaller degree morally deficient.

The treatment of the criminal and the elimination of crime resolves itself, broadly speaking, into the lessening or removal of social intemperances of all kinds, whether economic, alcoholic, etc., which are the soil for their development; the treatment of the criminal himself, whether medical or only properly custodial; and the prevention of the transmission by the criminal of the criminal tendency. Crime "is prepared by society, and it is the criminal who executes it; he is without power to disobey." Society as well as the criminal, therefore, needs reformation. And social medicine aims to overcome or correct these conditions, or exclude from the influence of crime or disease, those who would be most likely to become victims of disease or subjects of crime. The hereditary nature of the criminal tendency makes it imperative to treat the criminal of the future in his present day ancestry. This is the subject of eugenics, which now occupies so much prominence in the public eye. The heredity of crime was enunciated in early times—"the sins of the fathers shall be visited upon the children of the third and fourth generations." Yet crime may be transmitted in an ultrahereditary way, through the constant contact of children with their criminal parents, though the children themselves are the dominant descendants of a recessive strain in their lineage. This is the criminal of environment entirely. The removal of such children from their environment will prevent crime in them, just as the removal of children from contact with their tuberculous parents will save them from tuberculosis.

It is urged that the prevention of marriage of the unfit by stricter marriage laws, and the sterilization of the mentally or morally defective, will accom-

plish much in the eradication of these tendencies in the future generation. Mendelism teaches that when desirables or dominants only are mated with each other, only dominants can result; when recessives or undesirables are mated with each other, only recessives are the result in the offspring. When, however, a recessive and a dominant are mated then the result is one recessive to three dominants. The theory is that in preventing the recessive offspring of any union from propagating their kind, the recessive strain will entirely be wiped out. On the other hand, a further elaboration of this theory is to the effect that the union of a recessive and a dominant while resulting in the proportion above noted, still transmits to both the dominant and recessive offspring the qualities of its parents. In this way the recessive offspring has dormant within itself a dominant character, which may be the only one transmitted by him, and the dominant offspring has a recessive character hidden within itself which may be transmitted in one of the offsprings. The opponents of sterilization hold that the sterilization of a recessive, as exemplified in the criminal or mentally defective, might destroy a life-to-be that would be normal—the dominant character in the recessive. Again, a perfectly normal individual may have dormant within himself the recessive characteristic of a recent or remote ancestor, and his mating, which could not in justice be prevented, would yet result in a recessive offspring under certain conditions. Hence sterilization would not be a complete remedy. Many States have, however, already enacted sterilization laws. Such laws tacitly admit the pathological nature of crime, yet in these States the punishment of any criminal lacks consistency.

In so much as criminality is based on constitutional or psychic weakness congenital in origin, criminals are afflicted ones who cannot help their affliction and who should not, therefore, be held responsible. For this reason it becomes a public duty to submit all criminals to competent medical and psychiatric examination to see that all who can be placed in the class of the positively defective are placed there. Every individual detected in crime should be examined and his anthropometric, psychic, and moral measurements published to the court. For the present increase in the number of the mentally defective is only an apparent one; it is a necessary result of improved methods of diagnosis, which consigns a large number heretofore not consigned to this class—and the criminal already furnishes a large part of this increase. It is hoped that the designation "criminal" will be replaced entirely by some psychiatric equivalent.

The criminal will have been anticipated almost entirely if the defective child is detected early—best at school—and segregated. The neurotic, the exceptional, and the precocious child must be carefully watched. Many of the unaccounted for criminals spring from such children, since the development of crime is early, not late. From this class also comes the single criminal of an otherwise normal family—the so called "black sheep" of the family, whose psychic defect has taken this form of manifestation instead of an intellectual form. Such an individual's defect could undoubtedly be traced



genealogically to some more or less remote ancestor, whose recessive characteristic lay dormant in his offspring until awakened, for some unknown reason, in this individual.

Thus far the problem of the criminal has been met largely in the punishment meted out to him. Punishment is the infliction by one individual upon another of some physical or mental hardship, in order that society shall be avenged, that the culprit shall expiate his crime, and that the punishment shall be a deterrent to others. Experience teaches, and on medical grounds it is plain, that since the criminal tendency is still present after punishment, the latter does not effect the purpose for which it is intended. It is a cruelty that should have no place in civilization. Punishment cannot be inflicted humanely, else it would not be punishment. The mental conception of crime appreciates that punishment cannot be a deterrent because the nature of crime being pathological the criminal cannot prevent it. In the normal individual the deterrent from crime is his own moral conception of the right. The reformations and relapses in crime remind one very strongly of the "lucid intervals" in manic depressive insanity. Punishment never reclaims or deters, but adds other grievances or motives for crime; it adds another psychogenic factor to the criminal psychosis.

The shock of prison restraint inflicted on individuals with already impaired psychic organisms produces in them the now well recognized prison psychoses or "breakings out." It is believed by some that this condition is a true epileptic manifestation. Prison psychosis usually clears up on the removal of this psychogenic factor—on release from prison. In all likelihood it is the shock of the punishment added to an already existing prepared psyche, which, however, is latent except for the criminal manifestation, which is at the bottom of this psychosis. No doubt the lack of better diagnostic signs makes this condition apparently latent until thus emphasized. It is not alone the prison that is responsible, but the whole fabric of police prosecution of the culprit, from pursuit, capture, "third degree" interrogation, the nerve racking trial, the court setting to sentence, and the incarceration. In this respect the usually lengthy trial is a particular offender. It is here that the legal battles are fought, which though unintelligible to the prisoner add to the strain. Here are hurled the gems of oratory, emotional convulsions take place, together with displays of wit, sarcasms, denunciations, etc., *ad libitum*. This lasts for days, even weeks. All this is sincerely intended to influence and edify a jury. And, however that may be, it does leave a profound effect on the prisoner which "breaks out" in the reaction from the strain just undergone. The whole subject of prison psychoses has been exhaustively treated in this country by Dr. Bernard Glueck. The association of this apparently new form of psychosis with prisoners exclusively, makes it apparent that crime has an intimate connection with pathological processes in the central nervous system, and especially in the centre controlling the moral perceptions.

The punishment which reduces their own species

to the level of the wild beast—to the cell, chain, whip, and slaughter—is repugnant to civilized society, no matter how great the provocation for such treatment. We must treat the criminals as humanely as possible, or else stamp them out as we would insects, without regard to their human character, as was believed by Aristotle. Hospital custodial care should replace the present penal system, trained psychiatrists instead of wardens, and trained nurses instead of jailers. The psychogenic factor, whatever it is, can thus be determined by psychoanalysis, and removed; and the defectives can be treated along modern psychiatric lines. This will return to the fold of usefulness a great number who cannot otherwise be reclaimed. Kindness instead of cruelty should mark the treatment of the moral lunatic or imbecile. Criminals appreciate kindness and sympathy and rarely abuse it. It is not entirely a question of sentiment, since it is more cruel to punish a sane person than an insane one, but a question of strict justice. One who merits a hospital is in a dungeon. One who merits the kindness of society is rewarded with cruelty. How often is a criminal tried and sentenced only to prove so apparently insane that he must be sent to a hospital. Hospital custodial care will protect the public as well as the criminal, and the latter it will cure instead of aggravate. It is the prison life which stimulates the common prison perversions. Prisons manufacture and send to the outer world perversions, immorality, crime, insanity, tuberculosis, etc. If after doing this it kept the victims from society—but no, it seems expressly to manufacture them and, after a longer or shorter period of detention, foists them on the public. The public reaps their harvest for attempting to punish instead of treating this of all human afflictions—crime.

The relegation of crime to the realm of disease would not be more expensive to the community, since the present prison system coupled with the fact that it reclaims none of its inmates is far more expensive than any hospital plan. But before considering all criminals to the hospital, the latter's patients must be taken to a higher level of care, in order to allow the criminal to slide into the place thus vacated. The abolition of capital punishment would apply custodial care to the intellectually as well as morally insane individuals, with the difference in treatment only one of kind, and possibly, only one of degree.

The law attempts to establish what is an arbitrary way of determining the punishment suited to the crime. On such a basis one crime deserves more punishment than another, without considering the individual committing the crime at all, though a lesser crime may have been committed by an individual of greater depravity. On the other hand, the same sentence may be a greater punishment to one individual than another, depending upon the degree of degeneration of the individual. While dealing with human beings, elastic organisms, the law yet treats them as inanimate bodies. The same sentence for the same crime does not consider the individual who must suffer it. It is almost more logical to revert to the Draconian prin-

ciple that "small offenses deserve death, and I know of no greater punishment for greater ones." This gradation of punishment is admitted even by jurists not to be entirely just. "The measure of culpability and the measure of punishment cannot be determined from the study of the illegal act, but only from the individual committing the act." Either crime and criminals must be treated along scientific, and therefore, just lines, or it is better to heed Aristotle's advice to destroy all criminals as vipers, and not as a means of punishment. Punishment should be changed to treatment, because "punishment is hiring an assassin for a shilling to do what the judge would not have the courage to do." The prison is a moral torture chamber; it should be replaced by a moral hospital for the sufferers from moral disease or defect.

Some advance has already been made by the courts in the prison practice through the establishment of indeterminate sentences, parole and probation systems. In Chicago the courts have attached to themselves trained psychiatrists who aid in preventing the injustice of sending mentally defective or disordered individuals to prison. In the conduct of purely criminal cases the jurists would do better work were they themselves also trained psychiatrists and criminologists, or had they the aid of such persons. The determinate sentence must be entirely replaced by the indeterminate one, the criminal to be detained till cured of his criminal propensity, and released as soon as cured. In prison the criminal must be educated vocationally and intellectually, along such lines as it is determined he is best adapted—the same as is now done with the moron, who is thus made selfsupporting, and taken out of the mass of human debris. Their diseases and defects must be determined and carefully treated. Even cosmetic surgery has a place, for there are few things that make life more dear than the removal of facial disfigurements. On release there must be surveillance, but not police espionage. They must be assisted and advised, and made to realize that society is their friend, not their enemy.

A great deal more improvement has taken place in the treatment of minor offenders than with the adult. The old arbitrary determination of *sui juris* from the years has been replaced by the juvenile delinquency acts, which place all minor offenders under sixteen years of age in one class to be detained and reformed till majority. But obviously there is still much room for improvement. The juvenile court must not be a sombre chamber, with uniformed attendants, but rather chapellike. Better still, the juvenile delinquent should first be ushered into a psychological laboratory or clinic, where his mental, moral, and physical measurements may be ascertained to determine whether he has any defects, and whether they are of such severity that they need hospital custodial care, or whether they can be treated by the clinic, outpatient method of probation, control, and surveillance.

Until the disease theory of crime is established, prison practice should resolve itself in all cases into the indeterminate sentence, medical treatment, physical, moral, and mental, vocational training along lines most adapted to the criminal, intel-

lectual and social education, and convalescent surveillance after release.

The physician is interested in the subject of criminology, first, because the public as well as the criminal are his patients; secondly, because the physician must fulfil his role of the eternal proselyter for reform and progress; and finally, because it is the curiosity born of medical training which allows him to delve beyond the merely apparent, no matter where it leads. He is, as an earthly minister, more nearly in real contact with his patient, and can deal not only with his physical ills, but is near enough to deal with his mental, moral, spiritual, and even social ills. Criminal administration must soon slide into the sphere of the psychiatrist, and he should be prepared to receive it. The physician can help to decrease crime by reaching the real causes. He can educate the parents against intemperance and disease. He can raise, by his influence, the standard of social justice, which is such a large factor in the causation of disease and crime, and which is especially so frequently the psychogenic factor in the criminal.

The disposition of the criminal and the elimination of the crime factor can no longer be left to jurisprudence, because it is a nonhuman, blind institution, proudly so depicted. It deals with the really immaterial, with legal documents, and instruments of restraint and destruction. With these it cannot work out any phase of the human salvation. The training of the jurist is ultraterrestrial, and, thriving on respect and dignity, cannot stoop to earth amid the dregs of humanity and do the good where most of it can be done—"Why should the spirit of mortal be proud?" Only he whose endeavors lead him into the abode of suffering and squalor—a real phase of life—can see where and why crime, insanity, disease, and social vice are manufactured. Only after such experience can we truly say "Judge not!" Crime and its causes cannot be studied nor remedied in black robes, sombre halls, nor with garnet, nor with court criers, but in shirt sleeves. One who, after pronouncing perhaps a very severe and cruel punishment, attempts to preach to the victim is, besides, assuming the prerogatives of Divinity, in the same class as a physician who would censure his patient dying of venereal infection. If we are ever called upon to judge our fellow man, it must be done with a full appreciation of the imperfection of all human beings—"Let whosoever among you who is without fault cast the first stone!"

The judicial conception of crime, no matter how profound, rests on the abstract acts of the criminal. The criminal himself is known only as the inevitable companion of the crime, and not by his personality, or his physical or psychomotive conformation. To the judicial-police system can be left the ferreting out of those who by their acts come into the class of the criminally inclined, but the diagnosis of the form and severity of this criminal tendency must be left to the medical or psychiatric sciences, which should have the whole matter of the disposition of the criminal. The victim of moral or psychic turpitude, the criminal, must logically be left to the psychiatrist.

## SURGICAL ASPECTS OF GRAVES'S DISEASE.\*

BY ROBERT E. DAVISON, M. D.,  
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The thyroid body enclosed in a dense fibroelastic capsule, and firmly attached to the thyroid cartilage and tracheal rings consists of an isthmus and two lobes. Its very extensive blood supply impresses one that it holds an important position in the body architecture. The gland is similar in structure to other compound alveolar glands, and yet, peculiar that it does not possess excretory ducts. The highly vascular capsule dips into the gland dividing it into chief lobules, which subdivide into primary lobules containing acini, or follicles. The lining of the acini consists of a single layer of epithelial cells resting directly on fibrous tissue. There is neither basement membrane nor elastic tissue in the acini. The epithelial lining is the source of two peculiar substances: Colloid and thyroglobulin. The colloid is found within the acini; sometimes filling them, sometimes partly filling them, and sometimes distending them. It is easily stained, homogeneous, and regarded as a proteid although at present the chemical characteristics are uncertain. Its function is perhaps conservative or inhibitory. Thyroglobulin is a hormone; very resistant to the action of acids. The known actions of thyroglobulin prove that it is a potent factor in certain physiological phenomena. It has a dilating effect on the capillaries, as flushing, warmth of skin and excessive sweating; it disturbs metabolism, as loss of weight; and it causes tachycardia.

The pathological entities concerned in Graves's disease are proliferation, hypersecretion, and degeneration of the thyroid parenchyma. The severity of the symptoms depends upon the amount of absorbed secretion. Speaking broadly the parenchyma increase is in direct proportion to the intensity of the symptoms. In a well marked case the secreting epithelial cells are not only increased in a given acinus, almost filling it, but the acini are numerically increased. The hyperplasia is usually only in portions of the gland. In the patient showing remissions of the toxic symptoms, the gland will show areas of parenchymatous degeneration. The degeneration seems to be due to colloid pressure and epithelial exfoliation. Thyroid secretion is vital to the body and its source is thyroid parenchyma. Excess of parenchyma means excess of secretion. Nature attempts to overcome the excess of secretion by increasing the colloid and by destroying the secreting cells. That nature does succeed at times under a favorable environment cannot be questioned. The basic fault in the gland is parenchymatous hyperplasia. The cause of the proliferation is unknown and is as much a mystery as the cause of fibroid tumors. At the present writing, Graves's disease should be considered as due to hypersecretion of the thyroid body because of parenchymatous proliferation.

The principal anatomical changes have been pointed out by MacCallum (*Medical News*, Octo-

ber 31, 1903, and April 8, 1905), as follows: 1. A diffuse hyperplasia of the thyroid gland, with proliferation of epithelium and diminution of normal colloid, the follicles containing a mucinoid substance; the vascularity is usually increased. 2. Hypertrophy and dilatation of the heart with fatty degeneration. 3. A severe fatty degeneration of the voluntary muscles, evidently toxic in origin. In addition the orbital fat is increased; the lymph glands, thymus, and spleen often show lymphoid hyperplasia. The four cardinal symptoms of Graves's disease, namely: tachycardia, tumor, tremors, and exophthalmos are rarely all present in a given case. Tachycardia is constant and is usually first recognized. It is a valuable symptom and found early in the disease. A quick pulse without apparent cause invites investigation. The proportion of males to females afflicted is about one to eight, and most commonly found between the ages of sixteen to forty. Enlargement of a part of the gland is fairly constant but enlargement of the whole gland is comparatively rare. To the casual observer or even to the patient, the enlargement might not be apparent but to the initiated it is usually demonstrable. Cough, hoarseness, or stridor is sometimes caused by an enlarged lobe deeply embedded in the neck. Properly to palpate the gland the neck must be exposed and the neck muscles completely relaxed. Often a suggestion of enlargement is seen in the prominence of the sternocleidomastoid muscle. Tremor is not constant, and when present denotes either an acute phase or an advanced stage of the disease. It may be demonstrated by the patient's attempt to join the finger tips while the arms are in extension. Treatment is of little avail when muscular tremor is present in an advanced stage of the disease. Exophthalmos is rather a late symptom, and as a rule, the disease should be recognized before this symptom appears. Nervousness, insomnia, and dysmenorrhea in women, are frequently present. When the nervous phenomena predominate there is often present a psychopathic element, and this type of patient is very little benefited by treatment. Vomiting and diarrhea, ascites and edema are late symptoms due to cardiac degeneration.

The writer would call your attention to the following observations: 1, That Graves's disease runs a protracted course; 2, that acute Graves's disease is only apparent; 3, that there are acute phases which are only a flaming up of a chronic affection; 4, that there are latent phases in which there is a remission of symptoms with a general improvement of the patient's health; and 5, that this tide like rise and fall of the symptoms is characteristic and demonstrable if the case has been observed for a reasonable length of time. Indeed the pathological findings in the thyroid gland should prepare one to expect a changeable syndrome. Hyperplasia and degeneration go hand in hand, perhaps, not in the same acini but in the same lobe. One can readily see how "natural cures" take place; just how often in a given number of cases the author is not in a position to state. However to destroy just enough secreting cells to bring the total gland secretion to the normal requires a nice adjustment of nature.

\*Read before the College of Physicians, Pittsburgh, October 9, 1913.



The diagnosis of Graves's disease is easy in advanced cases; most of these, however, are beyond cure. Extrathyroid pathology has already taken place, and usually in the heart muscle. There are two types of these advanced cases in which the prognosis is bad. 1. A rapid intermittent pulse, a low blood pressure, ascites, edema of the extremities, diarrhea, vomiting, and emaciation; and, 2. where the patient apparently is overwhelmed by an excessive absorption of thyroglobulin—flushed skin, the face and lips puffed, and a deep red in color, rapid pulse, the blood pressure becoming progressively lower as the pulse gains in rapidity, high temperature even to 106° F., gastrointestinal symptoms and delirium. "The easier the diagnosis the worse the prognosis." It is the incipient, the early case, not necessarily measured by time, but by the progress of the disease, that has inspired the writer to offer this paper. No single symptom is pathognomonic; the syndrome is the key which unlocks the diagnosis, and there is no way to pick up the aggregate other than by tabulating each individual symptom. In a suspected case the writer places the patient in a hospital for observation. Respiration, temperature, and pulse rate are noted every three hours night and day. A careful physical examination is made, paying particular attention to the heart and lungs. The blood pressure is noted. In the blood examination, the hemoglobin, red blood cells, total leucocyte count, and a differential white count are considered. In a positive case the mononucleated leucocytes are usually increased. The variations in temperature and pulse are significant. Most of my cases showed a Flint heart murmur. The urine is tested both chemically and microscopically. Uneven tension and irregularity of the pulse denote myocardial changes, and frequently dilatation. Puffiness about the ankles is not uncommon. A good case history must be written, because on this you will depend when you come to determine whether the disease is acute or latent. In brief, study your patient assiduously, paying no attention to naming the disease until you have built the syndrome. Usually three days in the hospital will suffice, but if tuberculosis or syphilis or some other disease becomes suspicious, then the time must be extended in order to apply the tests.

The writer offers no treatment for advanced Graves's disease with end pathology, because he believes that treatment is alleviative and not curative in this type, and internal medication offers more to the patient than any surgical procedure. Hence, this discussion applies only to early cases.

The purpose of treatment is to lessen absorption of overproduced internal secretion of the thyroid body. Nature's method is by attacking the secreting cells by degeneration, or destruction of the parenchyma. Therefore, following Nature's plan, a safe treatment that will destroy a part of the parenchyma should give curative results. The surgical procedures most popular at present are: (a) Application of x rays, (b) injection of hot water, and (c) partial thyroidectomy; all having a reasonable basis, and each producing cures. The first two are not desirable because they are hidden operations, with uncertain results, and too many unknown factors. Surgery demands precision, known

factors, definite results, and open procedures. The third method satisfies all these requirements and will give the most uniformly good results. Partial thyroidectomy, in an early case and in the hands of a good operator, is not, *per se*, a dangerous operation ranking in mortality a little above minor operations. It is best to operate in the latent phase.

Frequently the physician is consulted when the disease is in its acute phase, because the symptoms are very alarming to the patient. The question arises what should be done. A partial thyroidectomy should not be done at this time, because overactivity means toxemia, and a toxic patient is a bad surgical risk. Then anoci association, as brought forward by Crile, must also be considered. The patient should be put to bed at absolute rest and quietness, away from inquisitive friends, an ice bag to the neck and alleviative medical treatment given. Very often this will suffice to bring about a latency. However, if latency is tardy and the patient is apparently in imminent danger of being overwhelmed with thyrotoxicity, then ligation of one or more thyroid vessels would be indicated, which promptly produces latency. The administration of the serum advocated by Rogers and Beebe is said to act promptly. The writer has had no experience with the serum, and he cannot advise its use.

To formulate a rule defining just when to do a thyroidectomy in Graves's disease is nonsense; good judgment is a requisite, and this comes only with experience. This experience does not necessarily mean a great number of cases, but it does demand an intensive study of patients. The *dernier ressort* operations in Graves's disease are failures.

In conclusion, "The earlier the patient is seen and the less distinct the indication, the more elaborate and painstaking should be the investigation and the more careful the preparation. We may state, therefore, that in the earlier stages of surgical lesions the diagnosis is the major part of surgery; the operation is minor. It is expert and delicate surgery, nevertheless, and the immediate and ultimate results are the best. In this stage, treatment is the test of the diagnostic technic." (Bloodgood, *Journal of the American Medical Association*, lxi, 12, p. 911.)

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#### A STUDY OF THE ACTION OF OXYGEN, HYDROGEN DIOXIDE, AND OZONE GAS UPON THE GROWTH OF CERTAIN BACTERIA.\*

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The physiological and the mechanical action of oxygen gas when introduced within the peritoneum of normal animals and of man, was found by Bainbridge (1) and by Meeker (2), "to justify the assumption that the intraabdominal use of oxygen is

\*From the Research Laboratory of the New York Skin and Cancer Hospital.

entitled to a place in surgical therapy." The beneficial effects obtained by the use of ninety-five per cent. oxygen intraabdominally in the human subject following severe laparotomies, (3) in particular, the favorable progress of certain cases with associated local or general intraperitoneal infection in which it was used, raised the question as to whether or not an antiseptic action is included in the therapeutic action of oxygen. At the suggestion of Dr. W. Seaman Bainbridge, a study of the action of oxygen upon the growth of certain microorganisms was undertaken in the laboratory of the New York Skin and Cancer Hospital. The results obtained with oxygen led to a study of the bactericidal action of hydrogen peroxide and of ozone. The microorganisms were were virulent strains of aurococcus, *Streptococcus brevis*, *Bacillus coli*, and one strain of the *Bacillus tuberculosis* (human type).

#### TECHNIC.

The culture media used for growing these bacteria were meat infusion, glycerin, and serum agar, plain and glycerin bouillon. When it was desired to grow them in an atmosphere of oxygen, the organisms were grown in litre and half litre flasks on solid media. For use with a continuous current, they were grown in test tubes and in flasks in fluid media. Where suspensions of the bacteria were required, several slants of one strain of an organism were grown for twenty-four hours at 37° C. and the growth washed off from each slant with two cubic centimetres of sterile water and transferred by a sterile pipette to a large sterile tube; the bacteria in this tube were thoroughly emulsified, and two cubic centimetres of this suspension regarded as representing one culture in conducting the experiments. To keep the different strains of bacteria that were employed, virulent, they were passed through mice or guinea pigs at frequent intervals.

The oxygen gas used represented ninety-five per cent. of pure oxygen. The oxygen was employed at 22° C. when used as a continuous current and for replacing the air in flasks. For the latter purpose oxygen was led from its tank through sterile apparatus, introduced just above the surface of the medium in the bottom of a flask and allowed to flow until from five to six litres had thus entered the vessel at the lowest point possible, with free exit for the gases at the top. In each instance before connection with the oxygen tank was severed, screw clamps, securely fastened on the heavy rubber tubing leading to and from the vessel, rendered leakage impossible.

The hydrogen dioxide (U. S. P. three per cent.) was obtained from two different sources of manufacture, and for each group of experiments was taken from freshly opened bottles. All apparatus for this work was sterilized previous to use. Twenty-four hour fluid cultures, and suspensions of twenty-four hour slant growths, as described above, were used, and the peroxide added directly to the tubes. When testing the viability of an organism, subcultures were made every thirty seconds until no further growth was obtained and subsequent incubation showed the microorganism to have been dead.

Ozone was first generated in the laboratory by

passing oxygen through a Siemen's tube and supplying the current and necessary voltage by means of batteries and induction coil. Later a single unit ozonizer (Gerard) was used and higher concentrations of ozone were made available. This ozonizer was built for ozonizing air and had a drier attached; however, by disconnecting the air pump and connecting with an oxygen tank, oxygen could be ozonized. Four factors influenced the concentration of ozone obtained with each apparatus: 1. The percentage of oxygen in the gas ozonized; 2, the rate at which the gas was passed through the ozonizer; 3, the electrical discharge and its potential; 4, the condition of the gas as regards temperature and moisture. With the Gerard apparatus the fixed factor was the third, the others were known and controllable; with the Siemen's tube the third factor was variable, influencing the output of ozone. The maximum concentration with the latter apparatus when working satisfactorily, was 0.001 per cent. by weight of ozone at 22° C. With the single unit ozonizer, the proportion of the ozone by weight could be varied between 0.005 and 0.012 per cent. when air was used, and between 0.015 and 0.0185 per cent. when oxygen was the gas ozonized. While using air the maximum amount of ozone that could be generated per minute at 22° C., was 15.6 milligrammes; while using ninety-five per cent. dried oxygen the maximum amount that could be generated per minute at 22° C. was twenty-four milligrammes. To secure dilutions between the 0.001 per cent. (first apparatus) and 0.005 per cent. (second apparatus) it would have been necessary to use large quantities of oxygen and to pass the gas quite rapidly over the electrodes; but, aside from the waste of oxygen entailed, the rate of flow of the gas was too rapid for convenient use in connection with the experiments. The test employed for estimating the amount of ozone in a given specimen was the one ordinarily used, passing a known volume of gas through a neutral solution of potassium iodide, acidulating with sulphuric acid, titrating the iodine with sodium thiosulphate, using starch solution as an indicator. For the work with ozone all tubing had to be of glass or of special aluminum make, and all corks and joints rendered free from leakage by means of electrician's tape or paraffin. To approximate the intimate manner in which oxygen could be passed through a suspension of bacteria in a test tube (i. e. by passing the oxygen through a sterile hard rubber tube having many fine perforations in its sides near the end), wash bottles with specially made double glass stoppers were used; these permitted the ozone to enter at the lowest portion of the suspension from a glass bulb in which there were several fine perforations, with free exit for gas from the bottle through the outer cork.

#### OXYGEN.

Each one of the four microorganisms was grown on solid media in litre and half litre flasks, and the atmosphere in each flask replaced by one of ninety-five per cent. oxygen. The flasks, then rendered free from leakage, were kept at 37° C. Control flasks containing air were likewise rendered free from any external gas interchange and kept under the same conditions. Growth in the flasks con-

taining oxygen seemed in each instance as luxuriant as in the control flasks. Different flasks were inoculated with the four different microorganisms and before visible growth had taken place their atmospheres were replaced by oxygen. These showed variable times of appearance and rates of growth for the first forty-eight hours in the aurococcus flasks, but good growths in all other flasks, the growth frequently being macroscopically visible in one of these flasks before that in the corresponding control. It may be observed here, that, using fresh media containing considerable moisture, the tubercle bacillus seemed to grow as readily in the presence of oxygen as in the presence of air in the controls; but, given dry media and dried oxygen, growth could be inhibited while these conditions existed.

Fluid cultures of any of these bacteria, before incubation, were subjected to a continuous stream of oxygen for twelve, twenty-four, and forty-eight hours and showed at the end of these periods luxuriant growths in all tubes except those containing the tubercle bacillus. Here, there was an absence of any visible growth when the oxygen had been passed continuously through the suspension in the form of numerous fine bubbles. Incubation of the tubes after discontinuing the oxygen, however, showed the bacteria to have been simply inhibited in their growth and not killed. The aurococcus cultures appeared bleached but regained their normal color upon discontinuing the oxygen and transplanting into fresh media. Aside from this bleaching of the aurococcus and the absence of growth under the conditions mentioned in the tubes containing the tubercle bacillus, there was no effect observed upon the growth of any of the other bacteria. The streptococcus and the colon cultures not only remained viable, but grew luxuriantly while being exposed in fluid media to a continuous current of oxygen.

The results obtained by oxygenating freshly transplanted fluid cultures of these bacteria led to the oxygenating of sterile water suspensions. Fractions of a culture were used—finally one seventh of a culture. The colon bacillus and the streptococcus could be as easily subcultured as their controls at the end of forty-eight hours' exposure to a continuous current of oxygen; the aurococcus invariably showed fewer colonies developing on subculture from the oxygenated suspensions than from the controls. Cultures from the tubercle bacillus showed latent growth as compared with cultures from its control suspensions. The aurococcus was subjected for another twenty-four hours to the stream of oxygen, at the end of which time, seventy-two hours, no growth was obtained on testing for viability, whereas light growths of aurococci could still be obtained from the controls.

The action of ninety-five per cent. oxygen on any of these microorganisms in the presence of culture media did not demonstrate it to be bactericidal in any instance, and only in the case of one organism—that of the tubercle bacillus—did it inhibit growth; i. e., when the bacteria were freshly transplanted into fluid media and subjected to the action of the oxygen in a continuous current passed through the culture. Discontinuation of the oxygen and further incubation renewed the growth of the bacilli.

In the absence of organic matter, on the other hand, oxygen used as a continuous stream of fine bubbles passed through a freshly suspended fraction of a culture in sterile water, proved inhibitory to the subsequent growth of the aurococcus and the tubercle bacillus. In the latter case the tubercle bacilli in suspension had to be first thoroughly emulsified, as the presence of bacilli in clumps in the suspensions seemed to protect those within the clump. No influence on the viability of *Streptococcus brevis* or of *Bacillus coli* was observed upon similar subjection to oxygen for forty-eight hours. With prolonged use of the oxygen, i. e., for at least seventy-two hours or until such time as the gas had been brought into intimate contact with the bacteria in suspension, no growth or subculture could be obtained with the aurococcus. Control suspensions could be subcultured but had not been subjected to continuous agitation by means of a current of sterile air.

#### HYDROGEN DIOXIDE.

The results with this oxidizing agent varied with the two different makes that were used, though both were labeled, "U. S. P. three per cent." For convenience they will be designated as (A) and (B). Employing suspensions of the bacteria in sterile water, the amount of hydrogen dioxide (A) which would kill one culture of the aurococcus in five minutes, when added to it, was one third of the amount required when using the hydrogen dioxide (B). The amount of hydrogen dioxide (A) which would kill one culture of either *Streptococcus brevis* or *Bacillus coli* in five minutes was just one half the amount required of the hydrogen dioxide (B). Any fluid culture of any one of the different bacteria could be killed within the same length of time—five minutes—that was required to kill suspensions in sterile water, but never with as small amounts of the hydrogen dioxide as proved sufficient in the suspensions. The same was true with cultures on solid media, greater amounts were required to kill a given culture than when in aqueous suspension; and proportionately greater amounts of the hydrogen dioxide (B) were necessary than of hydrogen dioxide (A). Apparently part of the oxidizing agent was reduced by the media.

#### OZONE.

Passing from hydrogen dioxide to ozone—another oxidizing agent, from which nascent oxygen is derived at the moment of its liberation in the atomic state—results with its use were dependent entirely upon the intimacy and rapidity with which it could be brought into contact with the bodies of the bacteria suspended in fluid media. With the first apparatus used for generating ozone, the Siemen's tube, though the proportion of ozone by weight in the ozonized oxygen was never greater than 0.001 per cent., suspended cultures of the four different microorganisms could be killed if exposed to its action for a sufficient length of time. Or, in other words, the passage of as many litres of this strength of ozone through a culture (suspended in sterile water) as would represent at the maximum the use of 37.5 milligrammes of ozone, was sufficient to kill any one culture of bacteria. Twenty milligrammes was the smallest amount, with this



concentration, which was ever found to kill a culture. When the use of greater concentrations of ozone was possible, as with the single unit ozonizer, any one culture of the aurococcus, *Streptococcus brevis*, or *Bacillus coli* could be killed by two minutes' exposure to ozonized air containing 0.012 per cent. by weight of ozone; or could be killed in one minute by exposure to ozonized oxygen containing from 0.015 to 0.0185 per cent. of ozone with an unused surplus of ozone invariably remaining, as shown by tests for ozone in the escaping gas. Ozone gas, whether used at 22° C. or with its temperature raised to 33° C., seemed to give equally good results as regards the rapidity with which the bacteria could be killed, once the ozone was brought into intimate contact with them in fluid suspension; less ozone being required in the absence of organic matter.

Cultures on solid culture media could be killed by using greater amounts of ozonized air or ozonized oxygen. This was always, however, a difficult procedure, as more ozone escaped from the vessel than was reduced by the bacteria and the media. Invariably subcultures could be obtained from the centre of colonies and from that portion of growths next to the surface of the media, long after those from the periphery and surface of the colony had ceased to grow on transplantation. Only by the use of ozone in high concentration and under pressure could bacteria within a solid medium be reached and killed by the gas.

Ozone proved to be an active bactericide *in vitro* for all the microorganisms used, provided certain conditions were fulfilled. The bacteria had to be in fluid culture or in suspension in a fluid medium such as water, and the gas had to be passed through the suspension or medium rapidly, in the form of numerous fine bubbles. It was necessary to break up the heavy film growth of the tubercle bacillus to secure the rapid oxidation of the latter. Ozone had no selective action as regards these bacteria in the presence of organic matter, such as that contained in the culture media used. To kill one culture of any of the bacteria in sterile water suspension, the maximum amount of ozone used was 37.5 milligrammes (0.001 per cent. strength), the minimum, twelve milligrammes (0.005 to 0.012 per cent. concentration). To kill one culture in a fluid medium of any of the bacteria mentioned, the maximum amount of ozone used was 70.5 milligrammes, the minimum twenty milligrammes.

#### CONCLUSIONS.

1. Oxygen in its molecular form  $O_2$ , ninety-five per cent. pure, does not kill or inhibit the growth in the moist state of *Streptococcus brevis* or of *Bacillus coli*.

2. Oxygen may inhibit the growth of the tubercle bacillus when brought into intimate contact with each microorganism in the moist state, but does not kill it.

3. In the absence of culture media (organic matter), oxygen inhibits the growth of the aurococcus, and may kill it, after prolonged and intimate contact with each microorganism in the moist state.

4. Hydrogen dioxide (U. S. P. three per cent.) is an active bactericide for the four microorganisms

tested. The action is dependent upon the amount of the hydrogen dioxide used, the age of the preparation, its strength, and, also upon the presence or absence of readily oxidizable organic matter.

5. Ozone (ozonized air or ozonized oxygen) under certain given conditions is an active bactericide for the four microorganisms used. Its action is dependent upon its concentration and the intimacy and rapidity with which it is brought into direct contact with the bodies of all the bacteria in suspension in water or fluid media.

6. Ozone does not dissolve in sterile water, or in saline solution in more than faint traces; therefore its bactericidal action is dependent upon its passage through these solutions or through any fluid medium as a continuous stream of numerous fine bubbles of gas.

7. Ozone has no selective action for any of the four bacteria in the presence of organic matter.

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### REPORT OF A CASE OF CARCINOMA OF THE FACE.\*

BY EDWIN S. MAXSON, A. M., M. D.,  
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I wish to report a case of carcinoma of the face that came under my observation in 1910 and 1911. The patient was the faithful nurse who cared for my mother during the last months of her life. The patient has been seen by some of the members of the Syracuse Academy of Medicine; but, I believe, her case has never been reported. I recorded her history on July 21, 1910, a portion of which I will give here.

The patient, Mrs. D., was forty-one years old, American born, and a practical nurse and housekeeper by occupation. Her father died of a "chronic diarrhea" at about sixty years of age. Her mother died when Mrs. D. was a very young child. Neither the cause of her mother's death, nor the age at which she died, was known to the patient. One of the patient's brothers and three sisters are living. One brother died of diphtheria.

Mrs. D. had diphtheria when she was a small child and again when she was about nineteen years old. Her health in adult life was generally good. At the time this record was taken she appeared to be in excellent health. Mrs. D. had had two children; both of whom were living.

She worked for about three years as nurse at the Rome State Custodial Asylum, handling patients suffering from all diseases. She did private nursing also.

About four or five years before this record was taken the patient first noticed an occasional peculiar numb feeling in her right cheek, coming on while lying down at night. She nursed a case of diphtheria in March, 1909. A year later, during the spring preceding this examination, she had an aggravation of the numb sensations in her cheek at night. She then had what she described as "cold chills" in her right cheek. For most of the time during the preceding year she had a thick, yellow discharge from her right nostril. For about five weeks before the time of this record, she noticed that her upper dental plate hurt her jaw on the right side, this tenderness growing worse.

She was examined by Dr. Thomas Halsted about July 14, and again on July 19, 1910. Doctor Halsted found polyp and some other pathological tissue in the right

\*Read before the Syracuse Academy of Medicine, October 7, 1913.

nostril. The right antrum was also affected. After his first examination, Doctor Halsted expressed the opinion that the disease was malignant and was carcinoma. However, upon his request, Doctor Jacobson also examined the patient on July 19th, and expressed the opinion that the disease was sarcoma.

In accordance with Doctor Jacobson's advice, Doctor Halsted removed some of the pathological tissue from the patient's nostril and sent it to Doctor Steensland at the medical college for examination. Doctor Steensland found the tissue to be carcinomatous and thought that the patient might live, if not operated upon, for about one year. This proved to be a fairly accurate prophecy, as the patient died ten months later.

As it was thought that Mrs. D. would live longer without an operation, none was done, except a palliative one, for temporary relief, a short time before her death.

About one month after Doctor Halsted made his first examination the tumor broke through and began discharging from the antrum into the mouth, between the cheek and the alveolar process of the jaw. There was considerable pain and eventually, also considerable swelling in the right cheek. However, the nightly application of belladonna ointment, under sterile cotton and a bandage, gave much relief from the pain.

I will say that the tumor, much to my satisfaction, never broke through the skin of the face. On the other hand, the pathological growth crowded down from the antrum through the roof of the mouth, eventually filling a considerable part of the mouth and finally preventing the closure of the jaws.

To afford temporary relief to this condition, Dr. George M. Price, at the House of the Good Shepherd, performed a skilful operation, removing a portion of the carcinomatous growth. This operation, performed two weeks before the patient's death, permitted the closing of the mouth and facilitated breathing and the taking of liquids, besides accomplishing much in an esthetic way.

Some surgeons might have resorted to an early operation, removing a considerable part of the upper jaw on the right side; but I was glad to have the patient (who died at our home) live as long as possible, and so was better satisfied with-out the early operation.

I have sometimes wondered whether Mrs. D. might not have introduced cancerous cells into the nostril while nursing at the State Custodial Asylum in Rome.

818 MADISON STREET.

## ACUTE PELLAGRA OR DERMATITIS EXFOLIATIVA?

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Whether the case below was due to pellagra (as I think) or to septic dermatitis, I think it sufficiently interesting for publication.

*History.* A youth of twenty years, who was up for the Territorial Annual Training in June last at Bridlington, York, came to me on September 8th for treatment. He was an employee, clerk at Newcastle-on-Tyne post office. He complained of much headache, constipation, anorexia, oral sepsis, foul tongue, and great lassitude. Naturally I thought of toxemia or enteric fever, ambulatory or paratyphoid. There was an indistinct erythematous papular brick red rash without intense itching upon the sun exposed surfaces of the forearm, face, and neck—this later on spreading to chest and other parts. On September 17th he was evidently very ill, temperature 102° F., pulse 100, respiration 20. He was ordered to bed where he has remained until present date. He had contracted pediculosis pubis and used blue ointment liberally, which undoubtedly produced an irritating rash about nates, pubis, and inner side of thighs.

*Symptoms.* Seriously ill with dermatitis and desquamation, which became very profuse and flaky; the skin of pelvis and feet peeled off *en masse*. Neuritis appeared with tremblings of upper extremities, some dullness of vision (afterward clearing up). No nystagmus. Hematuria occurred possibly (?) due to hexamethylenamine. No vomiting, no signs of pressure pain in right iliac region. Stools of normal character. He soon had a bedsores which quickly healed up with energetic treatment; this I took as a sign of vitality and opposed to enteric fever. Urine specific gravity 1.020; acid reaction; no albumin nor sugar. Suspecting *Bacillus coli* and either or both staphylococcus and streptococcus, the urine was examined microscopically and the two former found; this was repeated later, two or three times with same result. Septic foci (septic cellulitis) now soon began to appear, the papules having become vesicles, then pustules, ultimately cellulitis. Then he began to lose weight, but was rational and cheerful excepting when his temperature reached 105° F. Then, of course, he was delirious; afterward he commenced to be despondent—costive throughout. A Gruber-Widal test was made with negative result. On October 5th, to still further complicate matters, he had stomatitis, followed by dirty white patches on tonsils and fauces; a bacteriological examination was made; result negative, no *Bacillus hofmanni*, only *Staphylococcus aureus* and casts present. Supersensitiveness well marked and reflexes normal. Pus exuded (still continues up to date) all over the body in crops, disappearing and reappearing—very foul and stinking.

*Treatment.* External: Boric acid and fifty per cent. cresol washes, lotio carbonis detergens and calamine, ichthyl soap, zinc oxide ointment, hydrous wool fat, petrolatum, and powdered boric acid. Internal: *Mistura alba* (B. P. C.), cum cascara, calomel *pro re nata*, hexamethylenamine with acid phosphate of soda, and stimulants. On October 8th the patient received an injection of *Staphylococcus aureus* vaccine, on October 10th he was given an injection of *Bacillus coli* vaccine, and on October 15th an injection of autogenous vaccine, prepared from the pimples of the patient, which was to be given twice weekly. The pigmentation turned brown.

*Remarks:* My theory is that this poor fellow may have drunk water from a shallow brook (great drought here all last summer) and either been bitten by the fly or swallowed the ova, etc., of the simulum. Again, could meat have been affected by it? I think not, or others would have been affected, too.

The opinion I expressed to relatives of patient at the first was, that bacilli had poisoned his system, producing septicemia, with the bare possibility of enteric fever. Now I had first to exclude scarlatina, urticaria, and syphilis, and later to eliminate typhus and enteric fevers, and tuberculosis. At the third week I began to think it might be an acute case of pellagra, which disease I had never seen, but always read of as chronic. Two doctors said, clinically, absolutely pellagra. But the bacteriologist has not yet found the simulidæ or culicidæ, although urine, pus, and stools were examined. Mark the dermatitis, profuse desquamation (not ceased yet), erythema, pigmentation, the suppuration and intense excretion of stinking pus by rotten cellulitis, the extreme emaciation, and now pyemia! This puzzling case gives rise to the following questions: Was the dermatitis pellagra? Was the dermatitis simple dermatitis exfoliativa? Was the dermatitis due to sepsis? Was the sepsis due to dermatitis?

Doctor Patterson, skin specialist here, thought it a case of simple dermatitis exfoliativa with sepsis, but he did not see it for many weeks after commencement.

My thanks are due to W. Leech, assistant sur-

geon to Newcastle Infirmary; Doctor Kerr, medical officer of health, Newcastle; Prof. H. J. Hutchens, D. T. O., pathologist; Doctor Hem-brough, medical officer, Northumberland County; Doctor Slade, pathologist and bacteriologist, and Dr. D. Wells Patterson, physician to the Skin Hospital, Newcastle-on-Tyne.

435 WESTGATE ROAD.

## Therapeutic Notes.

**Treatment of Pseudomembranous Dysmenor-rhea.**—A. F. Plicque, in *Bulletin médical* for May 3, 1913, states that prompt benefit can often be obtained in this condition by seeking for and over-coming disturbances relating to distant parts of the body, gastric dilatation due to rapid eating, constipation, excessive social or scholastic activity, carrying heavy weights, exposure of the feet to cold, etc. Sometimes the condition has been over-come by applying a five per cent. solution of cocaine hydrochloride to the genitonasal points, situated on the inferior turbinates and septum nasi, and if benefit is noted, later cauterizing these points. As antispasmodic remedies, potassium bromide, zinc salts, ammonium valerate, and the expressed juice of fresh valerian, are most favored. A pill containing zinc oxide and the extracts of valerian and hyoscyamus (0.05 gramme, or four-fifths of a grain of each of the last two) is very effective. Tepid baths, and particularly special thermal cures, are useful to suppress nervous erethism and menstrual pain.

At the time of the painful attacks enemas consisting of a half litre (one pint) of a lukewarm decoction of marshmallow root to which twenty drops of laudanum have been added may be used, but morphine injections should be avoided. Enemas containing 0.5 gramme (7½ grains)—later, one gramme (15 grains)—of antipyrine also act well. Antipyrine suppositories may sometimes induce slight rectal irritations; then other cal-mative agents may be used, e. g.:

R Extracti hyoscyami, ..... }  
Extracti conii (U.S.P., 1890) } aa gr. v (0.3 gramme);  
Cocaine hydrochloridi, ..... }  
Olei thebromatis, ..... q. s.  
Fiant suppositoria No. vi.

Vaginal tampons impregnated with glycerin to which belladonna or antipyrine has been added act more directly upon the cervical spasm. Poultices sprinkled with laudanum, hot and moist compresses covered with an impervious material, or alcohol dressings similarly covered may be used to relieve pain in the lower abdomen, while irritating applications over the skin on the inner aspects of the thighs will facilitate the discharge of blood.

Emmenagogues should be employed only in small, fractional doses, the reaction locally being meanwhile kept under watch. Viburnum pruni-folium and gossypium are regarded as sedatives for uteroovarian pain. Gossypium appears to be especially suitable where there is both a painful and an abundant menstrual flow, and may be given in divided doses amounting to from 45 to 90 grains

(3 to 6 grammes) a day. It is often combined with it, as in the following formula:

R Fluidextracti hydrastis, ..... }  
Fluidextracti gossypii radices }  
(U. S. P., 1890), ..... } aa 3iiss (5 grammes);  
Fluidextracti viburni pruni-  
folii, ..... }  
Cinnamomi saigonici, ..... gr. iii (0.2 gramme);  
Vanille, ..... }  
Aloes purificatae, ..... } aa gr. i (0.06 gramme);  
Alcoholis, ..... 3xv (50 grammes);  
Syrupi, ..... 3iiss (50 grammes).

M. Sig.: One to three teaspoonfuls to be taken for a week preceding the expected advent of menstruation, as well as during the period of pain.

Where there is a mechanical obstruction to the evacuation of blood, the foregoing measures can only be palliative. Stenosis of the cervix is a frequent cause of pseudomembranous dysmenorrhea, and should be treated by dilatation with the aid of a laminaria tent, followed by injections of iodine, silver nitrate or zinc chloride solutions. The laminaria used should previously have been soaked for twenty-four hours in:

R Cocainæ hydrochloridi, .... gr. viiss (0.5 grammes);  
Iodoformi, ..... gr. lxx- (5 grammes);  
Aetheris, ..... 3iv (90 grammes).  
Fiat solutio.

It should be allowed to remain *in situ* only twelve hours.

### Medical Treatment of Salpingoöophoritis.

A. Robin, in *Nouveaux remèdes* for June 8, 1913, is stated to recommend in acute inflammation of the uterine annexa, hot moist applications, with or without the following liniment:

R Extracti opii, ..... }  
Extracti belladonnæ foliorum, ..... } aa 3i (4 grammes);  
Extracti hyoscyami, ..... }  
Chloroformi, ..... 3ss (20 grammes);  
Olei olivæ, ..... 3iiss (80 grammes).

Misce. Fiat linimentum.

The patient should be kept absolutely quiet in bed in the horizontal position. If the temperature is high and the pain severe, local blood letting by means of wet cupping or leeches should be practised. Injections of hot water also constitute a useful measure. The receptacle should hold two litres of water and must not be over eighteen inches above the level of the bed. The water, previously boiled, should be introduced for a period of five or more minutes, and at a temperature of 45° C. (113° F.), increased on the succeeding day to 50° C. (122° F.), or even to 55° C. (131° F.). Two teaspoonfuls of tannic acid, from forty to sixty drops of the tincture of opium, and later from ten to twenty drops of the tincture of iodine may be added to the two litres of hot water. After the vaginal douche a rectal injection should be administered of 250 c. c. (one half pint) of hot water, gradually increased to 500 c. c. (one pint). The intestinal functions should be watched throughout, castor oil being given in the morning if indicated.

In cases of annexal inflammation of the chronic type, in addition to hot rectal injections, vaginal tampons previously dipped in equal parts of glycerin and tannic acid should be employed. The tampon should be left in about three hours, and renewed every day, or on alternate days. Radium treatment



may yield very happy results in these patients. Where the affection is in the "cold" stage, massage of the uterus may prove useful. In depressed or anemic patients some iron preparation should be administered, and if the residual cicatricial tissues are being only incompletely absorbed, the following combination is advised:

R Potassii iodidi, ..... gr. lxxv (5 grammes);  
Sodii arsenatis, ..... gr. ʒ4 (0.05 gramme);  
Aque destillate, ..... ʒv (250 grammes).  
M. Sig.: Two tablespoonfuls a day.

Symptomatic treatment includes, for example, the relief of pain, which may be combated by the administration of enemata of a 0.5 per cent. solution of antipyrine. For the insomnia the author uses sulphonal in seven and one half grain (0.5 gramme) doses, taken in the evening two hours after supper. In the presence of mild fever, the author prescribes:

R Quininae hydrochloridi, ..... gr. vii (0.45 gramme);  
Digitalis folie pulveris, ..... gr. ʒ4 (0.05 gramme).  
Fiat cacheta No. i.

Sig.: To be given four hours before an expected rise of temperature.

In more pronounced fever one of the coal tar drugs may be administered, and in very high fever, intramuscular injections of metallic ferments.

To allay vomiting, two drops of the following solution may be given three times a day:

R Morphinae hydrochloridi, ..... gr. iss (0.1 gramme);  
Aque laurocerasi, ..... ʒss (2 grammes).

For rectal tenesmus, an enema of gelatin may be employed:

R Gelatini, ..... gr. lxxv (5 grammes);  
Aque, ..... ʒviii (250 grammes).  
Mise.

Or, a suppository may be ordered.

R Opii pulveris, ..... gr. iss (0.1 gramme);  
Extracti belladonnae foliorum, gr. ʒ4 (0.01 gramme);  
Olei theobromatis, ..... gr. xlv (3 grammes).  
Fiat suppositorium No. i.

Finally, for vesical spasm, the following preparation will yield the best results:

R Potassii bromidi, { ..... āā ʒiiss (10 grammes);  
Aque laurocerasi, {  
Aetheris, ..... ℥xv (0.6 gramme);  
Syrupi, ..... ʒi (30 grammes);  
Aque destillate, ..... ʒiv (120 grammes).

M. Sig.: Three tablespoonfuls a day not to be exceeded; plenty of water to be taken after each dose.

**Treatment of Epistaxis.**—Carry, at a recent meeting of the Société des médecins praticiens de Lyon (*Journal de médecine de Paris*, September 6, 1913) criticized most of the methods of arresting epistaxis described in current textbooks because of their allowing the formation of a hematoma in the nasal cavities, with subsequent danger of infection and of initiating severe otitis media through the Eustachian tubes. True, it is recommended not to leave tampons in more than twenty-four hours, but this brings in a risk of another kind—their early removal favoring recurrence of the hemorrhage. The essential defect in the methods referred to, is that no attempt is made to arrest the bleeding directly at its point of origin. The procedure described by the speaker is intended to overcome this objection.

Five tampons of absorbent cotton about one

centimetre thick are prepared and a string attached. They are then dipped into a solution of antipyrine and introduced in succession into the nasal cavity, the first rather deeply, the next two or three between the inferior turbinate and septum, and the last—the fourth or fifth—quite superficially at the orifice of the nostril, which it closes up. By this plan, sufficient pressure is always exerted by one or another of the tampons at the precise point from which the bleeding has arisen. This point is, as a matter of fact, very constantly situated—unless a tumor is responsible—on the septum, at the junction of its cartilaginous and cutaneousmembranous portions. Using this procedure, arrest of bleeding in from five to ten minutes is assured. The tampons are not necessarily to be removed after twenty-four hours. In fact, Carry prefers to allow them to become discharged almost spontaneously, which occurs when they have become sufficiently expanded and lubricated by the local secretion. At least, only slight traction upon the string should alone be required to draw them out, without fear of detaching the clot and causing fresh hemorrhage.

Boiled water alone, to moisten the cotton tampons, may be sufficient; or, some hemostatic substance other than antipyrine, e. g., epinephrin, ferropyrine, etc.—but not perchloride of iron—may be employed. Wherever the urgency of the case permits, aseptic cotton only should be used; the usual precautions to avoid infection should be taken.

**Treatment of Pruritus.**—W. S. Gottheil, in the *Therapeutic Gazette* for July, 1913, emphasizes the necessity of eliminating, if possible, all factors that bring on the attacks of itching or increase their severity, whether it be the character or amount of clothing worn day or night, the temperature, the effect of air or water in contact with the skin, or the ascertainable effects of alcohol, tobacco, or other habits. Of drugs the author has found phenol in oily solution most useful; this may be employed with the phenol in a concentration as high as twenty-five per cent. over large areas, without fear. Second to phenol in efficacy stand menthol, thymol, and hydrated chloral, which may be used in oil alone, with the phenol, or in alcoholic or watery solutions of various strengths. The x ray has a powerful influence over the itching in some cases, but generally it has failed in the author's hands.

Pruritus in the aged may be mitigated by oilyunctions and the remedies already mentioned; but advanced cases are practically hopeless. Almost the same may be said of bath pruritus, and of that which comes on in, or is aggravated by, cold weather. Bran, starch, saline, and Turkish or Russian baths may be tried; removal to a warmer climate may be necessary to alleviate the patient's sufferings.

In the most obstinate forms of local pruritus vigorous measures must be resorted to. Painting with pure phenol or with a forty grains (2.5 grammes) to the ounce (30 grammes) solution of silver nitrate, the high tension spark from a metallic electrode, the actual cautery, or even surgical measures, should be employed.

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NEW YORK, SATURDAY, NOVEMBER 20, 1913

## AN IMPORTANT ADVANCE IN ANESTHESIA.

If subsequent experience confirms the results observed in the first hundred cases in which anesthesia has been induced by rectal injections of ether and olive oil, Dr. James T. Gwathmey, of New York, is to be congratulated upon having originated one of the most important of recent advances in the field of anesthetics. The reflexes remain active, the brain being less under the influence of the anesthetic than the lower portions of the body, and a pain free period, lasting from one to three hours, follows the return to consciousness. There is complete relaxation, as in rectal anesthesia by gaseous ether, a matter of great importance in abdominal surgery, and a complete absence of nausea, though as a rule the patient vomits from reflex action before regaining consciousness.

Doctor Gwathmey clears out the bowels, injects five grains of chloroform, two drachms of ether, and two drachms of olive oil, and gives hypodermically from an eighth to a sixth of a grain of morphine and one one hundredth of a grain of atropine half an hour before the operation. Then, by gravity, he passes into the rectum, through a small tube, a seventy-five per cent. solution of ether in olive oil,

using one ounce of the mixture for each twenty pounds in weight of the patient, and allowing about one minute for the injection of each ounce. Narcosis usually follows promptly within five minutes after the completion of the injection. Should loss of the reflexes or stertor occur, the solution is drawn off from the rectum by means of the tube which remains *in situ* and the rectum is washed out with cold water and soapsuds. In one case suspended respiration was restored by the use of carbon dioxide.

It is also recommended that a local anesthetic be injected at the site of the operation, as proposed by Dr. George W. Crile, of Cleveland. Occasionally it is necessary to supplement the rectal injection by the inhalation of a few drops of ether or chloroform. With over 100 patients operated upon, covering a wide variety of operations, there have been no deaths reported under anesthesia, though one patient, all of whose organs were found to be diseased, died twenty-four hours after operation. With children a weaker solution, containing from fifty to sixty-five per cent. of ether, is used.

Rectal anesthesia is no novelty but, so far as we are aware, the use of a solution of ether in oil as proposed by Doctor Gwathmey is new. It has the advantage that the full dose can be administered at one time, leaving the anesthetist free from any mechanical duties, so that he can watch the condition of the patient without being distracted. In cases of emergency, where a skilled anesthetist is not available, the surgeon, with the aid of any other physician, or even of a trained nurse, could probably carry on an operation under this method when he might be debarred from the use of an anesthetic applied by other methods.

It must be borne in mind, however, that this new method of using ether is as yet in the experimental stage. Doctor Gwathmey, in a paper read before the Seventeenth International Medical Congress held in London last August, and in another paper read before the New York Society of Anesthetists last week, laid particular stress upon this fact. It will be necessary to have this method tried out in a number of cases before it can receive unqualified endorsement. In fact one case has been observed in which the anesthesia did not follow even after forty minutes, showing that not all patients are equally susceptible. We have reason to hope, however, from the results so far observed that Doctor Gwathmey's oil-ether method will turn out to be a distinct improvement in the technic of anesthesia.

The paper read by Doctor Gwathmey before the New York Society of Anesthetists will appear complete in the issue of the JOURNAL for December 6th.

## NEWER METHODS OF ARRESTING PULMONARY HEMORRHAGE.

Pulmonary hemorrhage has been aptly characterized as the *bête noire* of the practitioner and, when severe, the most terrifying and depressing symptom to which the tuberculous patient is subject. The prompt use of morphine to quiet the sufferer and to control the cough which favors the hemorrhage, along with amyl nitrite inhalations to lower the blood pressure rapidly, thus depleting the bleeding area, have been our most reliable remedies among the many available. Yet every clinician of experience knows that even these sometimes prove futile and that a fatal outcome is still relatively frequent. What is needed, in addition to the measures described, is an agent which, injected into the blood stream, will promptly lower the blood pressure in the lungs themselves, thus arresting at once the outpour of blood into the bronchial area. It is here that the pharmacological or physiological study of the action of drugs in animals emphasizes its value in the practical field. It has been shown by Wiggers and also by Carnot and Jossérand that while adrenalin raises the total blood pressure and is incapable of arresting experimental pulmonary hemorrhage—tending, in fact, through this action on the bloodvessels, to increase it—an extract of the posterior lobe of the pituitary is capable of arresting it. More recently Rist, according to Carnot (*Paris médical*, November 1, 1913), used it successfully in severe pulmonary hemorrhage due to tuberculosis. He injected one half cubic centimetre of pituitrin, which corresponds to a decigram of the fresh posterior lobe. In ten cases, there was almost immediate arrest of the bleeding. There was recurrence in three cases, but only in the course of the following few days. In one case, however, there occurred extreme pallor, vertigo, and an increase of the hemorrhage of short duration, soon followed by permanent arrest of the flow. While this suggests the possibility of untoward effects, the imminent danger to life imposes the duty of resorting to very active measures, even though some risk is incurred. Bernard and Delille have also obtained good results in hemoptysis by means of intravenous injections of pituitrin.

Another agent which seems to be gaining the confidence of the practitioner is the recently introduced emetine. Besides the results recorded by Flandin and Joltrain (our issues for October 25th, page 833, and November 15th, page 973), Renon, Lesné, and others have also placed on record cases in which emetine had been found very efficient. It presents the drawback, however, of being still beyond our ken as to its mode of action, a fact which

militates against its use along with other agents, to say nothing of the growing tendency to avoid empiricism in therapeutics.

## ETIOLOGY OF TYPHOID FEVER.

With the discovery of the typhoid bacillus by Eberth in 1880, the cause of typhoid fever was generally believed to have been found; but the final proof—that is, the fulfilment of Koch's postulate—has never been established so clearly and definitely as one might wish. One inherent difficulty lies in the impossibility of the experimental production of typhoid fever in guineapigs and rabbits; for, when these animals are infected with pure virulent cultures of the typhoid bacillus, the symptoms they present are not at all similar, either clinically or pathologically, to those in man. Within the last few years, however, several laboratory infections following the ingestion of pure cultures have served to add evidence to the etiological specificity of the typhoid bacillus; and the recent work of Metchnikoff and Besredka with chimpanzees has given further support to this assumption. With the discovery of agglutinins and of their specificity, there seemed to be no longer any question concerning the relation of the typhoid bacillus to the disease.

On the other hand, work with the agglutinins and other antibodies has revealed the fact that conditions usually diagnosticated as typhoid fever included infections entirely unrelated to the typhoid bacillus. We have learned, for instance, that an infection caused by either of the paratyphoid bacilli may appear clinically identical with what is now considered, bacteriologically, as true typhoid. Not only have the paratyphoid infections, to say nothing of such diseases as Malta fever, been differentiated, but also many diseases more common may now be eliminated from the category of typhoid fever. Thus, while more accurate and more comprehensive diagnostic methods have definitely limited the scope of the term typhoid fever, the status of the typhoid bacillus has been more firmly established. Nevertheless, the thesis that the typhoid bacillus with its products is the sole cause of the symptom complex called *Typhus abdominalis* could not long remain undisputed. It is inconceivable that lesions in direct contact with many different kinds of bacteria—as are the ulcerated Peyer's patches—could fail to offer a favorable substratum to some of these bacteria. And if other bacteria do grow here, it is reasonable to assume that their metabolic products modify more or less profoundly the symptoms of the disease. To those who have been interested in the vaccine treatment of typhoid fever, this idea



has been particularly suggestive. In some cases the use of typhoid vaccine is followed by remarkably rapid improvement, while in others, identical treatment is without apparent effect. The question has therefore arisen, may not some of these failures result from the inadequacy of a pure typhoid vaccine to influence the associated bacteria which are no longer of minor importance at the beginning of the treatment? Clinicians as well as bacteriologists will therefore devote to the recent observations of Loris-Melikoff more than passing consideration. This investigator, working in the laboratory of Professor Metchnikoff of the Pasteur Institute in Paris, was attracted to this study of the bacterial flora accompanying the typhoid bacillus in true typhoid fever; he wished to see if there might be some relation between the bacteria of the intestine and the different forms of the disease. He recognizes as the two chief clinical types: 1, The nervous, associated with adynamic and ataxic symptoms; and, 2, the intestinal, with which hemorrhage and intestinal perforation are associated. These two types may exist separately or they may be so associated that neither seems to predominate. Can the typhoid bacillus be the sole cause of such wide variations? This is the question Loris-Melikoff set himself to answer.

Having in mind the destruction of tissue accompanying ulceration in the intestine, he naturally turned to the proteolytic bacteria which are able to cause necrosis, such as *Bacillus perfringens*, *Bacillus sporogenes*, and *Bacillus œdematis maligni*. These are all sporogenic, anaerobic bacilli, and his study is limited to this class.

For the isolation of these bacilli, the culture fluid which he found most useful was composed of equal parts of bile and bouillon. With this medium he isolated a bacillus which morphologically, biologically and chemically, in certain characters resembles the three bacilli mentioned above; it was differentiated, however, with sufficient clearness to merit a specific name for itself. This organism, which Loris-Melikoff calls *Bacillus satellitis*, was found exclusively in the stools of patients suffering with typhoid fever. It occurred neither in fifty normal individuals nor in patients affected with various other diseases, even intestinal infections. Nor did he discover *Bacillus satellitis* in typhoid bacillus carriers; furthermore, he failed to find it in three cases of typhoid fever in children and in one case of typhoid fever probably due to a laboratory infection.

This organism injected intraperitoneally into guineapigs, causes death within about sixteen hours; and at autopsy the animal shows that the

intestinal walls are thickened and softened, the mucous membrane is covered with a whitish, serofibrinous layer and the Peyer's patches are swollen and ulcerated. The mesenteric glands, especially of the ileocecal appendix, are visibly swollen. Animals fed with this organism became thin and died, one at the end of eight days, another at the end of twenty days. In both cases the mucous membrane showed lesions similar to those described, including swelling and ulceration of the Peyer's patches. This bacillus is agglutinated by the serum of typhoid patients up to one in 100.

Another interesting organism isolated at the same time was a variety of *Bacillus perfringens*. Like *Bacillus satellitis*, it produces indol and phenol, although in not such large amounts, and also causes swelling and hyperemia of Peyer's patches, but not ulceration.

In seeking a source for *Bacillus satellitis* among known causes of typhoid fever, Loris-Melikoff examined about fifty oysters collected under good conditions, and found *Bacillus satellitis* in the stomachs of the majority of them; on the other hand, he found neither the typhoid bacillus nor *Bacillus coli*.

If this work is confirmed it will mean that typhoid fever can no longer be considered an infection due to a single organism, and we may find in the bacteria associated with the typhoid bacillus an explanation of the different types of the disease. It seems noteworthy that this very interesting discovery was made by Loris-Melikoff while studying only the anaerobic, sporogenic bacilli. Is it not more than likely that studies of the nonsporogenic and the aerobic bacteria will reveal microorganisms of equal importance with *Bacillus satellitis*?

#### CERTAIN NEGLECTED ASPECTS OF INFANT MORTALITY.

Philip Van Ingen (*New York State Journal of Medicine*, November, 1913) shows that so far we have been unable to reduce the mortality of infants under one month of age, although the death rate of older infants and of children has been greatly lessened in recent years. This, he believes, to be due to our defective methods of attacking this problem. By the aid of special nurses who undertake the instruction of expectant mothers and the guidance of mothers during the first month of life of their infants, it has been possible to reduce the death rate for infants under one month from about forty per cent. to only about three per cent. This has been carried out on a small scale—1,375 women having thus far been cared for—but it indicates the lines along which we must work if we are to meet with any success in the reduction of the great mortality among very young infants.

## DISCUSSION OF OCULAR COMFORT AND ITS RELATION TO GLARE FROM REFLECTING SURFACES.

F. A. Vaughn and Nelson M. Black (*Annals of Ophthalmology*, October, 1913) present a very interesting discussion on this subject, quoting very largely from literature. One statement that they make is particularly worth reproducing. They say that the present lamentable condition is largely due to a misguided popular demand upon the illuminating engineer, printer, publisher, illustrator, and lithographer for more and more glare and brilliancy of illumination, and more and more highly glazed and gaudy published product—the artistic results of which the populace think they like, but which could not often on mature judgment be called even in good taste. Thus the potency of popular demand for good or for evil may be illustrated, and the effort should now be made to reverse the course of this huge pendulum which has swung so far in the wrong direction. Illumination can now be obtained of almost any intensity, character, and color; paper of suitable characteristics can be procured, and type and illustrations which do not require paper with the abominable, glossy, glaring characteristics that have been demanded, are being produced with the most realistic and artistically beautiful results imaginable.

## ALCOHOLISM IN RUSSIA.

To the student of Russian civilization the prevalence of alcoholism will account in a large part for the barbarianism, superstitiousness, and a low grade of morality of the masses. Just how early in life the Russian begins to drink *vodka* (spirits), the following figures taken by *Rousky Vrach* from two Russian newspapers show: In the Government of Saratoff seventy-nine per cent. of the boys and forty-eight per cent. of the girls, ranging in ages from five to ten years, drank either spirits or beer. Of the 1,350 boys and 600 girls questioned, 296 boys and thirty-five girls drank to intoxication. In the Government of Pskoff of 5,101 children investigated, eighty-three per cent. of the boys and sixty-eight per cent. of the girls drank, the ages ranging from six to eight and in some instances from three to four. Of 4,034 children thirty per cent. of the boys and eight per cent. of the girls drank to intoxication. It is recorded in history that when Vladimir the saint was choosing a new religion for the Russian people he rejected Mohammedanism on the ground that it "does not permit drink and a Russ can't be without it."

## News Items.

**Wisconsin Antituberculosis Association.**—At the annual meeting of this association, held recently in Milwaukee, Dr. M. P. Ravenel, of Madison, was elected president. Dr. Gustave Windensheim, of Kenosha, was elected vice-president, Dr. Clarence A. Baer, of Milwaukee, recording secretary, and Dr. Hoyt E. Dearholt, of Milwaukee, executive secretary.

**Changes of Address.**—Dr. Irving Freedman, to 847 Beck Street, the Bronx, New York, N. Y.

**The Nobel Prize in Medicine.**—Announcement is made that the Nobel prize in medicine has this year been awarded to Dr. Charles Richet, professor of physiology in the University of Paris. One of his most notable achievements was the discovery of anaphylaxis, for which he was awarded the prize of Moscow at the Seventeenth International Medical Congress, held in London last August.

**Medical Society of the County of New York.**—At the one hundred and eighth annual meeting of this society, held on Monday evening, November 24th, the following officers were elected: President, Dr. T. Passmore Berens; first vice-president, Dr. Howard Lilienthal; second vice-president, Dr. Frederick E. Sondern; secretary, Dr. John Van Doren Young, reelected; assistant secretary, Dr. J. Milton Mabbott; treasurer, Dr. Charles H. Richardson.

**The Dr. William Pierson Medical Library Association.**—At the twelfth annual meeting of this association, held in Orange, N. J., recently, the following officers were elected: President, Dr. John Hammond Bradshaw, of Orange; vice-president, Dr. Levi W. Halsey, of Montclair; secretary, Dr. Leonard H. Smith, of East Orange; librarian, Dr. Palmer A. Potter, of East Orange. Dr. Lewis A. Stimson, of New York, was the guest of honor, and read a paper on Fractures.

**Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.**—Monday, *December 1st*, Academy of Surgery, Philadelphia Clinical Association; Tuesday, *December 2d*, Medical Examiners' Association, Wills Hospital Ophthalmic Society; Wednesday, *December 3d*, Physicians' Motor Club, College of Physicians; Thursday, *December 4th*, Obstetrical Society; Friday, *December 5th*, Kensington Branch of the County Society, Southeast Branch of the County Society.

**Southern Medical Association.**—At the seventh annual meeting of this association, held in Lexington, Ky., on November 18th, 19th, and 20th, under the presidency of Dr. Frank A. Jones, of Memphis, Tenn., the following officers were elected: President, Dr. Stuart McGuire, of Richmond, Va.; first vice-president, Dr. J. W. Jervey, of Greenville, S. C.; second vice-president, Dr. F. H. Clarke, of Lexington, Ky.; secretary and treasurer, Dr. Seale Harris, of Mobile, Ala. Next year's meeting will be held in Richmond, Va.

**The Tri-State Medical Association.**—At the annual meeting of the Tri-State Medical Association of Mississippi, Arkansas, and Tennessee, held in Memphis, Tenn., on November 11th, 12th, and 13th, the following officers were elected: President, Dr. John Darrington, of Yazoo City, Miss.; first vice-president, Dr. William D. McCallip, of Yazoo City; second vice-president, Dr. Edward C. McDaniel, of Tyrone, Ark.; third vice-president, Dr. Hiram B. Everett, of Memphis, Tenn.; secretary, Dr. James L. Andrews, of Memphis; treasurer, Dr. James A. Vaughan, of Memphis. Next year's meeting will be held in Memphis.

**American Association for the Study and Prevention of Infant Mortality.**—At the fourth annual meeting of this association, held in Washington, D. C., on November 14 to 17, 1913, under the presidency of Dr. L. Emmet Holt, of New York, the following officers were elected: President, Dr. J. Whitridge Williams, of Baltimore; first vice-president, Dr. M. J. Rosenau, professor of hygiene and preventive medicine at Harvard University; second vice-president, Miss Julia C. Lathrop, of Washington, D. C.; secretary, Dr. Philip Van Ingen, of New York; executive secretary, Miss Gertrude Knipp, of Baltimore; treasurer, Mr. Austin McLanahan, of Baltimore.

**Woman Physician Wanted in a Hospital in North China.**—An experienced woman physician is needed to carry on the work in the Presbyterian Hospital and Dispensary at Tsinanfu, North China. This city, which has a population of about 100,000, is the capital of the Shantung Province, and is situated three hundred miles south of Peking. The hospital has been practically closed for the last three years, owing to the ill health of the physician in charge. For further information relating to this and similar positions address Mr. Wilbert B. Smith, candidate secretary of the Student Volunteer Movement for Foreign Missions, 600 Lexington Avenue, New York.

### Medical Association of the Greater City of New York.

—A special meeting of this association, under the direction of the chairman for the Borough of Brooklyn, will be held at the Imperial, 360 Fulton Street, Brooklyn, on Monday evening, December 1st, at 8:30 o'clock. The programme will include the following papers: A Résumé of the Modern Treatment of Chronic Nephritis, by Dr. Rollin Hills; Anterior Poliostecephalitis, by Dr. Irving David Steinhardt; Gastrocolopostis, by Dr. Charles Eugene Lack. These papers will be discussed by Dr. Bruce G. Blackmar, Dr. Frank E. A. Stoney, Dr. Walter Truslow, Dr. Jacques Cortelyou Rushmore, Dr. Robert G. Moore, Dr. Russell Fowler, and Dr. Heinrich Stern. Dr. Robert E. Coughlin is the chairman for Brooklyn.

**The Correction of the Dispensary Abuse in Philadelphia.**—Plans for the formation of a general social service board and for closer cooperation between the hospitals and the charitable institutions of the city are being formulated by a committee of the Philadelphia County Medical Society. The committee was appointed several months ago and it will report to the society in the near future. The fact that the County Medical Society has been at work for months in an effort to avoid overlapping in charitable work was made known November 12th by Dr. Joseph S. Neff, director of the Department of Health and Charities, in an address at the annual meeting of the Hospital Association of Philadelphia. Speaking of the great expense of charitable work in Philadelphia, Doctor Neff said that hundreds of persons not fit subjects for free medical attention visit dispensaries weekly, and that the charitable organizations of the city overlap each other in their work in the congested districts. He believed that efficient service by the hospitals demands cooperation. For that purpose it was planned to have each hospital send a representative to a general mass meeting to be held in the near future to discuss the matter.

**Army Medical Corps Examinations.**—The surgeon general of the army announces that preliminary examinations for the appointment of first lieutenants in the Medical Corps of the United States Army will be held on January 19, 1914, at points to be hereafter designated. Full information concerning these examinations can be procured upon application to the Surgeon General, United States Army, Washington, D. C. The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, shall be between twenty-two and thirty years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible. In order to perfect all necessary arrangements for the examinations, applications must be completed and in possession of the adjutant general at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present twenty-six vacancies in the medical corps of the army.

**Personal.**—Colonel R. H. Elliot, formerly of Madras, India, and at present of London, will be in New York from December 5th to December 11th. He will operate according to his method for glaucoma during his stay in New York at the New York Eye and Ear Infirmary on Friday afternoon, December 5th, at the Hermann Knapp Memorial Hospital, on Monday afternoon, December 8th, at the Manhattan Eye and Ear Infirmary, Tuesday afternoon, December 9th, and at the Post-Graduate Hospital on Wednesday afternoon, December 10th. While in New York Colonel Elliott's address will be 46 West Fifty-third Street.

Dr. Francis B. Hert, of Brooklyn, has been appointed coroner's physician of Queens County.

Dr. H. H. Goddard has been appointed laryngologist to the Jewish Hospital of Philadelphia.

Dr. A. C. Geddes has been appointed professor of anatomy at McGill University, Montreal, succeeding Dr. Francis J. Shepherd.

Dr. Wilfred T. Grenfell, the missionary physician of Labrador, was the guest of honor at an informal dinner given by the medical department of the University of Pennsylvania on Monday, November 17th.

## Nith of Progressive Literature.

### MEDIZINISCHE KLINIK.

September 14, 1913.

**Röntgen and Cystoscopic Findings in Cases of Enuresis in Adults.**—F. Trembur found in the great majority of enuresis cases in adults disturbances in the tendon reflexes and the presence of the tache cérébrale; disturbances in the sensory apparatus more particularly thermesthesia, thermosthesia, and hypalgesia or only a slowing of the perception faculty on the distal ends of the lower extremities in the region of the plantar side of the toes, on the side of the fibula, and also on the feet and calves. Furthermore, there is found with the aid of the Röntgen rays, a spina bifida occulta and cystoscopically, trabeculae in the bladder. The etiological factor in these cases seems to be some anatomical defect in the lowest portion of the spinal cord, a so called myelodysplasia.

**Reappearance of Scarlet Fever.**—Lämmerhirt has from thirty to fifty scarlet fever cases a year, and in the last ten years has found a recurrence of scarlet fever in three cases. In one of these the second attack was by no means milder but led to *exitus letalis* in a few days with the severest symptoms.

September 21, 1913.

**The Wassermann Reaction in Tabes.**—E. Redlich asserts that while in progressive paralysis almost all cases show the positive Wassermann reaction, there is in tabes a considerable proportion whose reactions are negative. These are usually the ones who in the past few years have had mercury or salvarsan treatment. In progressive paralysis the Wassermann reaction is much more resistant and cannot often be influenced by specific treatment. The absence of the Wassermann reaction should not be taken as a criterion for the prognosis or antiluetic treatment of tabes even though according to the experiences of the author, the majority of the negative cases or those becoming negative during treatment show a benign stationary character. It would be of greatest practical interest to decide whether, and how many of, the negative reacting cases of syphilis later become subject to tabes or progressive paralysis.

**Body Temperatures in the Aged.**—H. Schlesinger says that in the aged, the normal body temperature is not reduced but rather a little higher. Because of the poorer circulation in the skin the axillary temperatures are incorrect and misleading. Therefore the temperature of old people should be taken only in the rectum. The weaker and more asthenic a person is, the greater the differences between the axillary and rectal temperatures up to 2°C. For this reason heterothermias are to be used with reserve in forming the diagnoses of local disease in the aged.

September 28, 1913.

**Mortality of Sick Infants during the First Few Days of Their Stay in the Hospital.**—H. Putzig says that the mortalities from acute metabolic disturbances of 33.8 per cent., from pneumonias of 20.5 per cent., and from chronic metabolic disturbances of 16.2 per cent., form the largest contingent



of all the mortalities of those children dying a few days after their admission to the children's hospitals. The greatest danger seems to threaten the infants in the first four months of their lives. These children when admitted are usually emaciated in the highest degree. Almost one third of these children have a subnormal temperature upon admission. Furthermore, premature births, twins, the last children of very large families, and the children of tuberculous parents are very much handicapped. The value of natural feeding is again proved from these statistics. Therefore doctors, midwives, etc., should insist upon the feeding of these children with mother's milk for the longest possible periods.

**The Treatment of Eclampsia.**—F. Engelmann shows that the results of eclampsia treatment in the gynecological clinic at Dortmund have improved since the former methods of inducing premature delivery have been discontinued. There have been only four deaths in the last seventy-five cases. The therapy advocated by this author lies midway between extreme conservative treatment and its opposite. 1. Isolation of the patient. 2. Withdrawal of all stimuli. 3. Performance of all manipulations under chloroform. 4. Chloral regularly administered by enema. 5. The induction of labor by rupture of the membranes or mechanical dilatation of the cervix. 6. Artificial delivery as soon as this is possible without much danger.

**Morphinism and Cocainism.**—A. Friedländer gives a comprehensive summary of the symptomatology and therapy of morphinism and cocainism. In reference to the therapy in poisoning by these two alkaloids, the author advocates the point of view of the rapid withdrawal and warns against attempts to substitute another alkaloid for the morphine. In the rapid cure, lasting about ten days, the addition of scopolamine to morphine is recommended, because then it is possible from the very beginning to get along with smaller doses of morphine. The withdrawal cure is always successful when the patient adheres to the treatment faithfully. The important thing is to prevent a relapse. Only when the personality of the patient has been improved, when his will power has been strengthened, and when he has been made strong and free from within, can the task be considered as solved. Months and years are necessary for this psychic influence and control. This makes the radical treatment of morphinism at the present time hopeful. The prognosis in cocainism is on the whole better than in morphinism.

PARIS MÉDICAL.

October 25, 1913.

**Formaldehyde Disinfection.**—G. H. Lemoine states that the simplest and least costly method of disinfecting rooms is to heat, for each cubic metre of space, twelve c. c. of a fluid consisting of five parts of commercial forty per cent. formaldehyde solution and one part of water. One receptacle should be provided for every eighty cubic metres of space in the room or hall to be disinfected. The receptacles are placed on tripods, the latter resting on sand in rooms with wooden flooring, and are heated with alcohol lamps until the solution has

completely evaporated. Recent experimentation has shown that infected clothing can be sterilized through and through by using thirty-six c. c. of the formaldehyde solution for every cubic metre of space, by bringing the air surrounding the sterilizer to a temperature of at least ninety degrees C. within an hour, and keeping this air moist with steam during the entire process of disinfection—four hours at least. Clothing can thus be disinfected without losing its shape or color. Mattresses can be disinfected throughout if the seams be opened on one side and the contents separated into two or three layers, though such sterilization is not generally required, mattresses usually being soiled only superficially. The process described does not tarnish metal articles.

**Larval Malaria.**—C. L. Urriola points out that there are cases of malaria in which the sole clinical manifestation is some symptom not ordinarily considered characteristic of the disease, together with a very moderate degree of intermittent or continuous fever and the constant presence of black, blue, as well as sometimes of ochre pigment in the blood and urine. This larval type of malaria does not follow ordinary acute paroxysms, but appears *ab initio*. No plasmodia are to be seen in the blood at the time. Among the various forms it may assume, the following have been carefully studied by the author and found related to the appearance of the pigments in the urine: (1) Sensation of cold in the lower limbs and back; (2) edema of the extremities or face; (3) trigeminal or intercostal neuralgia; (4) peripheral neuritis with paraplegia of the flexor variety; (5) attacks of dizziness, and (6) pain in the epigastrium, with or without periodic vomiting or enlargement and tenderness of the spleen and liver. With each of these manifestations may be combined anemia, anorexia, malaise, sweating, and slight fever, all showing a tendency to periodicity. The black pigment is always abundant in the urine and is easily seen microscopically, provided the slide be moved around to set the pigment particles in motion. The blue particles are equally pathognomonic, but are much fewer in number and usually smaller than the black. Ten cases illustrating the various forms of larval malaria are reported. Recovery always followed the use of a chologogue—not specified—or small doses of quinine for a few weeks. Urriola holds that many cases of so called beriberi in Panama, whence he writes, represent in reality the neuritic form of larval malaria. Similar neuritis may be caused by the presence of *Ankylostoma duodenale* and *Trichocephalus dispar*.

PRESSE MÉDICALE.

October 25, 1913.

**Latent Spina Bifida with Lumbar Tumor.**—A. Broca reports the case of a child suffering from partial paralysis of the lower extremities, cold and cyanotic feet, recurrent chilblains, luxation of the distal joint of the right great toe, and slightly incurved tibias. Sensation was practically normal, the cerebral functions unimpaired, and hydrocephalus absent. Examination of the lumbar spine revealed an enlargement the size of half an orange, extending from the level of the second lumbar to

the first sacral vertebra, of pasty consistence, painless, irreducible, with volume unmodified by respiration or physical exertion, and in part covered with long, fine hairs. Both the tumor and paresis had been noticed at birth. Local palpation and x ray examination showed absence of the third, fourth, and fifth lumbar spinous processes, with malformation of the upper two lumbar spines. The absence of fluctuation and umbilication suggested the presence merely of a latent spina bifida with rather large connective tissue deposit between the cord and skin, rather than a myelomeningocele, and operation was therefore deemed useless, the innervation of the lower limbs being compromised solely through irremediable congenital malformation of the cord itself. Operation would be indicated only in the event of a later growth of the tumor, causing additional symptoms due to pressure on the cord.

#### REVUE DE MÉDECINE.

October, 1913.

**Diabetes with Hepatic Cirrhosis.**—Bouchut and Volmat report two cases of hypertrophic cirrhosis of the liver in which all the cardinal symptoms of diabetes mellitus were present. In one case ascites and icterus existed, but not in the other. The second case also showed lung tuberculosis. Restriction of carbohydrates relieved the diabetic symptoms considerably in each instance. The authors discuss so called hepatic diabetes in general, but offer no new theory or conclusion.

**The Liver in Chronic Malaria.**—C. Fraga, summarizing the results of a clinical study on the subject, asserts that chronic malaria does not cause profound hepatic disturbances; the disorders produced are changeable, generally mild, and overcome by ordinary therapeutic measures. Physical examination may show merely enlargement of the liver, at times with tenderness of the left lobe; generally, indeed, there is no change either in volume, shape, consistence, or sensitiveness to pressure. Functional tests, including urea estimation, urobilin reaction, experimental ammoniuria, alimentary glycosuria and lipemia, and the administration of methylene blue, confirmed the conclusion suggested by physical examination. Fraza maintains that any pronounced hepatic disorder observed in chronic malaria is due to other causes than the infection itself, especially alcoholism and poor food.

#### ROUSSKY VRATCH.

August 10, 1913.

**Cholesterinemia.**—R. M. Obakevitch investigated the presence of cholesterin in the blood in health and in various affections. He concludes that the normal cholesterin in the blood varies from 1.4 to 1.8 grammes in one litre of serum. When food rich in cholesterin is ingested (milk, cream, butter, the yolk of eggs, brain), the cholesterin in the blood is greatly increased (digestive cholesterinemia); on the other hand, a diet poor in cholesterin gives a diminution of cholesterin in the blood. Hypercholesterinemia is observed in pregnancy, nephritis, gallstones, obstructive jaundice, arteriosclerosis, syphilis, and convalescence from infectious diseases. Hypocholesterinemia is observed, as a

rule, in acute and subacute infections during the height of the fever, in acute anemia and hemato-genous jaundice. Normal cholesterinemia is observed in gastric catarrh and chronic diseases not accompanied by elevation of temperature. In hypercholesterinemia, food rich in cholesterin is contraindicated.

**Experimental Measles.**—A. A. Urgelunas attempted to infect a number of monkeys with measles, using different methods of transmitting the disease from affected children. The results proved negative, although in one case a fatal illness developed in the monkey, somewhat resembling measles.

August 17, 1913.

**Experiments in Cultivating Plasmodium vivax According to Bass's Method.**—P. I. Pitchugin successfully cultivated *Plasmodium vivax* by the use of the method first suggested by Bass. He obtained two generations of the parasite, showing complete cycles of development. In the third generation only merozoites and schizonts were observed.

**The Treatment of Typhus with Iodine.**—V. Uftuzhaninoff observed a marked beneficial effect from the administration of iodine in typhus. The fever rapidly subsided, the eruption became less marked, delirium disappeared, and the mortality was practically nil. The drug was administered either in milk or in the following mixture:

R Emulsionis seminis cannabis sativæ, . . .	3xii (360.0);
Mucilaginis gummi acacie, . . .	5x (40.0);
Tincturae iodi, . . .	3iii (8.0);
Tincturae menthae piperita, . . .	5ss (2.0).

Misce. Sig.: Four tablespoonfuls daily.

The author attributes the action of iodine to hyperleucocytosis.

#### LANCET.

November 8, 1913.

**Report on Typhoid Carriers.**—D. S. Davies and I. Walker Hall have made frequent observations on a woman of thirty-three years of age who had an attack of typhoid fever in 1905, and who remained a carrier from that time until about two years ago. Since her recovery from typhoid she has been known to have been the source of infection of eight others. It was first discovered in 1909 that she was a carrier, the organisms being found in her urine. At that time hexamethylenamine was given continuously for a period of three months. It caused a decrease in the number of typhoid organisms in her urine, but did not entirely remove them. As the result of repeated doses of an autogenous typhoid vaccine, in doses up to 1,000 million organisms, given for a period of five months, the bacilli disappeared from her urine for about four months. They reappeared, however, though her blood agglutinated the typhoid bacillus in dilutions varying from one to 1,000 to one to 1,800. In response to a three weeks' course of potassium citrate the organisms again disappeared from her urine for several months. Late in 1910, a cystoscopic examination showed inflammation about her right ureteric orifice, and urine from this side contained bacilli, while that from the left ureter was free from them. X ray examination showed a shadow in the right renal region. Operation on the

right kidney disclosed ten small calculi in the pelvis. No abscess was found. The calculi were removed, and a good recovery was made from the operation. The operation, however, was followed by a fever for a few days, during which time typhoid bacilli were isolated from her blood, though the agglutinating power of her serum was then at one to 1,500. The fluid and the calculi found in the pelvis of the kidney gave pure cultures of typhoid bacilli, and these were also present in her urine a few days after the operation, and almost constantly thereafter for about eight months. Two thorough courses of hexamethylenetetramin triborate did not alter the excretion of the bacilli. In July, 1911, a bacterial emulsion was prepared from her own bacilli and administered to the patient, and in October of the same year typhoid bacilli appeared in her urine for the last time. At present she remains free from typhoid bacilluria, and the orifice of her right ureter is completely normal again.

**Sensitized Virus Vaccination in Gonorrhea and Its Complications.**—Using vaccines of killed gonococci, sensitized according to the methods of Besredka, Louis Cruveilhier had obtained strikingly good results in the treatment of most of the complications of gonorrhea. Acute epididymitis responded promptly, becoming painless in from twelve to forty-eight hours, along with an equally rapid subsidence of all of the local signs of inflammation. Only two or three injections were required, and they were given at intervals of forty-eight hours. No relapses have been reported. Acute and chronic gonorrheal involvements of the uterus and annexa have shown equally brilliant results in most cases, as have also cases of acute and chronic gonorrheal arthritis. Both acute and chronic urethritis have shown very favorable and extremely rapid response to the treatment. In a few very refractory cases of gonorrheal infection, it has been found necessary to use living sensitized virus, which has usually been productive of prompt benefit or even of cure. In none of the patients was there any severe reaction to the injections.

#### PRACTITIONER.

October, 1913.

#### Researches on the Pathogenesis of Cancer.

De Keating-Hart says that the parasitic theory is given up, not as being impossible, but because, according to the pre-sent state of knowledge, it is unlikely and irrational. In microbial diseases the injured cell leaves the virus intact, and one would therefore have to imagine a parasitism contrary to the histological laws of higher organisms. The absolute similarity of the conditions which govern the grafting of normal and of cancerous cells is recognized, and determine failure or success. It has been shown that ectopy, and the metastatic capability of cancerous cells, are the consequences of their acquired properties and of their cellular construction. The purely hypothetical and inadequate interpretations of the greater number of authors are put aside. The irritative theory is accepted as being the only one which embraces all the known facts in cancerous etiology. The biological conditions created by irritation in the cells submitted to it have been studied. The reproductive power of

cancerous cells has been proved, and their nutritive requirements demonstrated. From these facts he infers that cancer is produced by cells overcultivated for a long time in the irritated zones of the organism.

**Premature Loss of Hair and Hygiene of the Scalp.**—Douglas Freshwater speaks of the various forms of baldness: First, alopecia senilis, then alopecia prematura, which he subdivides into two varieties, the idiopathic and the symptomatic. Causes suggested for the idiopathic variety are the wearing of hard hats, the wearing of tight collars, shallow breathing, the wetting of the head with water, indoor occupations, and derangements of the digestive and genital tracts. Women suffer much less than men from this form of baldness, perhaps because they give more attention to the brushing and dressing of the hair, or because the connective tissue bundles in the scalp are larger than in men, or because they do not wear tight fitting hats of impermeable material, or because they seldom wet the head. Symptomatic baldness may be due to three seborrhic conditions: Acute fevers, syphilis, and infection of the hair follicles in certain skin diseases, alopecia follicularis. He gives considerable attention to the seborrhic conditions. Regarding local treatment, he considers it of paramount importance, and the first part is the same for all forms of seborrhea. It is necessary first of all to remove from the scalp the scurf or any greasy scales that may be present, as they tend to block the mouths of the hair follicles and provide a favorable soil for bacterial growth. During the first month of treatment the head should be frequently washed and anointed daily with an antiseptic ointment. The head should be shampooed every evening with a spirit soap lotion and then, after the hair has been thoroughly dried, the following ointment is rubbed carefully into the entire surface of the scalp.

℞ Acidi salicylici, .....gr. x (0.65 gramme);  
Sulphuris præcipitati, .....gr. xxx (2 grammes);  
Olei rosæ, .....℥ii (0.13 gramme);  
Adipis benzoatis, .....℥i (30 grammes).

Misce. Ft. unguentum.

Drugs that should never be used when the hair is light or gray are: Resorcin, beta naphthol, empyriform, oil of cade, ichthyol, thiol, and tannic acid. Massage is very valuable as an adjunct; at least twenty minutes a day should be devoted to it. In advanced cases of baldness stimulation with a faradic brush and the high frequency current may be added. Light and air are highly beneficial to the growth of hair. Considerable space is given to the hygiene of the hair, teaching children to brush and comb it properly, and the use of a shampoo.

#### CANADIAN MEDICAL ASSOCIATION JOURNAL.

October, 1913.

**Clinical Aspects of the Regeneration of Bone, as Manifested by a Study of the Union of Fractures.**—E. Stanley Ryerson has studied this subject from the x ray plates of fractures in which union was taking place. He has found that the first parts of the area in relation to the fracture to show evidence of new bone formation are the medullary cavity and the surface of the bones in relation to



the line of fracture. The ensheathing callus begins to show close to the bone, and gradually extends out until it reaches the periosteum. If the periosteum is intact, the outer limit of the callus is definitely marked off by it from the muscular and subcutaneous tissues, whereas if the periosteum is torn, the callus extends irregularly out into the soft tissues. The last part of the space about the fractured ends of the bones which becomes obscured by the shadow indicating new bone formation, is the osteoperiosteal angle. In some cases this part of the space has remained clear for weeks or even months after the occurrence of the fracture. He argues from this that if the periosteum was osteogenetic, new bone would be produced by it over the area where it is stripped up from the bone, and the osteoperiosteal angle would be one of the first parts to be filled up, which is not the case. The natural inference from that is that the periosteum is not osteogenetic in character.

**An Epidemic of Jaundice.**—Malcolm Mackay describes a local epidemic of jaundice and concludes from his observations that the disease is infectious, possibly contagious; that gastroenteritis is present; and that the jaundice is of the obstructive type characteristic of the catarrhal form.

#### BOSTON MEDICAL AND SURGICAL JOURNAL.

November 13, 1913.

**A Case of Orthostatic Albuminuria Treated by Exercise.**—Henry J. Fitzsimmons reports the case of a child apparently normal, except that when she stood erect her kidneys excreted albumin. From the observations made upon children with chronic constipation, where the condition was cured by exercise, the writer had noticed that decrease in the lumbar lordosis was coincident with a lessening of the complaint. Exercises were therefore commenced and carried on vigorously. All muscular exertion which tended to lessen the lumbar lordosis was encouraged, while all positions which increased it were forbidden. These exercises were definitely arranged, first to increase the muscle power of the abdominal walls. Particular attention was paid to the recti, superior and inferior obliques, and the transverses. These exercises for muscle power were carried on simultaneously with instructions in "muscle control." Muscle control, the writer feels, is very important, since by this means the patient has not only the power to hold a given position, but assumes this position first consciously during the training of certain muscles, then unconsciously. From this unconscious assumption of this position she passes into a condition in which she assumes a proper attitude, not occasionally, but continuously. This condition was obtained by insisting during all the exercises on a concentration upon the exercises and the absolute exclusion of all other thoughts or actions. At first there was some difficulty in doing this, but as the patient was unusually intelligent, an explanation of the importance of doing what was desired in the right way soon gave the result desired. The urine was examined once a week for three weeks. The first examination showed a normal urine except for a slight trace of albumin; the second week there was the slightest possible trace of albumin; the third week the urine

was normal in every respect. Then for six months the urine was examined occasionally, but no trace of albumin was found. The child now stands properly.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

November 12, 1913.

**Acute Acid Intoxication in Children,** by T. C. McIlave. See this JOURNAL for July 5th, p. 49.

**The Need of Whole Time Health Officers.**—The modern whole time health officer, says H. B. Wood, is not simply a registrar of statistics, a placarder of houses, or a public prosecutor. He is a compiler of statistics, a public instructor, a true sanitarian. His office should be a bureau of information, to collect and to disperse knowledge. He should not alone formulate, but also execute, plans for saving human life. The improvement of industrial, social, scholastic, and vital conditions is his work. With the perfection of State wide organizations of whole time health officers and the formation of the much needed national department of health, a cooperative system will be developed, with relationships similar to, but with affiliations closer than, the State militia with the federal army.

**Osteochondrosis dissecans.**—John Ridlon reports three cases of this condition, one so rare that many authorities do not take it into account when considering the diagnosis of knee joint trouble. Of the cases which have been reported, few have been presented with röntgenograms, and without these he cannot well understand how a certain diagnosis can be made prior to operation. He does not believe that our present knowledge of this condition warrants us in discussing its relations to other loose and partially detached bodies in the knee joint or in its possible relation to osteoarthritis.

**Results of Bone Plastic and Graft Operations on the Spine for the Cure of Pott's Disease.**—J. J. Nutt presents the report of fifteen cases, with the following conclusions: 1. While he does not unqualifiedly condemn the operation on account of the poor results in some of the cases, he does not believe that the claims which have been made for it have been substantiated. 2. If alterations in technique, such as the implantation of a longer graft and the extension of the period of postoperative use of external support, are to improve the results, reports should be forthcoming two years after the operation, and not before. 3. The danger in the use of the operation does not lie in the operation itself, but in the creation of a sense of false security, a feeling that a cure of a chronic disease has been produced, and a consequent neglect of other therapeutic measures.

**Charcot Joints as an Initial or Early Symptom in Tabes dorsalis.**—H. L. Taylor reaches the following conclusions: 1. Charcot joints and spontaneous fractures are often initial or early signs. 2. They often precede the ataxic gait, and are of diagnostic importance in calling attention to the underlying tabes. 3. Charcot joints are frequently of traumatic origin and often follow fractures and lesser injuries. 4. The results of orthopedic treatment in early or moderately advanced cases of Charcot joint are extremely satisfactory. 5. Orthopedic treatment by protective splinting should

also be used in the loose joints of tubes due to hypotonus before the appearance of swelling and effusion. 6. As ataxia is often one of the later symptoms to appear, the term "locomotor ataxia" to designate the affection is misleading, and should be discarded.

**The Recognition of Early Changes in the Larynx in Tuberculosis.**—W. E. Casselberry considers that hyperplasia of a mamillated or other typical aspect, commencing at or near the subglottic portion of the base of the vocal process and gradually marked by a furrow in the vocal angle, is not only one of the earliest but also the most distinctive of all the initial changes caused by tuberculosis in the larynx.

**The Significance of Gastric Ulcer with Respect to Gastric Cancer.**—F. Smithers has made a study of 566 consecutive cases of gastric cancer, operatively and pathologically demonstrated, in an attempt to determine how frequently chronic ulcer precedes cancer, and how this change is manifested clinically. He finds that a number of cases clinically admitting only a diagnosis of chronic gastric ulcer are shown to be malignant at operation and that many cases of gastric cancer reveal a pre-cancerous history which at any stage prior to the terminal period of malignancy satisfies the clinical symptom complex of chronic gastric ulcer.

**An Etiological Study of Hodgkin's Disease.**—C. H. Bunting and J. L. Yates in a recent publication described a diphtheroid organism obtained in pure culture in four cases of this disease and observed in three others. In order to determine the possibility of an etiological relationship between this organism and the disease, they have employed the *Macacus rhesus* monkey for inoculation experiments, and report that on account of the similarity of the picture in the lymph nodes to that in the early stage of Hodgkin's disease in the human being and of the blood picture, showing the changes seen in human patients with the disease, they feel more assured of the etiological relationship of the organism (which they have designated *Corynebacterium hodgkini*) to the disease.

#### MEDICAL RECORD

November 15, 1913.

**Cases of Tumor of the Lungs and Mediastinum Simulating Pulmonary Tuberculosis.**—W. H. Swan states that several cases of intrathoracic tumor which had been mistaken for tuberculosis have come under his observation. In six cases of this kind which he relates, the real conditions were respectively, lymphosarcoma of the mediastinum, primary carcinoma of the lung, persistent thymus (possibly Hodgkin's disease), malignant disease of lungs (two cases), and small round celled sarcoma of first rib, including lung and pleura. After commenting on the symptomatology and diagnosis, he concludes that: 1. Intrathoracic tumors are probably more frequent than has been supposed; 2, they are occasionally coexistent with tuberculosis; 3, early in their course they are likely to suggest tuberculosis, and differentiation may be impossible; 4, in cases of doubt it is very important that all hygienic measures for the treatment of tuberculosis be instituted at once, pending a definite diagnosis.

**Pruritus ani pertinax.**—W. P. Cunningham says that much is expected from the discovery and cure of fissures or hemorrhoids, but fissures are often the result and not the cause of the patient's scratching. There are many cases of pruritus ani where neither fissures nor hemorrhoids exist. After referring to other possible etiological factors, he states that if the obscurity of the causation cannot be cleared away, a tentative diagnosis of portal obstruction will serve as a reasonable basis of internal treatment. Occasionally, topical applications alleviate temporarily. The x ray is credited by some with gratifying results. Very frequently we are forced to the use of narcotics to enable the patient to sleep. For this purpose cannabis indica, gelsemium, or belladonna, with or without morphine, in the form of a suppository, may be employed. Some surgeons offer to operate in exaggerated cases, but there is a lack of unanimity as to the wisdom of the procedures. The "eczema" which almost invariably complicates pruritus ani must be treated on general principles, and soothing applications are usually called for.

**Transplantation of Bone for Flail Joint Produced by Inflammatory Destruction of Joint.**—A. O. Wilensky reports this case. Under local anesthesia, by the injection of a two per cent. solution of alypin, an incision was made at the side of the injured finger from the tip to near the second joint, and deepened through the periosteum; the latter being lifted away from the bones. Scar tissue between the ends was dissected out, the ends of the bones freshened, and the cortex removed from the side of the distal phalanx, leaving a fresh area of cancellous bone. The second phalanx was then split longitudinally from a little below the second joint, and the fragment slid down so that it overlapped the first and second phalanges. No sutures were thought necessary to hold the transplant in place. The wound was closed without drainage, and primary union occurred. At the end of three weeks there was solid bony union, and at the end of four months the patient had a perfectly useful finger.

**A Diphtheria Carrier Treated with Culture of Staphylococcus pyogenes aureus.**—I. E. Bishkow again demonstrates the apparent specificity of the culture in question in cases resistant to the ordinary means. On July 14th the patient sprayed his throat every four hours with a twelve hour bouillon culture of *Staphylococcus pyogenes aureus*. July 15th another fresh twelve hour culture was used, and from July 16th to 20th a normal saline suspension of the microorganism. On July 20th the first negative throat culture was obtained, and since then the cultures have remained negative. The mild pharyngitis produced by the culture spray quickly subsided under a Dobell's solution spray.

**A New Colostomy Apparatus.**—H. B. Delatour in 1907 devised a double cup apparatus, which acted very well unless there was an excessive fluid discharge, when there might be some leakage. In fitting the apparatus to subsequent cases it was found necessary to change the shape of the cup, and provide it with an opening to which could be attached a rubber receptacle for the collection of

excessive discharges. The improved cup is so shaped that it fits well beneath the clothing without being noticeable, and the rim face of the cup, which approximates the tissue surrounding the fissure, has a depression or groove into which the skin will project upon very slight pressure, thus forming practically an airtight supporter.

#### AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

October, 1913.

**The Influence of Skeletal Defects, Congenital and Acquired, upon the Body in Health and Disease.**—C. F. Painter reviews a large number of skeletal anomalies, and their effects upon the individual, to which attention has been called of late, and goes on to say that in childhood and youth such general processes as growth may well be influenced by the train of functional disturbances set in operation by a skeletal anomaly; and this may apply to mental development as well as physical. The problems presented comprise much of the work which those who are becoming interested in chronic medicine have laid out for themselves. A new and attractive field for investigation exists. The need for a correlation of the knowledge which has been accumulated through the activities of workers in various special lines of research is becoming more and more evident. We are getting past the period when within the narrow limits of our particular spheres of activity we can assume a position of authority and say that this or that ailment can be properly treated only by this or that specialist. It can be properly treated only by the one who has the best conception of the anatomicophysiological relations of the condition before him, and is broad enough to act upon that knowledge. A better conception of the functional anatomical relations of the human being, not merely the ability to recognize and call by name its structural components, is what is needed in medicine and surgery.

**The Value of X Ray Examinations in the Diagnosis of Ulcer of the Stomach and Duodenum.**—J. Friedenwald and F. H. Baetjer present twenty cases of peptic ulcer, ten gastric and ten duodenal, and state that from their studies of these, together with their experience with many others, they are justified in drawing the following conclusions: 1. The x ray offers most valuable assistance as an aid in the diagnosis of peptic ulcer, though this method is not yet sufficiently exact to be relied upon alone. 2. In duodenal ulcer there is an excessive motility of the stomach, with such rapid evacuation that the greater portion of its contents is emptied within the first half hour. There is supermotility of the duodenum, with formation, usually, of a vacant area, which remains fixed in all the examination. 3. The diagnosis of gastric ulcer can be made only in certain situations: when the lesion is on the anterior surface of the stomach and along the anterior surface of the lesser and greater curvature. In gastric ulcer, whatever its location, we can always look for retention of contents. In certain instances there is a vacant area in the pylorus; frequently there is a tendency to hourglass contraction. 4. The x ray affords an almost absolute means of differentiating between gastric and duodenal ulcer. 5. By means of the x ray we can positively

rule out the presence of duodenal ulcer. 6. We can approximately determine the healing of an ulcer, which cannot be as certainly determined in any other way.

**The Present Situation in Syphilis.**—W. A. Pusey enumerates the great additions which have been made to the management of syphilis in the last ten years as follows: Diagnosis by demonstration of the *Spirocheta pallida*; diagnosis by the Wassermann reaction; the use of the Wassermann reaction as a criterion of the effect of treatment; diagnosis by Noguchi's cutaneous reaction; prophylaxis by inunction of thirty-three per cent. calomel ointment shortly after infection; treatment by salvarsan and its derivatives. He presents the following conclusions regarding salvarsan: 1. Salvarsan has real dangers; they are remote, but, when they occur, serious. 2. As far as can be deduced from our present knowledge, there is no reason to believe that it will lessen the occurrence of parasymphilitic nervous affections, and some ground for fear that it may predispose to them, except in those cases in which it cures the disease. 3. It is a powerful symptomatic remedy. 4. In cases in which vigorous treatment is begun before the generalization of the disease there is strong ground for believing that syphilis can be aborted. This possibly applies to a few early cases with secondaries. 5. In all other cases in the secondary period its "curative" use may do more harm than good.

**Syphilis in the Etiology of Fibrous Osteitis.**—P. G. Skillern, Jr., finds from his study of the affection that, 1, fibrous osteitis, in some cases at least, is identical with late hereditary syphilis of bone; 2, the connection of syphilis with this and other bone diseases of obscure etiology should be thoroughly worked out with the aid now afforded by the Wassermann reaction; 3, this disease is curable by conservative measures, and may be struck off from the fast diminishing list of bone diseases calling for amputation.

#### AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN

October, 1913.

**Arterial Ligation, with Lymphatic Block, in the Treatment of Advanced Cancer of the Pelvic Organs. A Report of Fifty-six Cases.**—Bainbridge calls attention to the serious problem in the treatment of malignant disease that is presented to the surgeon in the management of those cases of cancer of the pelvic organs which are commonly placed in the category of the "inoperable, irremovable, and incurable." He first points out that in many cases enlarged lymph nodes are of a purely hyperplastic character, and not cancerous. Lymphatic dissemination through attempts at removal of such nodes is not a deterrent factor, and such patients should not be denied the possibility of relief by operation. Furthermore, by lessening the blood supply to the cancerous tissue, and by blocking the avenues of lymphatic absorption, the progress of the disease may be retarded, pressure and other symptoms mitigated, and the danger of death from hemorrhage removed, where removal of the cancerous mass is impossible. The essential purposes of the author's method are to diminish the



blood supply to the area of cancerous involvement by ligating the chief vessel and to shut off the avenues of absorption of cancer cells and toxic material, this latter end being accomplished by removing the lymphatic nodes and vessels from the receptaculum chyli to the obturator foramen on both sides. The paper also includes a discussion of the indications for this form of treatment and a description of the technic of the operation.

**Prolonged Amenorrhea with Bilateral Ovarian Dermoid Cysts.**—Wiener reports a case of a woman of twenty-five years who had not menstruated for five. At operation bilateral dermoids were present. On reviewing the literature the author found that little attention had been paid to the possibility of amenorrhea being due to ovarian tumors. According to one investigator, amenorrhea does occur in about two to three per cent. of ovarian tumors.

**The Treatment of Antelexion, Defective Function, and Sterility by Glass or Silver Stems.**—Dickinson and Smith present in considerable detail the use of the stem in the treatment of the foregoing conditions. They feel that when it is applied to properly selected patients it gives much more satisfactory results than any of the other methods.

#### AMERICAN JOURNAL OF ORTHOPEDIC SURGERY.

July, 1913.

**An Introduction to the Symposium on Lateral Curvature.**—Ansel G. Cook, in a consideration of scoliosis from a standpoint of balance, considers that the key to the whole situation is the lumbar spine, that the lumbar spine is the centre of motion of the human body, and that anything that affects the balance of the human body affects the curve of the lumbar spine. The object of the mechanical treatment, therefore, should be the reversal of the lumbar curve, regardless of other curves, and the elimination of everything that prevents the reversal of this curve. "If you can once reverse the lumbar curve and hold it, you may count your cure." "Rotations of the spine on its own axis, tiltings of the pelvis, high or low shoulders, will regulate themselves and require no special attention." A fenestrated corset is described which acts directly on the lumbar curve.

**Movements or Positions of the Normal Spine and Their Relations to Lateral Curvature.**—E. S. Abbott gives the results of a thorough study of all of the movements and positions of the normal spine, illustrated by tracings and drawings taken from x rays. This article can best be appreciated by reading it.

**Corrective Jackets in the Treatment of Structural Scoliosis, with Especial Reference to Mensuration and Record.**—This contribution, by Albert H. Frieberg, is an expression of his personal experience with the Abbott method of treating structural scoliosis. It embodies his opinion of the method, and contains a complete report of five cases thus treated. The author's method of making graphic records of the lateral deviation is described.

**Scoliosis; Its Prognosis.**—John L. Porter says that there are so many factors to be weighed and considered in estimating the prognosis in scoliosis that in many cases it is difficult to make any very

definite statement as to the probable result of treatment. The author discusses the prognosis from all of its many phases and makes the following statement: "I now limit my prognosis to stating what I hope may be accomplished by treatment, telling the patient frankly that improvement is the rule, and that in a certain percentage of cases cures are possible, but that I cannot tell beforehand whether a cure or only improvement is possible."

**A Consideration of the Correction of the Fixed Types of Lateral Curvature, Complicated by Visceral Derangements, Especially Those of the Cardiac Variety, with a Slight Modification of Abbott's Method.**—R. O. Meisenbach discusses the various visceral changes that occur in scoliosis and the far reaching benefits derived from treatment. His conclusions are as follows: 1. That it is surprising to see how small a change of blood pressure takes place when the rotary force and flexion are applied. 2. That cases troubled by ptosis and gastric symptoms may improve in general health with a disappearance of symptoms after the spine has been corrected. 3. That the hemoglobin may often increase its percentage after the spine has been corrected, and without medication. 4. That it should not be the rule to attempt to build patients up by medication, and thereby lose time in spinal correction, but that after the spine is corrected these measures may be undertaken with better success. 5. Cardiac lesions, especially functional, due to pressure, may improve after correction, and are not increased. 6. In cases of the severest types, with great deformity of spine and derangement of viscera, treatment should be undertaken cautiously, with a view of improving the general condition of the patient.

**The History of Scoliosis.**—Robert W. Lovett presents a most interesting and entertaining paper, tracing the history and methods of treatment of scoliosis from the times of Hippocrates to the present day.

**What to Do after Corrective Jackets Are Removed.**—E. H. Bradford believes that the best method of correction of fixed spinal curves is by properly applied plaster jackets. But correction of the curve is not curing to the patient. Gymnastics are adjuvants in treatment, but not to be relied upon exclusively when a relapse is threatened. Check braces are of assistance if they prevent slumping and faulty attitudes. Such braces should not be waist or thorax compressing corsets. As there is a tendency to relapse during growth, inspection and treatment may be needed for a long period. Ugly, heavy, disfiguring appliances should not be applied for an indefinitely long period. To be honest with himself, the surgeon should in watching the most chronic of surgical ailments, keep accurate records and measurements of contour, flexibility, curve, and rotation to enable him to detect relapse definitely and to note gain positively.

**The Rotation Treatment of Scoliosis.**—A. Mackenzie Forbes advocates a method for the correction of scoliosis, the principle of which is the production of a physiological scoliosis induced by rotation, which is a direct counterpart to the original primary deformity. The correction can be accomplished with or without apparatus, the rota-

tion being secured by means of the arms and fixed with plaster of Paris. The rotation is best accomplished in flexion. The cast is fenestrated over contracted thoracic walls and pressure is provided over the bulging walls. A course of breathing exercises is recommended.

**Treatment of Lateral Curvature of the Spine by the Forbes Method.**—Z. B. Adams gives an explanation of the Forbes method by means of charts and photographs.

**Gymnastics for Crippled Children.**—Miriam T. Sweeney, in this paper, makes a plea for a consideration of gymnastics for orthopedic conditions and the enumeration of specific exercises for individual cases.

**Human Carriers in Poliomyelitis.**—R. B. Osgood reports a case in which the nasal secretion of a patient, two years after a primary attack of poliomyelitis, was injected intracerebrally into monkeys, and produced complete paralysis with typical pathological findings of anterior poliomyelitis.

**Spontaneous Fracture in Carcinoma of the Bones.**—G. W. Hawley reports three most interesting and instructive cases in which metastatic involvement of the bones complicated carcinoma of the breast. Numerous spontaneous fractures were noted, in all of which union was prompt and complete.

**Tendon Fixation—An Operation for the Prevention of Deformity in Infantile Paralysis.**—W. E. Gallie advocates a method of tendon fixation, which is accomplished by making an incision in the periosteum along the usual course of the tendon. The periosteum is stripped back for a quarter of an inch on either side of the incision. A trough is then gouged out of the bone, into which the tendon is placed, the periosteum is sewed over the tendon, and the suture is pressed through the tendon several times, to hold it firmly in place. The foot is held in plaster of Paris for two months.

#### JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS.

September, 1913.

**Action of Serum on Perfused Heart of Rabbit.**—A. R. Cushny and J. A. Gunn found that when the isolated rabbit's heart is perfused with Ringer's solution, the addition of blood serum, egg albumin, or starch solution produces changes in the heart beats consisting of preliminary stimulation and of subsequent depression, possibly with heart block and ultimate cardiac arrest. Evidence is at hand to show that the secondary depression is due to a diminution in the coronary flow, caused, in turn, by a direct action on the coronary vessels. The primary stimulant action may be due in part to a direct action of serum on heart muscle. The changes observed are probably due to an abnormal state of the heart and its vessels produced by prolonged perfusion with Ringer's solution, and not to the formation of a poison in the perfusion fluid by the addition of serum, etc.

**Effect of Atophan and Novatophan on Endogenous Uric Acid Excretion.**—H. D. Haskins reports investigations carried out in twenty-one apparently healthy students. All had been on a purin free diet for one week before the drug was

taken. In most cases the drug was given for a single day, the dose of atophan used being 0.5 gramme four times a day, and of novatophan, the same quantity five times a day. The results strongly suggested that the main effect of these drugs is to drain uric acid out of the blood, leaving the uric acid content of the latter subnormal. Atophan appeared somewhat more efficient than novatophan.

**Treatment of Experimental Beriberi with Extracts of Spinal Cord.**—C. Voegtlin and C. Towles found that an aqueous extract of autolysed spinal cord of the ox, from which coagulable protein has been removed, contains an antineuritic substance which cures symptoms of polyneuritis in rice fed birds, in daily doses corresponding to four grammes of dried cord. This substance, when added to a diet of polished rice, is capable of removing the nervous symptoms of the disease, but cannot reestablish a normal metabolism, nor enable the affected birds to recover their body weight. The antineuritic substance is liberated through autolysis from the nerve fibre. A ten times greater amount of nonautolysed cord extract saved but few animals from death.

**Action of Nitrites and the Digitalis Group on Isolated Coronary Artery.**—C. Voegtlin and D. I. Macht, studying the effects of various drugs on rings from the coronaries of the ox and pig, placed in warm oxygenated Locke's solution, found that digitonin and digalen produce relaxation, while digitoxin, digitalin, and bufazin cause constriction, of the coronary arteries. Digitonin is probably responsible for the dilatation produced by digalen and the infusion of digitalis. All the nitrites produce prompt relaxation. The nitrites and digitalis bodies can antagonize each other in their action. Whenever, clinically, coronary spasm is to be guarded against, it seems advisable to employ the digitonin containing preparations or simultaneously give nitrites. The observed dilator action of the latter tends to explain their favorable action in angina pectoris due to coronary spasm. No dilator effect was observed in the case of treobromine.

**Reversible Action of Epinephrine and Kindred Drugs on the Bronchioles.**—F. L. Golla and W. L. Symes, using new plethysmographic methods for investigating changes in the bronchiolar airway under the influence of drugs, observed that the action of epinephrine, tyramine, epinine, and some other amines and alkaloids, on normal bronchioles, is constriction. This constriction is not parallel to, and usually outlasts, the accompanying vascular constriction. It is abolished by urethane. After preliminary bronchiolar constriction has been brought about by curare, ergotoxine, apocodine, pilocarpine, muscarine, or physostigmine, the action of epinephrine, tyramine, etc., is reversed, bronchiolar dilatation taking place. The tracheal muscle was found by the authors to differ in its reactions from the muscle tissue of the bronchioles.

#### NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

October, 1913.

**On Pelvic Infections, with Special Reference to the Needs of the General Practitioner.**—S. M. D. Clark speaks of the frequency of pelvic infections, and selects for discussion some of the more

common phases of the subject. The location of the genital organs renders them peculiarly prone to infection. The vaginal canal of every parturient woman is fortunately possessed of a wonderful process of defense in checking infection from spreading to distant areas, and the reason we so seldom see a widespread ascending vaginal cellulitis is on account of a phenomenal infiltration, edema, and swelling blocking the routes of infection. The case is different, however, with the cervix; it has more lymphatics than any other part of the generative organs, and he is convinced that as a gateway of infection it has not been given due consideration. Its lymphatics drain into the cellular tissue interposed between the folds of the broad ligaments, the parametrial, the perivesical, and the perirectal tissues. The infection strikes directly through, and in many cases of puerperal infection the cavity of the uterus is absolutely uninvolved. The body of the uterus not being nearly so richly supplied with lymphatics, it is only in the most virulent type of infection that we see the bacteria penetrating its walls and producing a general peritonitis, thrombophlebitis, septic emboli, endocarditis, and death. While the interior of the puerperal uterus offers a perfect culture medium, as the infecting organism is less virulent the trouble is often confined to the uterus, with a sympathetic broad ligament swelling, which, if left alone, will recover spontaneously. If it is ascertained, from minute examination of the placenta and membranes, that the cavity is empty, curetting is criminal. Given a case in which one is positive that the uterus is empty, no intrauterine douching is called for, and, as regards local treatment, a masterly inactivity is the keynote of success. In the general treatment the patient should be drenched with water, proctoclysis is of service, and careful attention should be paid to the action of the skin and bowels, while abundant, liquid, nutritious food should be administered. When the cavity of the uterus is believed to contain infecting material, it should be emptied with the least possible traumatism and packed with gauze soaked in normal tincture of iodine. This should be removed in twenty-four hours, and two vaginal salt douches given daily. After referring briefly to infections of the tubes and the veins, the author takes up nonpuerperal infections, such as the gonococcus, the streptococcus, and the staphylococcus. Here, he says, absolute physical, sexual, and mental rest, combined with supportive treatment and active elimination, give many splendid results where formerly the organs were sacrificed. This conservative and rest plan of management has not only a curative side, but is also a valuable agent in the preoperative and postoperative care of the patients.

**Emetine Hydrochloride in the Treatment of Amebic Dysentery.**—Randolph Lyons, having already published a report of six cases, in this paper gives a résumé of the previous cases and also presents his experience with this treatment in an additional case. Of the seven cases reported, all were apparently cured except one, which was hopeless from the beginning. He has recently given the drug by mouth (in salol coated pills), as well as in solution by hypodermic injection, in a severe case.

In summing up he says he believes that emetine hydrochloride may prove to be of great value in amebic disease. Whether it will replace ipecac, which is its parent, as a therapeutic agent, or will be found more valuable in conjunction with it, remains to be proved. Certainly in those cases in which ipecac cannot be taken by the mouth the treatment will be a boon.

**The Operative Treatment of Vesicovaginal Inaccessible Fistulae.**—The essential features of the procedure which F. W. Parham has employed with success are: 1. Liberal dissection of the vaginal mucous membrane, so as to mobilize the bladder freely and bring the fistula within reach. 2. Beginning the dissection well forward, just behind the urinary meatus, where the natural lines of cleavage make it possible to separate easily the vaginal membrane from the bladder wall. 3. The use of a lever in the bladder to push down the wall, so as to make the fistula accessible for suture.

## Proceedings of Societies.

### CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

GEORGE EMERSON BREWER, M. D., PRESIDENT.

(Continued from page 1042.)

**The Radiotherapeutic Treatment of Benign and Malignant Tumors.**—Doctor KRONIG, of Freiburg, Germany, stated that the domain to which radiotherapy was well adapted was in the treatment of fibromyoma of the uterus. Radiotherapy of fibromyomas could now be undertaken in a most thorough manner. They had made use of the Röntgen ray treatment exclusively in a number of cases. They had also used mesothorium combined with Röntgen rays, and also mesothorium, in the treatment of these tumors. High doses were by no means necessary in every case of this kind. In a certain proportion of cases quite as good results had been obtained with proportionately small doses. Women over forty-five years of age were more easily influenced by Röntgen rays and the desired object, amenorrhea, with a diminution in the size of the tumor, had been accomplished earlier in these cases than in younger individuals; nevertheless they found cases among women over fifty years of age who could not be successfully treated with small doses. They had never witnessed any unpleasant effects from high doses. High doses had given good results. They had treated 350 cases of myomas of the uterus with Röntgen rays. The chief aim of radiotherapy was: 1. Diminution in the size of the tumor; 2. diminution in the severity of the hemorrhage, but without absolute amenorrhea. They had many times attained this end, especially in younger individuals, but they had to confess that they had seldom gained the desired object. Shrinkage of the tumor began only when amenorrhea was gradually established, and moreover relapses were frequent if menstruation had not completely ceased. The x ray treatment of myoma was comparable with supravaginal amputation of the uterus. Radiotherapy for myomas of



the uterus was in every way far superior to the operative treatment of myoma by means of total extirpation or by supravaginal amputation of the myomatous uterus.

They had treated 254 cases of cancer with Röntgen rays and radium. The material included those cases treated for the prevention of the secondary growth after operation for carcinoma, as well as those cases in which radiotherapy for carcinoma had been used therapeutically. Of this number 150 cases were treated on purely therapeutic lines and without operation. Of these 150 cases, 140 were treated with Röntgen ray and mesothorium combined, while in ten cases the Röntgen ray alone was used. Of sixty-four cases of carcinoma, forty-three cases they had treated for the prevention of secondary growth almost exclusively with unfiltered Röntgen rays, while twenty-one cases were treated partly with filtered and partly with unfiltered rays. The difference was striking. While thirty-two out of forty-three patients died of carcinoma, they had been able to follow the subsequent history of twenty out of twenty-one cases, and found that sixty per cent. of the recurrences occurred the first year after operation.

Recurrent cancers had been treated with radioactive substances. Of the 140 cases which they had treated with Röntgen rays and mesothorium, three groups of carcinomas should be differentiated: 1. Those in which carcinoma had not spread beyond the primary focus, as in cases in which operative removal of the cancer was still possible. 2. Those carcinomas in which a new growth had already extended beyond the primary focus into the neighboring tissue, and in cancer of the cervix where the carcinomatous growth had spread into the parametrium and glands, so that operation was out of question. 3. Those carcinomas in which additional metastases were already present.

So far as their investigations up to date went, they had not succeeded by means of the technic employed in effecting a cure in a single case of metastatic carcinoma. It was quite possible to produce remarkable retrogressions and checking of the carcinomatous metastases by means of intense radiation of Röntgen rays and radium, but in all cases at the present time carcinoma had later on spread further. They could not say they had saved a single patient. In the second group of cases the majority of the patients were at the present time impossible of cure, in spite of any known Röntgen and mesothorium radioactivity.

Dr. HOWARD A. KELLY, of Baltimore, stated that he had used radium in 366 cases, of which 188 were of malignant growths, including tumors from all parts of the body—mouth, throat, neck, nose, lower part of the abdomen, the uterus, etc. He had treated forty cases of cancer of the lower part of the uterus, where the disease was apt to spread rapidly, and the cases were considered hopelessly advanced and inoperable, and in three of them after extensive operation, radium was used. Under the usual methods a speedy recurrence would have taken place without question. In those three instances there had been no recurrence and health had been fully restored. He had also had four cases where no operation could be

done on account of the general condition of the patients. Two of the patients had had diabetes, and one Bright's disease, and the other a serious ailment which contraindicated operation. In those cases apparently a cure had been brought about. He had had two cases of cancer of the larynx, in one of which the patient had been well for months, and in the other the patient appeared to have recovered, but was still under observation. The speaker stated if we could have an abundant supply of radium, its use for superficial cancer would yield better results than surgery. It would cure cases of cancer of the nose, eyes, lip, etc., where surgery would mutilate.

Dr. C. J. GAUSS, of Freiburg, Germany, discussed the technic of radium and mesothorium in the treatment of fibroid tumors and cancer of the uterus.

**The Diagnosis of Lesions of the Upper Urinary Tract.**—Dr. HUGH CABOT, of Boston, laid down four propositions and defended them: First, we had at our disposal methods of diagnosis of lesions of the upper urinary tract which were of extreme accuracy. Second, those methods of diagnosis were of value not only in lesions of the urinary tract, but in the differential diagnosis of the abdominal lesions. Third, that those methods of diagnosis were not being used with that frequency which their value entitled them to, and therefore a large percentage of errors was being made. Fourth, that those methods of diagnosis required skill and judgment in their application, and without that skill and judgment they were dangerous. Doctor Cabot reported and showed numerous slides of cases illustrating errors that have been made in diagnosis.

Dr. ARTHUR D. BEVAN, of Chicago, stated that his solution of the difficulties presented by Doctor Cabot would be that we needed in each clinic a complete organization, a surgeon, a cystoscopist, a radiologist, a competent laboratory worker, and a good internist. It was this sort of organization that should employ the new methods of diagnosis in lesions of the upper urinary tract rather than some special surgeon. In making a diagnosis of lesions of the upper urinary tract, and in practically all abdominal work, the evidence which it was desirable to obtain could be easily grouped under four heads according to their value: First, the history of a given case of lesions of the upper urinary tract was more valuable than anything else. Second, proper physical examination, including under the term physical examination an examination for tumors, dilatation of the colon with air, cystoscopic examination, catheterization of the ureters, x ray pictures of the region with or without collargol. Third, the laboratory findings. Fourth, the importance in a limited number of cases of exploratory operation in making a diagnosis.

**Pyloroplasty.**—Dr. J. M. T. FINNEY, of Baltimore, read a paper in which he related his experience with pyloroplasty extending over a period of fourteen years. After he had given the results in 150 cases in which he had operated, he said the immediate as well as final results were most encouraging. While partial gastroenterostomy and gastrectomy were the operations of choice, nevertheless, on account of its simplicity and because of the satisfactory end results, he believed pyloro-

plasty would continue to retain its position as a safe and useful procedure.

Dr. E. W. ANDREWS, of Chicago, stated that the statistics of pyloroplasty, as given by Doctor Finney, were equal to those of any series of cases from any clinic where ordinary gastroenterostomy had been done, both as regards success of the operation and mortality.

#### **Report of the Cancer Campaign Committee.**—

Dr. THOMAS S. CULLEN, of Baltimore, chairman, first made mention of radium, saying that few surgeons in the country had sufficient of the material to give it a thorough trial, since it appeared that extensive doses sometimes cured when smaller amounts had but little effect. Radium (as suggested by Charles L. Parsons) should be standardized so that the buyer would know what he was paying for. Only time would tell what proportion of cases could be cured with radium. At present early surgical procedure afforded the best chance for cure. While the results obtained from radium had to be taken into consideration, at the same time, the men who had reported the best results were still urging early operation whenever possible. When people once understood the nature of cancer they would gladly avail themselves of surgical aid. In the past decades attempts to instruct the physicians alone had not produced any decisive results. Hence they had to go to the people at large through the newspapers and magazines. Many popular articles had already appeared. The press had responded nobly to their appeal. As a result the patients were coming earlier. Still there was need of further dissemination of knowledge by means of lectures on hygiene in women's clubs, factories, and elsewhere. Further, better records had to be kept, hospital statistics had to be carefully analyzed so that accurate deductions could be drawn from them; they had to have surgical pathologists to aid in diagnosis. Thorough operations had to be insisted upon as soon as the diagnosis of cancer was made. All modern methods of recording data had to be utilized in hospitals. Patients who had been operated upon had to be followed up and the results recorded. Cancer of the uterus was one of the most frequent forms of cancer in women. There were two chief forms of cancer of the uterus, cancer of the neck of the organ and cancer of the body of the uterus. The first symptom of cancer of the uterus was bleeding, and as the disease progressed and parts of the cancer broke down the discharge became offensive. Cancer of the neck of the uterus was by far the more common and could be readily detected by the use of simple instruments. Cancer of the body of the uterus could not be seen and could only be definitely determined by scraping away some of the material and examining this with the microscope. The material removed was suitably hardened and shavings about 1/500 of an inch thick were made. These were stained and examined with the microscope. The picture of cancer was totally different from that found in health, and the expert with the microscope could usually tell with absolute certainty whether the disease was cancer or not. The picture of cancer as viewed with the microscope was as different from that

noted in the healthy organ as were two totally different patterns of wall paper. In the years past few cases of cancer of the womb were cured. Now from twenty to twenty-five per cent. of patients suffering from cancer of the neck of the uterus that were operated upon were permanently relieved. Some of these patients were well thirteen or more years after operation. The results following operations for cancer of the body of the uterus were much more comforting, at least two thirds being permanently cured. These results were a wonderful improvement on those of twenty or thirty years ago when nearly all died. Cancer of the uterus was most common between the thirtieth and fiftieth years, but had occurred in early womanhood and might also attack the aged. Any woman with bleeding that could not be definitely explained ought to be examined at once, and any patient having much bleeding at the time when the "change of life" occurred ought to seek medical aid forthwith. The bleeding might be due to cancer or might be caused by some simple ailment. When women realized what splendid permanent results might be obtained by early operation and fully appreciated the necessity of finding out just what was the matter with them, instead of procrastinating until the disease was far advanced, then the proportion of permanent cures would be greatly increased.

**Publicity and Ethics.**—Mr. SAMUEL HOPKINS ADAMS, of New York, stated that much could be done in health education of the public, whether in cancer, in tuberculosis, in the venereal plagues, or in epidemic diseases, by lectures; but more could be accomplished by the magazines. The universal agency, however, of popular education was the daily press. Between that great agency of enlightenment and the medical profession there had been raised a barrier fraught with difficulty, the barrier of the unwritten law of the profession, which said to the doctor, "Thou shalt not appear in print!" The daily paper, with all its sins, was the one agency by which the medical profession could attain immediate, positive, and direct universal education—a saturated solution of enlightenment. Nothing else would do it. There was no sacred reticence required of a doctor other than the reticence that guards the privacy of his patient. The time had come when the old obsolete ban of silence should be lifted and the propaganda should go on through the agency best fitted to spread it, the daily newspapers.

**Publicity and Education through the American Society for the Control of Cancer.**—Dr. EDWARD REYNOLDS, of Boston, stated that we knew now that in many situations the malignant diseases were preceded by what we might call, for the sake of brevity, a precancerous state, such as the adenomatous stage in the development of cancer of the body of the uterus. We were able to diagnose this condition with certainty in many forms of the malignant disease whenever the patient came to us in that early stage, and we knew that in that stage a radical operation promised in many situations of the disease an almost absolute immunity from recurrences, as opposed to certain death if the patient reached us too late. We were individually

doing our best to publish to the world the importance of early diagnosis, but collectively, and as a profession, we had as yet done nothing. We could exert but little influence upon the over conservative, the timid, and the other weak and halting members of the profession, but our patients, the great lay public, had a right to demand that every member of the profession should be forced to do his duty in this direction. We were each of us individually doing our best to accumulate further information about the disease, but as a profession we had made no organized effort toward the systematic and widespread investigation which was the necessity of the day. We had not as yet had the organization, the money, nor the trained workers which were essential to success. The surgical profession was more than ready to give its time and its trained ability to the work, but the profession formed neither a large nor, as a whole, an affluent proportion of the community. The money for any such widespread organization must come from the numerous and more wealthy laity, for whose benefit this movement was being inaugurated.

The American Society for the Control of Cancer was a body which was composed of prominent members of the profession and of influential members of the laity. It was actively at work in perfecting a widespread organization of national scope for the active prosecution of this campaign. It had already been guaranteed and indeed, for the most part, had already in cash the large amount of money which was necessary even for initial expense of the organization. It had already under salary a general executive secretary whose past career was a guarantee of his possession of the necessary power of organization. It planned to work in cooperation with all the existing organizations in the study of cancer and in the promotion of the necessary publicity of all the points on which we already had assured knowledge. It had already been assured of hearty cooperation from the more important of these preexisting bodies, and had received the endorsement of all, or nearly all, of the great national medical associations. It asked the sympathy and effective aid of every member of the profession and of every interested layman and laywoman. It was essential to so large an undertaking as this that its initial organization should receive the time and attention and the very large amount of labor which was essential to its perfection. He believed we were rapidly approaching the day when we should put our appeal for aid, in both money and work, before every one and before the public, in the concrete form that would make rapid progress possible.

**Education and Publicity through the Council on Health and Public Instruction of the American Medical Association.**—Dr. FREDERICK R. GREEN, of Chicago, stated that our knowledge of the causes of disease, its method of transmission and the possibility of its prevention imposed a duty on the profession toward the public, which was being recognized as a most important function of the medical profession. Since the scientific medical men alone possessed the technical knowledge necessary for the handling of such problems, we must

look to them for such knowledge. But when an effort was made to apply this knowledge for the production of practical results, it was found that while the specific cause of a disease and the like history of the organism might be known in the most minute detail, the prevention or suppression of the disease was a social, and not a scientific problem. Increasing knowledge of the cause of diseases, perfection of methods for their prevention, as well as the recognition of the paramount importance of regulation of social conditions for such prevention, made it necessary that there should be an educated public sentiment back of all of our efforts for disease control. The real force in this country and the only effective force was public opinion. Laws were the crystallization of public opinion and not one of its formative influences. When this principle was fully recognized, we should cease to advocate the adoption of mandatory laws without first creating a discriminating and intelligent public opinion on the necessity and importance of such regulation. If the education of the public was properly carried out, the number of laws required would be greatly diminished and the effectiveness of those in force would be proportionately increased. The necessity for public instruction on the prevention of disease had been recognized by practically all of our State boards of health, and by many of our municipal health departments as well as by the various Federal bureaus working on public health and allied subjects. It had also been recognized by the organization of a large number of special voluntary societies, composed of those interested in some social problem and devoted to the arousing of public sentiment on this specific subject.

What could the Council on Health and Public Instruction of the American Medical Association do to enlighten the public on this subject? The answer was obvious. It could place at the disposal of the American Society for the Control of Cancer and the Committee of the Clinical Congress of Surgeons of North America all of the resources of the council on Public Health Education. Through the Press Bulletin, suitable material on the subject could be placed in the hands of five thousand editors, without any cost to the society or to the committee. Through the Speakers Bureau addresses could be given to the public on Cancer and Its Menace. Through the Bureau of Literature, local pamphlets and leaflets on this subject could be distributed. Later on through the Lantern Slide Bureau of Exhibits material on cancer and its control could be placed before the public. The agencies at work on this problem at present were the American Society for Control of Cancer; the Committee of the Clinical Congress of Surgeons of North America, and the Council on Health and Public Instruction of the American Medical Association.

The work to be done seemed to be threefold and to be peculiarly adapted to these three organizations. The first thing was to interest the public and especially the wealthy and influential public in the problem of the control of cancer. This was a movement for the public welfare, and there was no reason why the public should not assume part of



the expense. This was the work for which the recently organized Society for the Control of Cancer was admirably adapted. The second necessity was the careful investigation of the entire problem of cancer, its age, its race and sex incidence, its relative frequency in different occupations and locations, and all of the clinical facts connected with its appearance. The speaker stated that there was to-day in the records of our different hospitals throughout the country an enormous mass of undigested material on this subject. This was clearly a clinical and surgical problem. The third requirement was the distribution to the public of the results of such an investigation. This was obviously a task for the Council on Health and Public Instruction of the American Medical Association, representing as it did the organized profession of the entire country. Through its machinery, it could, without any additional expense, place before the public any information which might be desired on this question.

(To be continued.)

## Letters to the Editor.

### "AUROMETER."

173 LEXINGTON AVENUE,  
NEW YORK, November 22, 1913.

To the Editor:

In to-day's issue of your esteemed JOURNAL Dr. M. Lubman describes his new instrument which he calls aurometer. At first sight I thought this hybrid word might mean gold measure from the Latin aurum and the Greek metron, but reading the description I found that the case is still worse; the author has made the composition from the Latin auris and the Greek metron, and this would be an ear measure but not an instrument for testing the hearing as the author means to say, for hearing in Latin is audire. The medical lexicons which I have on hand give aurometer and acoumeter from acou to hear, and this is not incorrect, but better is to make the composition instead from the verb acouo from the noun acousis, eos and say acouseometer. I hope this will kill the new word monstrosity stone dead.

A. ROSE, M.D.

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*Studies in Cancer and Allied Subjects.* Vol. I. The Study of Experimental Cancer. A Review. By WILLIAM H. WIGLUM, M.D., Assistant Professor, Columbia University, Assigned to Cancer Research, Sometime Assistant to the Director of the Laboratories of the Imperial Cancer Research Fund, London. Volume III. From the Departments of Zoology, Surgery, Clinical Pathology, and Biological Chemistry. Conducted under the George Crocker Special Research Fund at Columbia University. New York: Columbia University Press, 1913. (Price, \$5 each.) Sales Agents: London and Toronto, Henry Frowde; New York, Lemcke & Buechner.

Doctor Wiglum has made a very useful compilation of the many articles that have dealt with the experimental side of cancer research. The various phases of the matter are ably presented and the views of the investigators clearly set forth. The more, however, that one reads the more evident it becomes that little progress has been made toward an explanation of the neoplastic processes. Much work has been done and many facts have been determined but as yet the interpretation of these facts has not been accomplished. It still remains for some one to find the

key to the riddle and clear up the situation for us. To one interested in the subject of cancer research this volume might be considered almost essential as it is really an encyclopedia; there seems to be no point neglected. The one thing that is open to criticism is the unwieldy form in which these reports of the George Crocker Special Research Fund are prepared. The reader has to suffer for the large and useless margins. The articles contained in this report come from the departments of zoology, surgery, clinical pathology, and biological chemistry. Most of them have been published elsewhere but there are some that are original in that this is their first appearance. One of the most interesting is that by Rhodenburg, Bullock, and Johnson on The Relation of Certain Internal Secretions to Malignant Tumors, although their results are to a large extent negative. The chief value of this report lies in the bringing together of so large an amount of work in order that one who is interested in the subject may readily review the literature. Like the other volumes this report is published in a very unwieldy form.

*Operationen am Ohr.* Die Operationen bei Mittelohreiterungen und ihren intrakraniellen Komplikationen. Für Ärzte und Studierende. Von Dr. B. HEINE, a. o. Professor und Direktor der k. Universitäts-Ohrenklinik und Ohrenpoliklinik in München. Dritte, neubearbeitete Auflage. Mit 29 Abbildungen im Text und 7 Tafeln. Berlin: S. Karger, 1913. Pp. viii-232.

The recent edition of this valuable work shows marked evidence of careful revision of the text; many chapters having been altered by the addition of much new material of significant importance. The use of the Röntgen ray and its value as a diagnostic agent is ably discussed; Passow's plastic in cases of slow healing following the radical mastoid operation is thoughtfully considered; the blood examination in sinus thrombosis and the functional testing of the labyrinth have received careful attention; while it has been found necessary again to completely revise the chapter dealing with the opening of the labyrinth. In the present edition the author is more emphatic than ever in his advocacy of early and free paracentesis. His classification of the indications for this operation in the early pages is worthy of note, the advantages to be gained, thereby, in certain specified conditions being evident. The work is divided into two main headings, viz.: The Operations in Middle Ear Suppurations, and The Operations in Intracranial Complications of Otic Origin. The former is further divided into operations on the tympanic membrane and middle ear; operations on the mastoid process; and opening of the labyrinth. The subdivision of the latter consists of the operation for extradural and subdural abscess, the operative treatment of the cerebral sinus, the evacuation of brain abscess, and the operation in serous and purulent meningitis. The plates are especially well executed and add much to the value of the text in elucidating certain operative procedures.

*Leitfaden der praktischen Kriegs Chirurgie.* Von Dr. WALTER VON OETTINGEN, Chirurg in Berlin-Wilmersdorf. Dresden und Leipzig: Theodor Steinkopf, 1912. Pp. xvi-377. (Price, 9.50M.)

This book is illustrated by 109 well executed cuts, contains a clear and well arranged table of contents, a comprehensive index, and a complete bibliography of foreign writers, whose opinions and experiences are referred to in the text and make reference to works on this subject a simple matter. The chapters on guns and ammunition take up very thoroughly the construction of missiles and firearms and their development and improvement during the century up to the present improved types.

We have here a practical description of every grade of firearm in use, from the revolver to the siege gun, with the composition, calibre, charge, and zone of damage of each missile. The development of the modern magazine rifle is given with the various stages in the development of bullets to the steel jacketed, pointed type. The range and rapidity of fire of the rapid fire gun is given as is the composition and effectiveness of shrapnel and grenades. The subject matter on firearms and munitions is so thoroughly prepared and so comprehensive that it offers a high grade of scientific and practical instruction. The admirable exposition of the surgery of war in this volume is particularly valuable since it expresses conclusions based on actual experience and serv-

ice in the Russo-Japanese war. There is a systematic description of varieties of wounds caused by the various types of missiles, and each part of the body is taken up in turn, and the nature of the wounds discussed. Under the title of Wound Infection, the author warns against the probing of aseptic wounds, against the unnecessary packing of wounds and loose bandaging, and especially against irrigating sterile wounds or washing the surrounding tissues. The use of antiseptics such as bichloride of mercury, carbolic acid, and iodoform, in the treatment of wounds, is utterly condemned. He favors organic solutions of silver, formalin, and dusting powders. In place of iodine he uses a preparation containing resin. This is used for almost all antiseptic purposes, especially for disinfection of the skin surrounding wounds.

The greatest stress is laid on the principle of fixation, both of the wounded member, the entire body, and the bacteria on the skin surface. Plaster of Paris dressings seem a favorite method also the use of adhesive plaster. The following points are emphasized: First aid dressings should not be changed at sanitary stations in the rear unless antiseptics (bichloride) have been used, or the dressings are bloodsoaked or have become loose. Morphine with or without atropine is the best treatment for shock and for the fatigue accompanying transportation. The treatment of the various types of wounds of each part of the body is given in detail and is excellent in its practicability and thoroughness. The character of the treatment indicated at each of the successive field stations for the care of the wounded is discussed, for wounds of every part of the body. The treatment given for wounds of the skull and of the abdomen and its contents is especially valuable, giving also the indications for absolute rest, transportation, or operative interference.

The work is really a condensed textbook of the treatment of wounds of every part of the body under conditions of latterday warfare, embodying therefore the latest methods developed by actual observation in the field. The work will prove invaluable to medical officers with little or no experience in actual warfare, and will be interesting and instructive to more experienced officers. The lessons it teaches would certainly be of value to those in civil life who are frequently called upon to treat wounds made by missiles, especially those of firearms.

*Underground Waters for Commercial Purposes.* By FRANK L. RECTOR, B. S., M. D., Bacteriologist, Great Bear Spring Company, New York, etc. First Edition, First Thousand. New York: John Wiley & Sons Inc.; London: Chapman & Hall, 1913. Pp. v+98. (Price, \$1.)

The author deals with his subject in a very clear and untechnical manner so that a layman could readily understand the essential points in determining the purity of a given water supply. The varieties of water supplies and their chemical constituents are briefly reviewed, as are the methods of bacteriological, chemical, and microscopical examinations.

## Interclinical Notes.

*Women's Stories*, published by Street and Smith, is the latest addition to the list of popular magazines. Our women physicians will meet in its pages such favorites as Frances Aymar Matthews, Maragarita Spalding Gerry, Anne O'Hagan, Helen Green Van Campen, and Anna Katherine Green, and we think that our men friends too need not be afraid that this new magazine is too milk and watery for them. Why have we not an Agnes Repplier among our women doctors? She would prove to be a redoubtable rival to Oliver Wendell Holmes. And what a heroine for a romance a woman doctor would make!

\* \* \*

The *Industrious Chevalier*, by S. Squire Sprigge, the editor of the *Lancet*, is a capital series of short stories published some ten years ago in England. It was a great surprise recently to see these tales appearing serially in one of the popular magazines, although they have been suddenly withdrawn. Perhaps they were too generally recognized, or perhaps they were a trifle old fashioned. The hero drives in hansoms and coupés, a mode of progression quite too slow for modern readers. Mr. Sprigge's

talents as a teller of stories are great and the *Lancet*, as has been universally recognized, was fortunate in securing a man of his literary ability and cultivated taste as editor.

Many of our readers will remember the mystery of the *Marie Celeste*, the ship which was found abandoned, but without any signs of disease or bloodshed, in 1872. Many writers of fiction chose to write explanations of this strange affair. In the *Strand* for December the true history is given by a survivor, Abel Fosdyk, under unusual circumstances. We are convinced that this solution is the true one, and it actually transcends imagination.

## Meetings of Local Medical Societies.

MONDAY, December 1st.—Clinical Society of the New York Nose, Throat, and Lung Hospital; German Medical Society of the City of New York; Brooklyn Hospital Club; Roswell Park Club, Buffalo; Hornell Medical and Surgical Association; Utica Medical Library Association; Niagara Falls Academy of Medicine; Practitioners' Club, Newark, N. J.; Hartford, Conn., Medical Society.

TUESDAY, December 2d.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Society of Alumni of Lebanon Hospital; Clinical Society of the West Side German Dispensary and School for Clinical Medicine; Buffalo Academy of Medicine (Section in Surgery); Ogdensburg Medical Association; Oswego Academy of Medicine; Syracuse Academy of Medicine; Medical Association of Troy and Vicinity; Long Island Medical Society; Amsterdam City Medical Society; Lockport Academy of Medicine; Bridgeport, Conn., Medical Association.

WEDNESDAY, December 3d.—Long Island Society of Anesthetists; Brooklyn Society for Neurology; Bronx Medical Association; Society of Alumni of Bellevue Hospital; Harlem Medical Association; Schenectady Academy of Medicine; Elmira Academy of Medicine.

THURSDAY, December 4th.—New York Academy of Medicine (stated meeting); Dansville Medical Association; Brooklyn Surgical Society; Practitioners' Club, Buffalo; Geneva Medical Society.

FRIDAY, December 5th.—New York Academy of Medicine (Section in Surgery); New York Microscopical Society; Gynecological Society, Brooklyn; Manhattan Dermatological Society; Practitioners' Society of New York; Corning Medical Association; Saratoga Springs Medical Society.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending November 19, 1913:*

Burkhalter, John T., Passed Assistant Surgeon. Directed to proceed to Washington, D. C., and report to the chairman of a board of medical officers convened to meet at the bureau, December 1, 1913, for examination to determine his fitness for promotion to the grade of surgeon. Cumming, H. S., Surgeon. Directed to proceed to Philadelphia, Pa., to arrange for sailing of steamer *Bratton*, which is to be brought from that port to Washington, D. C., for use in connection with the investigation of the pollution of the Potomac River. Currie, Donald H., Surgeon. Directed to proceed to Seattle, Washington, for conference with surgeon B. J. Lloyd on laboratory operations in plague work. Earle, Baylis H., Passed Assistant Surgeon. Directed to proceed to San Francisco, Cal., and to report to the chairman of a board of medical officers convened to meet at the Marine Hospital, December 1, 1913, for examination to determine his fitness for promotion to the grade of surgeon. Foster, A. D., Passed Assistant Surgeon. Directed to proceed to Wilkesboro and other places in the State of North Carolina,

after conference with the secretary of the State Board of Health, for investigation of the prevalence of trachoma and other infectious diseases among the mountain population of that State. **Holt, J. M.**, Passed Assistant Surgeon. Directed to report to the chairman of a board of medical officers convened to meet at the Marine Hospital, San Francisco, Cal., December 1, 1913, for examination to determine his fitness for promotion to the grade of surgeon. **McMullen, John**, Surgeon. Directed, in connection with the campaign against trachoma in Kentucky, to proceed to New York and Philadelphia to observe latest operative procedures in eye clinics; thence to Jackson and other points in Kentucky to determine the best location for additional hospital and dispensary; also in connection with this work, to address the annual school for county health officers at Louisville, Ky., December 8 to 10, 1913, on trachoma work in Kentucky. **Neill, M. H.**, Assistant Surgeon. Directed to attend the meeting of the Third National Conference on Housing in America at Cincinnati, Ohio, December 3 to 5, 1913. **Oakley, J. H.**, Surgeon. Directed, at the request of the secretary of the State Board of Health of Kentucky, to proceed to Rochester, Ky., on Green River, to investigate reported outbreak of smallpox. **Phelps, Earle B.**, Professor. Directed to proceed from New York, N. Y., to Boston, Mass., and vicinity and advise with local health authorities relative to the conduct of investigations of sanitary administration. **Stimpson, William G.**, Surgeon. Detailed for duty as assistant surgeon general in charge of the Division of Marine Hospitals and Relief, effective November 14, 1913. **Warren, B. S.**, Surgeon. Detailed to cooperate with the medical and sanitary officer of the Bureau of Engraving and Printing to ascertain the cause of high rate of physical inefficiency of certain classes of employees. **Wilson, Robert L.**, Passed Assistant Surgeon. Directed to proceed to Washington, D. C., and report to the chairman of a board of medical officers convened to meet at the bureau, December 1, 1913, for examination to determine his fitness for promotion to the grade of surgeon.

#### *Boards Convened.*

Board of commissioned medical officers convened to meet at the bureau, Monday, November 17, 1913, for the purpose of preparing questions for the mental examination of certain passed assistant surgeons to determine their fitness for promotion to the grade of surgeon. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Assistant Surgeon General W. C. Rucker, member; Surgeon B. S. Warren, recorder.

Board of commissioned medical officers convened to meet at the Marine Hospital, San Francisco, Cal., Monday, December 1, 1913, at 10 o'clock a. m., for the purpose of conducting an examination to determine the fitness of certain passed assistant surgeons for promotion to the grade of surgeon. Detail for the board: Surgeon R. M. Woodward, chairman; Surgeon J. D. Long, recorder.

#### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending November 22, 1913:*

**Ashburn, Percy M.**, Major, Medical Corps. On his arrival in the United States, will be granted a leave of absence for one month. **Barber, J. R.**, Captain, Medical Corps. Has been granted twenty days' leave of absence. **Brechemin, L., Jr.**, Major, Medical Corps. Relieved from temporary duty at Camp Douglas and ordered to proceed to Fort Preble. **Culler, Robert M.**, Captain, Medical Corps. The leave of absence granted has been extended to December 5, 1913. **Hillman, C. C.**, First Lieutenant, Medical Corps. Granted twelve days' leave of absence on November 19th. **Mullins, T. K.**, First Lieutenant, Medical Reserve Corps. Resignation has been accepted, to take effect November 19, 1913. **Rutherford, H. G.**, Major, Medical Corps. Ordered to New York, N. Y., to assume charge of the Medical Department exhibit at the New Grand Central Palace, December 11 to 20, 1913. **Tasker, A. N.**, Captain, Medical Corps. Ordered to Fort Niagara, during the absence of Major Shockley. **Truby, W. F.**, Major, Medical Corps. Announced as sanitary inspector and assistant to division, Third Division, San Francisco,

Cal. **Van Kirk, H. H.**, First Lieutenant, Medical Corps. Relieved from duty at Calexico, California, and ordered to the Presidio of Monterey. **Weed, Mark D.**, Captain, Medical Corps. Granted twenty days' leave of absence.

#### United States Navy Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending November 22, 1913:*

**Benton, F. L.**, Surgeon, Medical Corps. Detached from duty in the Atlantic Reserve Fleet, and ordered to the receiving ship, Navy Yard, Norfolk, Va. **Bostick, J. B.**, Assistant Surgeon, Medical Reserve Corps. Ordered to the naval training station, San Francisco, California. **Garton, W. M.**, Surgeon, Medical Corps. Detached from the Naval Hospital, Norfolk, Va., and ordered to the *Kearsarge*. **Greene, J. B.**, Assistant Surgeon, Medical Reserve Corps. Commissioned from October 15, 1913. **Hibbett, C. T.**, Medical Director, Medical Corps. Placed on the retired list on November 9, 1913, in accordance with section 1444, revised statutes, upon reaching the age of sixty-two years. **McDonell, W. N.**, Passed Assistant Surgeon, Medical Corps. Ordered to the Naval Hospital, Annapolis, Md. **Thompson, J. C.**, Surgeon, Medical Corps. Detached from the *Albatross* and ordered to the Pacific Reserve Fleet. **Toulton, J. A.**, Passed Assistant Surgeon, Medical Corps. Detached from the *Ozark* and ordered to the *Severn*. **Williams, R. B.**, Surgeon, Medical Corps. Detached from the receiving ship at Norfolk, Va., and ordered to the Naval Hospital, Norfolk, Va.

### Births, Marriages, and Deaths.

#### *Married.*

**Monahan—Thompson.**—In Dorchester Lower Mills, Mass., on Tuesday, November 11th, Dr. Edward J. Monahan, of Revere Beach, and Miss Olive Thompson.

#### *Died.*

**Collins.**—In Nashua, N. H., on Sunday, November 16th, Dr. Charles S. Collins, aged sixty years. **Collins.**—In Springfield, Mass., on Friday, November 14th, Dr. Edgar C. Collins, aged fifty-six years. **Derdiger.**—In Chicago, on Wednesday, November 12th, Dr. Aria Louis Derdiger, aged fifty-two years. **Fisch.**—In St. Louis, Mo., on Monday, November 17th, Dr. Carl Fisch, aged fifty years. **Jones.**—In Philadelphia, on Tuesday, November 18th, Dr. William B. Jones, aged seventy-seven years. **Kreider.**—In Mount Holly Springs, Pa., on Tuesday, November 11th, Dr. Daniel B. Kreider, aged thirty years. **Lee.**—In New Castle, Pa., on Wednesday, November 12th, Dr. Charles H. Lee, aged seventy-three years. **Lytle.**—In Iowa City, Ia., on Friday, November 7th, Dr. S. S. Lytle, aged seventy-two years. **McDowell.**—In Vincennes, Ind., on Sunday, November 9th, Dr. Mordecai M. McDowell, aged sixty-nine years. **McFarland.**—In Oil City, Pa., on Thursday, November 13th, Dr. James McFarland, aged eighty-seven years. **Morin.**—In Chicago, Ill., on Friday, November 14th, Dr. Denis Morin, aged seventy-two years. **Ryan.**—In New York, on Monday, November 17th, Dr. Philip X. Ryan, aged twenty-seven years. **Sawtelle.**—In Malden, Mass., on Friday, November 14th, Dr. George B. Sawtelle, aged seventy-five years. **Schwinn.**—In Houston, Texas, on Saturday, November 8th, Dr. Edwin R. Schwinn, aged twenty-three years. **Scott.**—In Louisville, Ky., on Thursday, November 13th, Dr. Maria Gutterman Graff Scott, aged seventy-three years. **Shippen.**—In Petersburg, Va., on Monday, November 17th, Dr. William Shippen, aged fifty-two years. **Tinker.**—In New London, Conn., on Thursday, November 20th, Dr. Horace H. Tinker, of New York, aged fifty-five years. **Treadway.**—In Stamford, Conn., on Monday, November 17th, Dr. William B. Treadway, aged fifty-five years. **Turner.**—In Corona, N. Y., on Sunday, November 16th, Dr. James Lawrence Turner, aged seventy-four years. **Uilyot.**—In Pomona, Cal., on Friday, November 7th, Dr. Thomas Henry Uilyot.



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### Original Communications.

#### THE PHYSICAL, MENTAL, AND MORAL VIGOR OF OUR SCHOOL CHILDREN.\*

##### *Fragmentary Notes on How to Preserve and Increase It.*

By S. ADOLPHUS KNOFF, M. D.,  
New York,

Professor of Medicine, Department of Phthisiotherapy at the New York Post-Graduate Medical School and Hospital.

I. To preserve the mental and physical vigor of our school children, we must begin to work with the preceding generations, with prospective fathers and mothers, continuing while the child is still in utero, and of course also during infancy and the preschool age.

The need of teaching eugenics as well as euthenics to lawmakers, clergymen, and the mothers and fathers of the present and future generations must be evident to all those who have studied without prejudice the results of inferior parentage. No marriage should be performed without a certificate from a reputable physician showing that the persons seeking to be man and wife are not afflicted with any contagious, communicable, or infectious disease; that they are physically and mentally sound and are not blood relations. Habitual drunkards or habitual users of drugs, such as opium, cocaine, ether, chloroform, etc., should be prohibited from marrying. If a four weeks' course in the elements of euthenics and eugenics and the obligations of fatherhood and motherhood were required prior to the granting of a license, much misery, disease, and sorrow would be avoided, and the children of future generations would become a higher type of men and women.

But prior to this we should bear in mind the fact that every female child attending school may become a mother some time, hence it is during her school age that we should prepare her physically and mentally for her divine mission. It was this thought that prompted the English Speaking Conference on Infant Mortality, which met in London on the 4th and 5th of August, to pass the following resolution: "In view of the damage liable to be wrought in growing girls by injudicious stress of education, especially during puberty and adolescence, this conference feels bound to depre-

cate any form of education for girls which pays insufficient attention to establishing good bodily health and development and complete fitness for maternity and the practical care of a home."

Prospective mothers should be taught the hygiene necessary during pregnancy in order to assure the health of the child. They should be instructed in the care of infants.

Any physical defect of the child which can possibly be corrected should be corrected before the child enters school, and not after. It is during the preschool age that the child should be prepared to be physically and mentally fit to enter school.

2. We must teach parents that quality is better than quantity and that a large number of children underfed and of mental and physical inferiority means race suicide, while the reverse is race preservation.

To show the necessity of this, let me first take tuberculosis as an example. Estimating the annual deaths from tuberculosis in the United States at only 150,000, it is safe to say that at least 50,000 of these were children at the school age. They have died without having been able to give any return to their parents and to their community. Making the average duration of their young lives only seven and a half years, and estimating the cost to parents and the community at only two hundred dollars per annum, the community loses seventy-five million dollars because it has not prevented a preventable disease. This is both a fearful economic waste and sheer race suicide. The same may be said of the defective, feeble-minded, and idiots. According to Clark and Stowell,<sup>1</sup> who made a study of the mortality of 4,000 feeble-minded and idiots on Randall's Island, the average age at which these unfortunates die is thirteen years. Think of the cost to the community of maintaining these thousands of individuals for thirteen years! It is interesting to note that on that same island, under the same management, a hospital for mentally normal children is conducted, and the mortality in this institution is only half (3.38 per cent.) of that of the feeble-minded, which is 6.5 per cent. The lower the mentality, the greater the mortality. Thus, the lower grades, imbeciles and idiots, give a mortality three times that of the feeble-minded, i. e., 19.6 per cent. In all the tuberculosis dispensaries where we have been able to examine the children of the tuberculous parents who attend these institutions, we found that fifty per cent. of these children were tuberculously

\*Read before the Fourth International Congress on School Hygiene, Buffalo, August 27, 1913.

<sup>1</sup>NEW YORK MEDICAL JOURNAL, February 22, 1913.

infected. I recall here the case of a tuberculous street sweeper with, I believe, a weekly salary of \$12, who on his thirty-sixth birthday was found to be tuberculous and on the same day had become the father of his twelfth child. Here eugenics and eugenics have both been at fault.

3. There must be the heartiest cooperation between the city council, school boards, school architects, school superintendents, teachers, and parents.

The city council which usually appropriates the money and thus, by holding the pursestrings, can actually control to a large extent the educational policy of the school authorities, should be imbued with the highest but also most practical idealism tending to further the best educational interests. Council and school boards should be composed of progressive men and women and should be free from political restraints. It is an unfortunate thing that in many of our American communities partisan politics play an important role in the selection of school boards, superintendents, and even teachers. Thus far, wherever women have been elected to compose part of the board the situation has been improved and there has been less favoritism and more loyalty to the most important asset of a nation—the physical, mental, and moral welfare of its children.

The more cordial and helpful the relations between city council, school boards, teachers, and parents the more efficient will be the work of all concerned. There should be a time set aside for a parents' or mothers' meeting once or twice a month for the discussion of various subjects in order to be mutually helpful. There should also be certain hours for the superintendent or teacher to receive parents and talk over matters which the parents prefer not to discuss in public.

4. The site for a school building should be ideal; on elevated ground, and as far as possible removed from traffic, dust, and noise. The building should be safe, sanitary, well lighted, with good acoustics, and attractive outside as well as inside. Its interior decoration should be educational, esthetic, and inspiring.

Aside from the well known sanitary necessities of any modern public building, the ordinary American windows, which can be opened only to half their extent, should be replaced by French windows, those that slide into the wall, or the kind that turn on a pivot; all of these make possible twice as large an opening as our ordinary windows do. All corners in the rooms should be rounded off, the doors should open outward, and the staircases should be wide and fireproof. The value of object lessons produced on the impressionable mind of the child by beautiful architecture, statues, and pictures is well known to educators. Interior classrooms should be painted with washable oil paints and in colors soothing to eyes and nerves. In interior classrooms the natural or artificial light should be so arranged as to be the most effective and least injurious. Light thrown toward a white or light-colored ceiling seems best for artificial illumination. But not alone should the eye be protected; in our

eagerness to save the eyesight of our children we must not neglect their hearing, for good acoustics is as essential to our modern sanitary schools as good light and perfect ventilation.

One or several training schools should form a part of every educational system. If a training school can not be established under the same roof with the general school, it should be easy of access to the latter. There should be rigid State regulations concerning the construction of schoolhouses in order to secure good buildings in unintelligent or illiberal districts and towns.

5. The janitor of a public, parochial, or private school should be a practical sanitarian. Daily cleansing or disinfection of classrooms, when necessary, should be obligatory.

The janitor should at least have a sufficient knowledge of school hygiene and general sanitation to reduce the dangers from dust, bad odors, and bad air to a minimum. He should know how to disinfect and thoroughly clean a classroom. No cleaning nor dusting should ever be done while the children are in the school or while they are leaving the schoolhouse. Dry cleaning except by vacuum cleaner should be considered unsafe. The old-fashioned cleaning with broom and duster is nothing but a displacement of dirt and microorganisms from one place to another. The salary of the majority of janitors is almost invariably higher than that of any teacher, and sometimes as high as that of the principals. Such salaries justify the demand for thorough qualification.

6. The toilet and washing facilities for children should be sanitarily perfect.

Running water, hot and cold if possible, liquid soap, the sanitary paper towel, soft toilet paper, and of course plenty of light and air should be the features of the modern toilet room. The seats of the water closet should be so constructed that the genital organs will not come in contact with the wooden rim of the seat. The water closet seats should not be high, and if they are too high a footstool should be provided to increase the abdominal pressure during the act of defecation. Much of the constipation prevalent in school children would be avoided by this simple means to facilitate the act of defecation and make it more thorough.

7. The rural schools, be they for white or colored children, should not be less sanitary, less well equipped or less well managed than the best public school of a city.

It is a deplorable fact that school hygiene and sanitation in many country districts is virtually unknown. The rural schoolhouse is often inferior in construction and in sanitary equipment to a barn or stable. Much missionary work is needed to make the farmers realize the inestimable assets to a community of healthy children. The Federal Government which now expends millions of dollars for the betterment of animal stock may well divert some of its energy and money to the improvement of rural school hygiene.

Regarding ventilation, toilet, and washing facili-

ties the rural and village schools are even more frequently defective than the city schools. It seems as if the good country air was not intended for children attending the village schools.

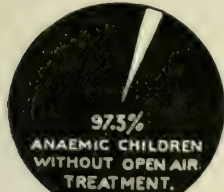


FIG. 1.—Diagram showing that only 2.7 per cent. of anemic school children have open air classes. The black part shows what is still to be done in the matter of giving open air treatment to anemic children.

education through example to the school children is one of the best means to elevate the standard of living of the colored population.

8. The more open air schools we can have, the more outdoor instruction in kindergarten, public schools, and in colleges, the greater will be the physical vigor and strength of the pupils.

Experiments with nontuberculous children have already demonstrated that the pupils attending these open air schools or classes show an average of better attendance, much less sickness, and a better record in their educational attainments. These open air schools have been of particular benefit to children suffering from heart diseases, anemia, and chorea to the underweight and the nervous child. In an excellent book<sup>2</sup> by Elsa Denison, of the New York Bureau of Municipal Research, there appeared a rather appalling diagram of the number of anemic children attending public schools without open air treatment. To show what is still to be done I reproduce this diagram as it is given in Miss Denison's book. (Fig. 1.)

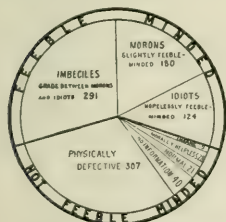


FIG. 2.—Diagram showing the results of diagnoses in 1,000 cases.

school does not necessarily mean a new and costly building. Although I described an ideal open air school last year before the Congress on Hygiene and Demography, and my friend, Professor Van Pelt, made the architectural plans for it, showed a model and described the plans and the requisites of

such a school,<sup>3</sup> I wish to state that an open air class can be installed in almost any school by taking out part of the wall and replacing it with large windows which will let in air and sunshine in plenty. In the

same communication to the Congress, entitled Tuberculosis and Other Diseases in Schools and Colleges: Open Air Schools and Open Air Instructions with Breathing Exercises as Preventive Measures.<sup>4</sup> Professor Van Pelt was good enough to make for me a drawing showing a classroom in an old-fashioned school building which had been altered into an open air room.

Providence, which had the first open air class in this country, used an old discarded school building for that purpose. To any community or individual interested in the establishment of an open air school, I will deem it a privilege to send a reprint of the above mentioned article.

9. If we make effectually to prevent and stamp out tuberculosis in children, the open air school must become the rule, the indoor classroom the exception.

According to the report of the Commissioner of Education there are at this time about 20,000,000 children attending public schools in the United States. Placing the proportion of tuberculosis among them as low as only 5 per cent. would make 1,000,000 tuberculous children who are at this time in urgent need of open air instruction. According to available statistics, and granting even a slight increase since they have been gathered, we can at this time provide open air instructions for hardly 2,000 tuberculous children. The anemic, the nervous, the children suffering from cardiac diseases, who are in equally great need of outdoor instruction, are not included in the five per cent. And yet, how invaluable are these outdoor classes in our warfare against tuberculosis! In his report on the first open air school, Mr. Walter H. Small, at that time superintendent of the Providence schools, has this to say: "The school enrollment in the open air class is varying and the work is necessarily individual. Each does what he can; he is not urged; but he sits in the sun, keeps healthfully busy, drinks in fresh air, and grows stronger physically and more alert mentally. To see the color come into

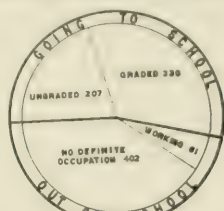


FIG. 3.—Diagram showing what 1,000 children in 1911, 1912, and 1913 were brought to the clearing house for mental defectives.

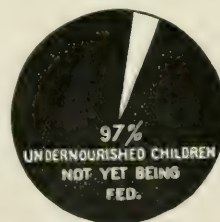


FIG. 4.—Diagram showing that only 3 per cent. of the undernourished school children are having lunches. The black space shows what is still to be done.

<sup>2</sup>Van Pelt, John V.: The Architecture of Open Air Schools, *Medical Record*, November 1, 1913.  
<sup>3</sup>NEW YORK MEDICAL JOURNAL, January 25, 1913.

<sup>4</sup>Denison: *Helping School Children*, New York.



the cheeks and the sparkle into the eyes and to see the emaciated form fill out, convince those close to the work that it pays abundantly."

It goes without saying that teachers and pupils attending the open air school should be warmly clad and the sitting pupil be provided with means to keep his body and particularly his feet warm. In the article mentioned in the preceding paragraph I illustrated Mr. Mann's sitting out bag which is excellent for that purpose. I also illustrated the portable open air school of Jamaica Plains, Boston, suitable for villages and smaller communities, with the children studying outdoors in midwinter.

It is of course essential that a tuberculous child, if it has home lessons, should study and also sleep in fresh, pure air<sup>1</sup> at home, and I presented in the same communication to the Congress on Hygiene and Demography a drawing showing a combination of window tent for sleeping at night and for outdoor studying during the day. A model of such a home study tent which can be converted into a window tent was also exhibited at this congress in connection with my paper, Rest and Exercise for the Tuberculous and the Predisposed Child at School.<sup>2</sup>

10. If there is not ample room for playgrounds and separate open air classes, the schoolhouse should have a garden, playground, recreation room, and some open air classes on the roof.

Whenever feasible, there should be covered playgrounds so that the children can get the air no matter what the weather conditions. Where land is expensive the roof could be used for this purpose also. In rural communities or smaller towns where land is plentiful and cheap, school gardens should comprise a part of the facilities for outdoor instruction. The roof can, of course, be used to advantage for an open air classroom as has been done in New York and other cities. Providence, as I have said, used a discarded school building and made of it the first open air school in the United States. The schoolroom is large and airy, having windows on three sides. On the south side are five large windows where the wall was removed, reaching from the ceiling nearly to the floor, so arranged with hinges and pulleys that they can be swung inward, practically opening the entire side of the building. These windows are kept open in all weathers except when snow and rain beat in. So far they have never been closed. To temper the air at one end of the room are two stoves: one is for heating simply, the other a cook stove for warming the soapstones and the midforenoon soup. The temperature of the room in winter frequently goes below 40° F. The room is equipped with adjustable desks and chairs on platforms so that they may be moved at will. They have been fitted to the needs of each individual child. The sunshine enters the schoolroom at 9.30 a. m., and remains there all day, and the desks are so moved that while breathing the fresh air the pupils also get the benefit of a sun bath.

A number of suitable roofs of schools and buildings in New York, Chicago, and other cities, and a few discarded ferryboats, have been transformed into open air schools, playgrounds, and roofgardens. Thus it would seem that there is no excuse

for any community not having a sufficient number of open air classes and playgrounds for its school children.

11. Let us send the child to the open air or fresh air school before its tonsils or adenoids are enlarged as a result of overwork indoors and of fighting off dust and infection.

The overheated and overdry room and the forcing of dirt and microbe laden air from the street level into the classroom by so called improved artificial ventilation are, I believe, often responsible for the unaccountable infectious colds, adenoids, and enlarged tonsils. Doctor Newsholme, the well known English authority on sanitation, says: "Infectious diseases are caught in the streets only with great difficulty, and this may be described as retail infection, as against the wholesale infection of the schools." The open air schools certainly have the same atmospheric condition as the street, hence the risk of the spread of infection is at a minimum in the open air school and at a maximum in the indoor school. Experience in open air schools has thus far demonstrated that though the term of work is shorter the children attending these schools do better work, are mentally more alert, and happier than the children of the same age attending indoor schools. Howland and Hoobler<sup>3</sup> have demonstrated that the remarkable, exhilarating, and tonic effect of the outdoor life is principally due to the increased blood pressure caused by the fresh air.

12. If the indoor classroom must be used, the temperature and moisture should be properly regulated with the aid of the thermometer and the hygrometer and the air kept in motion with the aid of a fan. These three devices should be as essential to the equipment of an indoor classroom as is the blackboard.

It has been scientifically demonstrated that it is rather the excessive moisture and heat and perhaps certain organic products of expiration, which are as yet not known, and not the carbon dioxide that are productive of the discomfort experienced in a badly ventilated, overmoist, overcrowded, and overheated room. With the aid of the thermometer and the hygrometer the temperature and moisture can be regulated and the fan, driven by electricity or water power, will keep the air in motion to counteract the deleterious influence of still, warm air. Experience has proved that we can be perfectly comfortable at a temperature of 65° F. and even a little lower, provided that the percentage of moisture in the air is about sixty. If this moisture falls to thirty or twenty per cent., then the dry throat, dry nose, and dry skin are in evidence. The explanation is simple. The dry air absorbs the moisture from the body and causes discomfort. The drying of mucous membranes in this way lays them open to the invasion of the organisms causing colds, grippe, pneumonia, and tuberculosis. Excessive moisture and heat cause discomfort and lassitude. If the classroom is heated by hot air, a humidifying arrangement can easily be installed on the reg-

<sup>1</sup>Medical Record, November 15, 1913.

<sup>3</sup>American Journal of Diseases of Children, May 1912, pp. 294-303.

ister. Such a humidifier can be made in the following way: Over a pan containing water are suspended a number of pieces of cotton felt, the lower ends reaching the water. The whole is covered by a lattice work box so as to look more sightly. By capillary attraction the water will be drawn up into the felt and the evaporation will impart the desired degree of moisture to the room. What is called lassitude, the lack of energy and ambition to learn, is often nothing else than the effect of confinement for hours at a time in a poorly ventilated, overcrowded classroom.

13. Practical breathing exercises, judiciously taught, should form a part of the daily curriculum.

For lack of space I cannot reproduce here the exercises which I consider most practical, but must refer the reader to another paper read before this congress, entitled, *Exercise and Rest for the Tuberculous and Predisposed School Children*.<sup>7</sup> It suffices to say that the children who have learned these exercises perform them with pleasure and with regularity, and where careful statistics have been kept (as, for example, in one of the Paris schools), it was shown that chest expansion, general well-being, and strength increased, and that there were fewer absences from school on account of sickness after the respiratory exercises were inaugurated than during the same period of time prior to their introduction.

14. Outdoor singing, outdoor recitation, the training of the voice to speak and intonate properly, botanical and geological excursions, visits to zoological gardens and aquariums, and practical lessons in horticulture or in farming, should be introduced as often as the curriculum will permit.

Experiments in the German army have shown that singing in the open air on marches and in camp improves chest expansion, has a general benefit on the heart and circulation, and makes the individual less susceptible to laryngitis and pharyngitis. Recitations in the open air are of equal benefit to the respiratory tract and will strengthen voice and lungs and benefit the general system. One of the most progressive and scientifically managed schools in New York city, the Ethical Culture School, makes it a point to have frequent excursions into the outlying country during the autumn and spring for the purpose of securing pure air and country environment. Very justly do the authorities of this school announce in their reports that such excursions offer unusual possibilities in the way of recreation and nature study, and provide concrete material for geography, arithmetic, and all school work.

The celebrated Bryn Mawr College for girls has recently established a preparatory school offering a curriculum of seven years of study in the open air. This experiment will be watched with interest by all educators, physicians, and sanitarians. At no time in life is there more opportunity for training the voice to speak properly than during the school age, and particularly at the time when the girl develops into a woman and the boy's

voice changes to that of a man. This voice culture is to my mind a much neglected study in the majority of our public schools. There is no field in the activities of life of man or woman where a well modulated voice will not be an addition to the armamentarium in life's battles. Let me quote here in relation to this from the writings of a well known physician, Dr. T. D. Crothers, of Hartford, Conn.: "The thoughts and impulses of the mind should be expressed in the very best way and not in the coarsest, harshest manner. The voice should be trained before the intellect, for if this is neglected, the intelligence can never be presented with the same effectiveness." It certainly seems to me that here is a field for a very useful innovation in the curriculum of our schools.

15. Inculcate the love for open air life into the child at school and it will become a fresh air apostle at home.

Those working in tuberculosis among the poor well know what an invaluable help in improving the home hygiene are the children who are obliged to attend tuberculosis clinics. They will insist on the open window in their homes, and cleanliness and freedom from dust will become features where foul air and dust were common prior to the education of these youngsters in sanitation. Leaflets instructing children in simple sanitation and hygiene should be taken home so that the parents may have an opportunity to read and study them and benefit by the instructions contained therein. In this and in many other respects the school can, and in fact does often reform the home.

16. If desirable, let the child between four and six attend a kindergarten; but between the ages of six and eight let it attend a playschool devoted principally to the physical and moral development.

For the kindergarten as well as for the playschool let us accept what is good and practicable from the now well known Montessori method and particularly encourage initiative. Let the child in the kindergarten work when it wishes to work, rest when it wishes to rest, play when it wishes to play. In the playschool, which should always be an open air school, character building and physical development should be the principal objects. Perhaps at no age in the child's life will the physical as well as the moral development yield good results so readily in response to proper training as between the ages of six and eight. Outdoor games and breathing exercises will develop the child's chest to render it practically immune to tuberculosis. It is at this period of physical development that the bony frame of the chest yields most readily to expansion. During the years from six to eight the child needs but very little real school training; one lesson in the forenoon and one in the afternoon, each of three quarters of an hour duration, should suffice.

17. For the average child the age of eight is ample time to enter a public school. The child will be better equipped mentally and physically at that age to stand the strain of continued school life than had it been sent at the age of six.

<sup>7</sup>Medical Record, November 15, 1913.

In a few families where it was my privilege to act as family physician and counsellor, this advice has been followed, particularly with the children of tuberculous parents. The results have been surprising. Those children who entered school at the age of eight without exception caught up with their fellow students who had attended school two years longer. In after life most of these children have proved physically and mentally above the average.

18. So long as we permit child labor in factory, workshop, cannery, field, mine, or at home, so long will we have physically, mentally, and morally defective citizens.

The anatomical and physiological development of the child will always be impaired by physical strain imposed upon it by cruel child labor. The delicate nervous system of the growing child, as well as its impressionable mind, will invariably suffer from the humdrum existence and the social environments it is exposed to when working in factory, cannery, or mine, or confined at home in constant toil. There is no excuse for child labor. I go so far as to say it would pay the State to subsidize the parents of a large family when, upon investigation, it has been shown that they cannot support themselves properly without the earnings of the children. In Miss Denison's book,<sup>8</sup> from which I have already quoted in the chapter on antichild labor and procompulsory education, the author very pertinently says: "When our schools shall reach out and give practical help to every child, the problem of child labor will largely be solved."

19. No State government of this great Union believing in the equality of men and the principles of the Declaration of Independence upon which this republic is founded, has a right to allow child labor to exist anywhere within its borders.

Let these governments which, to their shame it must be said, still allow child labor to exist, listen to the Declaration of Independence of these toiling children of America who are forced into the mines, factories, and workshops like slaves and not like children of free men. Through their spokesman, Mr. A. L. McKelway, of the National Child Labor Committee, they say:

WHEREAS, We, Children of America, are declared to have been born free and equal, and

WHEREAS, We are yet in bondage in this land of the free; are forced to toil the long day or the long night with no control over the conditions of labor, as to health or safety or hours or wages, and with no rights to the rewards of our service, therefore be it

*Resolved*, I, That childhood is endowed with certain inherent and inalienable rights, among which are freedom from toil for daily bread; the right to play and to dream; the right to the normal sleep of the night season; the right to an education, that we may have equality of opportunity for developing all that there is in us of mind and heart. And be it

*Resolved*, II, That we declare ourselves to be helpless and dependent; that we are and of right ought to be dependent, and that we hereby present the appeal of our helplessness that we may be protected in the enjoyment of the rights of childhood. And be it

*Resolved*, III, That we demand the restoration of our rights by the abolition of child labor in America.

20. The well known methods of daily medical inspection of all school children to exclude those afflicted with acute and chronic infections and general and local diseases should be supplemented by a thorough physical and mental examination of every pupil by the school physician on admission, and by annual or semiannual reexaminations for tuberculosis, heart disease, insidious nervous afflictions, etc. A careful record of the physical and mental condition of the child should be kept and the result of each physical and mental examination recorded.

It is only by such examination and periodical reexaminations that incipient tuberculosis or incipient disease of the heart or the nervous system, or surgical or dental afflictions can be discovered; and only by the treatment of children thus afflicted at the right time, and in the right place, can we hope to restore them to useful citizenship. Supplementing the record of the physical condition of the child at the time of its entrance into the school should be a statement of what can be learned concerning the child's antecedents. Whenever there is occasion the teacher should register in this record anything of importance bearing on the physical and mental development of the child. Such a record, very justly called a biographical chart, and I believe first suggested by Seguin, Sergi, and Montessori, is, if I am correctly informed, already kept in a few American schools. It must be evident that by consulting such a record, teacher, physician, and parents will have an invaluable guide for the management of any child physically or mentally not up to the normal.

21. Teachers and all school employees who come in close contact with the children should likewise be examined on admission and submit to periodical re-examination. Every large school should have a trained nurse in attendance during sessions.

The tuberculous teacher and tuberculous janitor, for example, may become a menace to the pupils, and these examinations are also in the interest of employees of the public school, so that in the event of their being afflicted with tuberculosis or other diseases, the right treatment may be instituted in time to effect a cure.

No large public school, particularly in the greater cities, should be without the constant attendance of a trained nurse during school hours. This nurse should have the addresses of a number of physicians who can, in case of need, be called at once. By mutual agreement among the physicians it could be arranged that one of them would always be within reach during school sessions. By such a provision many a serious disease or accident may be averted or its consequences greatly minimized.

22. The kindergarten, playschool, private, or parochial schools, or evening classes should be as carefully watched and supervised as the public day schools.

Contagious and communicable children's diseases,

<sup>8</sup>Denison: *Helping School Children*, New York.



including the disease known as the simple cold, which is often as infectious as others and sometimes more so, are most easily propagated in the indoor kindergarten or private school. Children should, of course, be excluded while the contagiousness of the disease lasts. No license should be granted to a private kindergarten or other teaching institution if its managers will not submit to, and abide by the sanitary regulations in vogue for the prevention of disease in pupils of the public schools.

In dealing with the children of the poor one cannot always expect the tidiest and cleanest clothing, nor the dress without an occasional hole. Sometimes the garments of the little ones are decidedly dirty, and aside from that I believe germs of infectious disease may lurk in them from previous diseases of the wearer. Sometimes a child wears the garments inherited from his older brother or sister, and these garments too may have become infected. To obviate this source of infection, I would suggest that gingham aprons be furnished to those children while attending the kindergarten. There should be enough of these aprons so that clean ones can always be on hand, and they should cover the child's clothing entirely. The cost of these is but little, and I firmly believe it would pay if either the municipality or philanthropic institutions would undertake the provision of such protective garments. I have tried this experiment in a settlement vacation home in which I am interested, with most satisfactory and also rather pleasing esthetic results.

If luncheon is ever indicated it certainly is in the kind of kindergartens just referred to. From an interesting article entitled *Hygiene and the Kindergarten*, by Miss Wanda Hilborn,<sup>9</sup> in charge of the Bloomingdale Guild Kindergarten, New York, I quote the following to substantiate the need of luncheons: "But most of the little tenement children are pale, and lack of nourishment, especially breakfast, looms very black on the kindergarten horizon; so at eleven a large cup of hot milk and a graham cracker is very acceptable indeed."

To the best of my knowledge no attempt has ever been made to eliminate from the evening classes, located in public schools, individuals afflicted with disease who would never be admitted to day schools. The classrooms occupied by pupils of the evening classes are very often used the next day by smaller children. In not a few instances these classrooms are used again without having undergone even a thorough ventilation, not to say disinfection. Classrooms designated for evening instructions should be provided with the best possible lighting system and be thoroughly ventilated before and after occupation by the evening classes.

23. Throughout all the grades from kindergarten to college, pupils should be discouraged from kissing each other, because of the danger of becoming infected with disease through this practice.

It is well known that tuberculosis can be transmitted by the kiss from a tuberculous individual; the same holds good of syphilis. Even the germs of pneumonia and grippe or the common cold are

known to have been transmitted by a kiss and to be the cause of disease in the recipient of this embrace. The pneumococcus, that is to say, the germ of pneumonia, may be in the mouth of the adult even if he is in perfect health, but transmitted to the delicate and susceptible respiratory system of the child may cause pneumonia. Diphtheria may likewise be transmitted from one person to another through the kiss. Children should be taught not to allow any fellow pupil or stranger to kiss them, and the parents and relatives should form the habit of only kissing the little ones on the cheek—never on the mouth.

24. The tuberculous or predisposed, the mentally defective, delinquent, or backward children should have separate schools, preferably in connection with a sanatorium, or should at least be placed in separate classes or schools located in the most sanitary region of the city.

The necessity of separating the abnormal from the normal child and also of grading it according to its intelligence, has been well demonstrated by a careful analysis of the results of the examination of 1,000 children who were brought to the clinic of the Post-Graduate Medical School and Hospital at Twentieth Street and Second Avenue, New York city. This clinic is under the direction of Dr. Max Schlapp, and is serving as a clearing house for New York's mentally defective children. The accompanying charts (Figs. 2 and 3), published by Dr. Louis E. Bisch, one of Doctor Schlapp's associates, show the necessity of such a clearing house in every community of any size. With the aid of such an institution a great deal of prophylactic and curative work can be accomplished among these unfortunate children.

The child afflicted with pulmonary tuberculosis must, of course, also be specially trained and watched, while the child with a nonopen tuberculous joint disease may safely associate with normal children. Experience has, however, demonstrated that children suffering with local tuberculosis more quickly and more surely get cured in special sanatoria in seacoast or mountain climates. School instruction for these tuberculous children should, of course, also be provided for. Public school teachers who have been unfortunate enough to contract tuberculosis would here find opportunity to continue work and become cured at the same time.

Because there are in the United States at this time at least one million tuberculous school children, or school children strongly predisposed to tuberculosis, and existing open air schools and sanatoria have only accommodation for about two thousand, I intend to present before this congress resolutions<sup>10</sup> petitioning the United States government to place at the disposal of the various States of the Union as many of the discarded battleships and cruisers as possible to be anchored according to their size in rivers or at the seashore, and to be used by the respective communities for open air schools, preventoria, or sanatorium schools for children. I

<sup>9</sup>These resolutions were unanimously passed at the final meeting of the congress on August 29, 1913. *Knott's Discarded Battleships to Be Used as Sanatoria and Open Air Schools*, New York MEDICAL JOURNAL, September 13, 1913.

<sup>10</sup>*The Dietetic and Hygienic Gazette*, March, 1913.

shall also ask this congress to express its appreciation to the Italian government of the example it has given by consecrating three of its discarded battleships to the combating of tuberculosis. In justice to those States which by reason of their location cannot make use of discarded battleships, I will suggest that a nominal sum be paid for these vessels by the States desiring them and the money proportionately turned over to inland States for the establishment and equipment of open air schools, preventoria, sanatoria, or hospitals for consumptives. By such a policy the greatest possible good to the greatest number of American citizens afflicted with tuberculosis will be attained.

25. A goodly number of the seemingly delinquent, defective, and backward children are of syphilitic origin, and before classing them permanently with the defective, a Wassermann test should be applied, and if positive, antisiphilitic treatment inaugurated.

Many of these unfortunate children may thus be successfully restored to physical and mental vigor. It goes without saying that the utmost tact on the part of the school physician and school authorities should be exercised in dealing with the parents of such defective, delinquent, and backward children.

26. The hopelessly feeble-minded and defective child should be rendered sterile before puberty, or at least permanently segregated.

We are making every effort to prolong the life of our fellow being, no matter how seriously he is afflicted physically and mentally, and anything intended to shorten the life of the most useless is considered inhuman. On the other hand, society must protect itself. The restriction of marriage laws so that there may be no matrimonial union of the feeble-minded is of relatively little avail. Clark and Stowell very justly say concerning this: "Aside from the fact that the unfit often have little need and infrequently invoke the right of marriage license to propagate, this latter rational but utopian scheme (restriction of marriage) interests society but little at present. Love in its protean form not only laughs at locksmiths, but gives little heed to social rules and customs running counter to its desires." Eugenics must be our first resort, sterilization our second, and the questionable method of segregation only our third resource in our endeavors to prevent the mating of the unfit. Yet in the meantime, until our statesmen will have seen the necessity of such legislation, the hopelessly defective and feeble-minded child should be segregated in State institutions for life and not, as is now so frequently done, merged again into the general population after the schools get through with him or her as a pupil.

27. Health lessons and simple instructions in the prevention of disease, such as tuberculosis, for example, can easily be imparted to even the youngest child. The same holds good for many other diseases and can help in the education of parents and children alike.

Let me, as an example, quote from one of my

previous articles<sup>11</sup> the following rules for school children, which, I am happy to say, have been distributed in a number of schools and which have proved a very efficient help in the prevention of tuberculosis:

#### SIMPLE RULES FOR SCHOOL CHILDREN TO PREVENT TUBERCULOSIS.

Every child and adult can help to fight consumption. School children can be helpful by complying with the following rules:

- Do not spit except in a spittoon, a piece of cloth, or a handkerchief used for that purpose alone. On your return home have the cloth burned by your mother, or the handkerchief put into water until ready for the wash.
- Never spit on the floor, slate, playground, or sidewalk.
- Do not put your fingers into your mouth.
- Do not pick your nose or wipe it on your hand or sleeve.
- Do not wet your fingers in your mouth when turning the leaves of books.
- Do not put pencils in your mouth or wet them with your lips.
- Do not hold money in your mouth.
- Do not put pins in your mouth.
- Do not put anything in your mouth except food and drink.

- Do not swap apple cores, candy, chewing gum, half-eaten food, whistles, beanblowers, or anything that is put in the mouth.
- Peel or wash your fruit before eating it.
- Never sneeze or cough in a person's face. Turn your face to one side or hold a handkerchief before your mouth.
- Keep your face, hands, and fingernails clean. Wash your hands with soap and water before each meal.
- When you don't feel well, have cut yourself, or have been hurt by others, do not be afraid to report to the teacher.

- Keep yourself just as clean at home as you do at school.
- Clean your teeth with toothbrush and water, if possible after each meal; but at least on getting up in the morning and on going to bed at night.

- Do not kiss any one on the mouth, nor allow anybody to kiss you.
- Learn to love fresh air and learn to breathe deeply, and do it often.

Equally terse rules can be given to children to make them help in the combating of diseases propagated by flies and mosquitoes, or through infected milk or water. For older children preventograms, such for example as the following,<sup>12</sup> will greatly help in the teaching and practice of general hygiene:

- Kill flies, save lives.
- Uphold the hands of those who would prevent disease.
- Communicable diseases come only from the germs of those diseases.
- Kill or render harmless the germs and you will prevent the spread.
- Moderate, not excessive exercise will build up a wall of resistance against bodily foes.
- Drink plenty of fresh water. It is the best drink for coolness, comfort, and health.
- Regulate your diet to fit the season. Meats and fats—heat producers—for the cold weather, fruits and vegetables for hot weather.

Hygienic exhibits, particularly tuberculosis exhibits, open to the parents as well as to the children, will also be valuable adjuvants.

28. Lessons in mental alertness, in what to do in hours of danger, such as the event of fire in school or at home or a panic from whatever cause, and instruction in first aid to the injured, are to my mind as essential as any health lessons.

<sup>11</sup>Knopf: *Tuberculosis as a Disease of the Masses and How to Combat It*. International Prize Essay.

<sup>12</sup>Buffalo Sanitary Bulletin.

Let the child know how to behave in crowded streets, how to avoid vehicles, even what to do in case of accidents to others, also what to do in case of fire, drowning, or other catastrophe. An occasional lesson in fire prevention given to the pupils, preferably by the fire chief of the town, would probably result in the reduction of the many fires in our American communities. Many a serious accident may thus be avoided, or its consequences minimized. A child should know how to get off a street car so as not to fall. It should be taught that cleanliness will minimize the danger from wounds or bruises. From a very interesting article<sup>13</sup> by Dr. Charles A. Kinch, of New York, I beg leave to quote as follows: "The boy at ten or eleven realizes that he has a neighbor and he wants to do something for that neighbor. His sufferings appeal to the boy's sympathies. Then also he is able to understand the mechanism of the human body and has acquired a certain amount of dexterity in the use of his hands and members. And he has attained a measure of stature and strength that makes him efficient in rendering prompt aid to the injured. Of girls, about the same things can be said. They are more capable of serious altruistic thought after the thirteenth year than in their childhood days. And by that physical and mental development better able to comprehend and apply the principles of first aid." It goes without saying that there should be regular fire drills in every public or private school, and boys and girls should know how to render first aid in case of drowning.

(To be concluded.)

## OIL-ETHER ANESTHESIA.\*

By J. T. GWATHMEY, M.D.,  
New York.

Oil-ether colonic anesthesia is an evolution from intravenous anesthesia. In developing the technic, however, full advantage has been taken of all that has been written on rectal anesthesia, as revived by Cunningham, of Boston, and continued by Sutton, of Kansas City, when an interne at Roosevelt Hospital.

The animal work under the direction of Professor Wallace in the pharmacological laboratory of New York University and Bellevue Medical College has already been reported.

In a paper read before the International Medical Congress in London, I strongly recommended Carron oil as the vehicle for the ether, because this oil parts with the ether in about one fourth of the time of the other oils; it also seems to be less irritating to the mucous membrane. An unfortunate experience in one of the hospitals, however, compelled me to discard Carron oil entirely. The apothecary of the institution attempted to make this mixture with olive oil instead of linseed oil, but as linseed oil is the only one that mixes with lime water, when ether was added to the compound the oil separated immediately, with the result that about 100 c. c. of pure ether was introduced into the rectum before the mistake was discovered. Olive oil

alone was then used with the ether, and the anesthesia was successfully completed. The operation in this case was a hysterectomy, and the relaxation was perfect, but the patient suffered considerable pain afterward and recovered slowly, although completely, from the effects of the anesthesia. Since this time I have used the olive oil exclusively, the resulting anesthetics not being followed in any case by diarrhea or bloody stools.

The cases in which olive oil was used seemed to have less nausea and vomiting than those in which other oils were used. This verifies the work of Graham, relative to restoration of the opsonic index by the absorption of olive oil into the system after operation. (Graham, *Journal of the American Medical Association*, March 26, 1910, p. 1043.)

The advantages claimed for this method of anesthesia over other methods are:

1. The element of apprehension and fear caused by placing a mask over the face in inhalation anesthesia is avoided.
2. No expensive apparatus is required.
3. The after effects of the anesthetic are reduced to a minimum.
4. A more complete relaxation is secured than with any other known method of administration.
5. The limits of safety are widely extended, compared with other methods.
6. A more even plane of surgical anesthesia is automatically maintained than is possible by any inhalation method—unless administered by a skilled anesthetist using a perfected apparatus.

These propositions have been demonstrated in about one hundred cases, the ages of the patients ranging from four to seventy-one years. In all of these cases the operations have been witnessed by members of the profession, in one instance forty physicians and surgeons being present. In most of these cases careful blood and urine analyses were made before and after the operation. The blood pressure was taken during the operation. Some of the patients were also carefully examined with the proctoscope, to note if any inflammatory disturbances followed the anesthetic. None of these examinations showed any contraindications to the method.

Patients who had been previously anesthetized by other methods and who were capable of making an intelligent comparison, expressed themselves most enthusiastically in favor of oil-ether. In two instances of delayed necessary operations, this form of anesthesia so appealed to the patients that all objections were overcome.

### CASE REPORTS.

The following cases have been selected as illustrating the dangers to be avoided and the doses to be employed:

CASE I. Boy, aged ten years; operation for hydrocele, and circumcision. One twelfth grain sulphate of morphine was given hypodermically thirty minutes before the operation, and a five grain chlorotone suppository at the same time; between 75 and 100 c. c. of a 75 per cent. mixture was introduced very slowly, the patient falling asleep before the full amount was introduced, sleeping quietly through the operation, and making an uneventful recovery.

In children of four to eight years of age, a fifty or fifty-five per cent. solution of ether in olive oil has been easily retained, without any preliminary

\*Kinch: *Teaching of First Aid in Schools*, New York.

<sup>13</sup>Read before the New York Society of Anesthetists, Thursday, November 20, 1913.



medication, and has been followed by satisfactory anesthesia in ten to twenty minutes. The low percentage absorbed by children is contrary to our laboratory experiments, as the oil does not part with the ether in fifty per cent. solutions in a test tube placed in a water bath at the temperature of the body. The difference in the power of absorption from the lower bowel in children and adults would satisfactorily explain this. In adults, eight ounces of ether, with an equal amount of oil, was placed in the rectum with no anesthetic effect whatever.

CASE II. In a girl, nine years of age, 100 c. c. of a 75 per cent. solution was given with no preliminary medication. The child complained slightly as the mixture was administered. The operation was for adenoids and enlarged tonsils. The relaxation was perfect, and the child was able to leave the hospital five hours after the operation.

Several other cases of different operations on children have been reported by different surgeons, who expressed themselves unqualifiedly in favor of this method of anesthesia.

CASE III. On November 18th, a woman, aged thirty-eight years, weight 125 pounds, was operated upon at the Presbyterian Hospital by Dr. Forbes Hawkes for carcinoma of the breast. The patient was given one sixth of a grain of morphine, and one one hundredth of a grain of atropine hypodermically; five grains of chlorotone, dissolved in two drams of ether, and mixed with two drams of olive oil were introduced into the rectum, thirty minutes before the operation. Eight ounces of a 75 per cent. mixture was introduced into the rectum in six minutes' time. The patient was in surgical anesthesia four minutes after the total mixture had been introduced. Three ounces were drawn off during the operation, as the patient seemed to be too deeply narcotized. The resultant anesthesia was perfect in every respect, the patient breathing quietly as in natural sleep during the entire time of the operation. An uneventful recovery with no nausea or vomiting followed. Blood and urine analyses proved negative.

CASE IV. On November 17th, a similar case was operated in by Doctor Cantle at the New Rochelle Hospital, with equally gratifying results. In this instance, the patient received one quarter grain of morphine with one one hundredth grain of atropine hypodermically, thirty minutes before the operation. No suppository was used, and patient complained slightly of discomfort in the rectum as the mixture was introduced.

The resultant anesthesia was perfect in every particular: pulse and respiration were normal, and prompt recovery without any unpleasant after effects followed. This patient who had been operated upon twice previously under inhalation methods and who was able to make an intelligent comparison, stated that if compelled to undergo another operation, the oil-ether would be the choice of methods.

The former patient, operated upon by Doctor Hawkes, did not complain or in any way show that the introduction of the mixture was appreciable.<sup>1</sup>

CASE V. Operation for abdominal hernia by Doctor Bodine at the New York Polyclinic Hospital: The patient, a woman, aged thirty-seven years, weight about 150 pounds, was given one quarter grain of morphine and one one hundred and fiftieth grain of atropine thirty minutes before the operation. At the same time a solution containing 10 grains of chlorotone and 4 drams of ether with an equal amount of olive oil was introduced into the rectum. Just before operation 8 ounces of a 75 per cent. solution was given to the patient in bed. She sank into deep surgical narcosis before the full amount (8 ounces) was introduced. A slight cyanosis indicated an overdose, therefore three and a half ounces of the mixture was drawn off, as the patient was placed upon the operating table. The relaxation in this instance was perfect; pulse and respiration were about normal. The patient slept for six hours after completion of the operation and awoke

without nausea or vomiting, in a perfectly satisfactory state in every respect.

The two following cases show that watchfulness must be exercised at all times; as in other anesthetics, and that the chief danger connected with this method is respiratory arrest.

CASE VI. A woman weighing less than one hundred pounds, about thirty years of age, was operated upon for pelvic cellulitis. She was given one quarter grain of morphine and one one hundred and fiftieth grain of atropine hypodermically, and a suppository containing 20 grains of chlorotone, as preliminary medication. Eight ounces of a 75 per cent. solution of ether in oil was given as the anesthetic. This patient evidently received an overdose of preliminary medication, also of the anesthetic. Respiratory arrest occurred a few minutes after she was placed upon the operating table. Artificial respiration, stretching of the sphincter, and the intravenous introduction of 1,000 c. c. of normal saline were employed. A bag containing a small amount of carbon dioxide was then placed over her face, whereupon respiration recommenced immediately.

During the time of this respiratory arrest, which, according to the operating nurse, lasted eight minutes, the pulse was full, regular, and approximately normal. The color of the lips and tongue was good. The operation was satisfactorily performed, and the patient was returned to bed. An uneventful recovery is recorded in this instance, with no nausea, vomiting, or other ill effects.

CASE VII. Private patient; excision of the tongue, floor of the mouth, and glands of the neck. On account of adhesions and abnormalities resulting from a cancerous growth, this operation lasted nearly three hours. The patient was a man of about forty-seven years, weighing about 160 pounds. He was given one quarter grain of morphine with one one hundred and fiftieth grain of atropine hypodermically, half an hour before the operation, and ten grains of chlorotone in a suppository at the same time. Eight ounces of a 75 per cent. mixture of oil and ether was administered. The patient dropped to sleep almost immediately. At the end of one hour the pulse was full and regular, but there was stertor which perceptibly increased until respiration ceased for three minutes. The rectum was washed out with cold water, and as much as possible of the mixture was withdrawn. Respiration recommenced without anything else being done, and the operation was continued and completed without further interruption. When the patient was returned to bed the pulse was 72 and the respiration normal. This patient also made an uneventful recovery, with no nausea or diarrhea following.

An inhalation anesthetic would have undoubtedly increased the engorgement and congestion usually following such cases. This case is given to illustrate a peculiar phase of the physiology of this particular method. In all oil-ether anesthetics the respiration should be quiet and easy, as in sleep. If stertor occurs, and the reflexes become dull (especially the lid reflex), it is an indication of an overdose and the rectum should be immediately washed out and one or two ounces of oil introduced.

No deaths can properly be credited to this method, although one patient succumbed within twenty-four hours after the administration of the anesthetic. The patient was conscious and had fully recovered from the anesthetic. The coroner's inquest revealed the fact that every organ in the body was diseased, and that a vegetating growth completely obstructed one of the coronary arteries. In the opinion of the surgeon and the coroner, these conditions fully accounted for the death.

These three cases are cited with the idea of safeguarding the method, and to show that care and judgment must be exercised with regard to the preliminary medication and to the amount and percentages of the anesthetic used.

<sup>1</sup>In the author's opinion this freedom from discomfort was entirely accounted for by the administration of the chlorotone.

CASES VIII, IX. At the commencement of the series, two patients were anesthetized at Roosevelt Hospital. In each instance, unpleasant symptoms occurred on the introduction of the anesthetic, and in each a supplementary anesthetic was required. These patients received the anesthetic in the dorsal position, which has since been abandoned.

With improvements in technic no untoward incidents or failures have been recorded.

#### PHYSIOLOGY.

The physiology of oil-ether colonic anesthesia is interesting and must be understood in order to administer the anesthetic intelligently. The breathing, in all instances, is perfectly normal. If stertor commences, it is an indication of an unnecessary deepening of the anesthesia. Cyanosis should not occur; if present at any time, it indicates an unnecessary depth of anesthesia. The reflexes are quite active, especially the lid reflex. The pulse is normal, or only slightly accelerated, depending upon the preliminary medication. The face is never flushed, as with ether given by inhalation.

All of the foregoing conditions are the result of the method of the introduction of the anesthetic. As the ether separates from the oil after its introduction, it assumes the form of a gas and is taken up by the blood. It then passes through the lungs, where a part is excreted and lost; the remainder is immediately resorbed, and thence reaches the brain. As a large quantity of the vapor is lost by exhalation, the brain is never so deeply narcotized as when the anesthetic is administered by inhalation. This probably accounts for the wide latitude of safety provided by this method. With no other anesthetic or method of administration would it be possible to have a patient's respiration cease for eight minutes and recommence, as in one of the cases cited in this paper. In inhalation methods, the higher centres of the brain are first affected. The first symptom noticed by patients undergoing anesthesia by the oil-ether colonic method is loss of sensation in the lower extremities, showing a sensory paralysis, first of the extremities, the higher centres of the brain being the last affected. This observation seems to be verified by the manner in which patients come out from the influence of the oil-ether anesthesia. Consciousness is regained long before the sensations of pain are manifested. This last observation opens up a wide field for investigation and research, since we now know that ether can be introduced into the system without its nauseating effects being manifested. In a fifty or sixty per cent. solution it may be administered for the relief of pain, just as we would use a hypodermic injection of morphine, with the same degree of assurance and without the possibility of an injurious habit being acquired.

#### INDICATIONS.

The method is especially indicated in bronchoscopic work and in operations upon the head and trunk; also in cases of Graves's disease and similar conditions, where the element of fear is a dominant factor. It has been demonstrated conclusively that we can administer it with confidence to those patients who have suffered much nausea and vomiting from the previous administration of ether anesthesia. It may be positively asserted that the ether is not so irritating when given in this way as by the

usual inhalation method. It has been given to a consumptive having hemorrhages from the lungs, at irregular intervals, with no deleterious effects.

#### CONTRAINDICATIONS.

If the facts just stated are borne in mind to modify our conclusions, we may state that it would be contraindicated in most cases where ether is contraindicated; also in colitis, hemorrhoids, fistula in ano, or other pathological conditions of the lower bowel. Even where no pathological condition exists, if the patient complains upon its introduction, this would also be a contraindication to the method.

#### COMPARISON WITH OTHER METHODS.

It is not to be expected that this method will be generally adopted until at least one thousand cases are collected and carefully tabulated to show the results. But this is only a question of time; those who are wedded to either spinal or intravenous anesthesia will welcome oil-ether as fulfilling all the requirements of these methods without incurring the possibilities of infection or other serious trouble. The combined method, as I have outlined it, will also attract those who wish for such simplicity of administration and directness as is afforded by the drop method of ether anesthesia. Nitrous oxide and oxygen can be administered in a much greater number of cases with fewer possibilities of discomfort when used in combination with one half of the oil-ether mixture required for full anesthesia. The relaxation obtained is more satisfactory than with nitrous oxide-oxygen and ether given by inhalation. For endotracheal anesthesia, in addition to the oil-ether in the rectum, any pump that will deliver sufficient air to maintain the necessary positive pressure in the lungs will be the only apparatus needed.

I particularly wish to emphasize at this time, however, that the combination of oil and ether can be safely introduced into the system and that the anesthetic is always under the control of the operator. The reasons for this are:

1. The anesthesia is automatically safeguarded by the gradual and equal absorption of the ether from the colon and at the same time its rapid evaporation from the lungs.
2. The affinity of the oil and ether for each other.

#### DEVELOPMENT OF METHODS OF ADMINISTRATION.

In a former paper I made the statement that "to a practitioner compelled to work alone, this method would be of inestimable benefit." From experience since gained in a number of cases I find that this opinion requires some modification. For a practitioner so circumstanced, it would be safer to use a fifty-five to sixty-five per cent. solution of ether and oil, allow fifteen or twenty minutes for the mixture to have its full physiological effect, and then supplement this, if necessary, with a few drops of ether on a mask. This would be better than getting the patient deeply under the anesthetic with a seventy-five per cent. solution, with the possibility of having to withdraw some of the mixture if the patient was too deeply narcotized. This combined method would also apply to hospital internes and others who have not had extensive experience with anesthetics. To any one compelled by circumstances to place the narcosis in the hands of a lay-

man or one unskilled in anesthesia, this combined method would be safer than to allow the anesthetic to be given by inhalation exclusively, as heretofore.

In using the oil-ether method alone, the anesthetist must have well in mind the physiology, as outlined above, in order to avoid mistakes. The following rough outline will serve as an aid in deciding upon the percentages and amounts to be used in given cases.

For children under six years of age, a fifty per cent. solution should be employed, allowing one ounce of the mixture for every twenty pounds of body weight. This mixture is nonirritating, and no preliminary medication is required.

For patients from six to twelve years of age, use a fifty-five to sixty-five per cent. solution, without preliminary medication, keeping the patient quiet, and allowing twenty to thirty minutes for the full effect. Allow one ounce for every twenty pounds of body weight, as before.

For patients from twelve to fifteen years of age, use the same percentages and amounts, with possibly the addition of one twelfth grain of morphine and one two hundredths of a grain of atropine, given hypodermically as a preliminary.

From fifteen years upward, a seventy-five per cent. mixture is employed, the amount and preliminary medication varying with the size and general condition of the patient and the same rule being followed as to quantity, that is, one ounce for every twenty pounds of body weight. Thus we see, for an adult weighing about 160 pounds, eight ounces would be required. This represents the usual dose for the average patient.

The administration of any preliminary medication will always vary with this, as with other methods of administration, depending largely upon the opinion of the surgeon or anesthetist. For adults, I usually employ five grains of chloroform, dissolved in two drams of ether and mixed with an equal amount of olive oil, given per rectum thirty minutes before the operation. In addition to this, one eighth to one quarter grain of morphine, with one hundredth grain of atropine is given hypodermically at the same time—the larger doses being given only to athletes and alcoholics.

#### PREPARATION OF PATIENT.

The patient should receive the usual medication as for any operation, care being taken to avoid purging. In addition, the colon should be thoroughly irrigated until the return is clear. A rest in bed of two hours or more before the administration of the preliminary medication is required.

#### APPARATUS.

The apparatus required is very simple, consisting of a small catheter and funnel into which to pour the mixture; two small rectal catheters inserted side by side to withdraw the fluid and irrigate the colon; and a towel which is placed over the face of the patient from time to time, to prevent the dilution of the anesthetic in the air passages. When the patient is satisfactorily narcotized, the towel is withdrawn.

#### TECHNIC OF ADMINISTRATION.

The mixture (two ounces of olive oil and six ounces of ether) is given with the patient in bed

on the left side, in the Sim's position, a convenient lifter having previously been placed under him. It is not always necessary that he should know that an anesthetic is being administered. A small catheter, well lubricated, is then inserted three to four inches within the rectum; to this catheter a funnel is attached. The mixture should be poured slowly into the funnel, at least five minutes being consumed in administering eight ounces, the usual amount required. It is best not to withdraw the tube immediately, but to wait until the patient is partly unconscious and the muscles are relaxed. From five to twenty minutes (according to the percentage used) should be allowed for the anesthetic to take effect, before the patient is moved. The patient should then be lifted gently on a stretcher and carried to the operating room. The anesthetist at this time should see that a clear airway is maintained when necessary, by placing a finger under the symphysis of the lower jaw. If the patient shows signs of approaching cyanosis, loss of lid reflex, stertor, or embarrassed respiration of any kind, two or three ounces of the mixture should be withdrawn by the small rectal tube already mentioned, placed four to six inches up the rectum. If the breathing is easy and regular, with the reflexes active, the patient will be found to be relaxed and in surgical narcosis as far as the operation is concerned.

At the end of the operation, the two small rectal tubes already mentioned should be placed in position, as high up the colon as convenient without traumatism, and cold water soapsuds injected into one tube and drawn off through the other; two to four ounces of olive oil should then be introduced into the rectum and the tubes withdrawn. The patient should be gently returned to bed, with as little jolting or handling as possible, the room should be darkened, and free ventilation secured.

In some of the cases mentioned novocaine was injected locally at the site of the operation after the patient came on the operating table. In other cases no local anesthetic was used. Where a local anesthetic is used at the site of the operation, and the ether is administered by the oil-ether rectal method of injecting, as I have outlined, every principle of anoci association as enunciated by Crile will be fulfilled, and the patient awakes quietly, without nausea, vomiting, or pain, the analgesia continuing for some time after consciousness is restored.

40 EAST FORTY-FIRST STREET.

### CANCER OF THE UTERUS AND THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER.\*

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The American Gynecological Society selected to be specially considered during its annual meeting of 1912 the subject of cancer of the uterus. The reports submitted by its Fellows covered years of

\*Read before the public meeting of the Eastern Medical Society, October 17, 1913.



devoted and highly skilled surgical efforts. The one prominent fact brought out during this consideration was that few women with cancer of the uterus seek aid during the earliest stages of the disease. This knowledge was common to all, yet it required the united expression of the many to carry the weight that was needed for a common action.

The result of the discussions was that a committee was appointed and instructed to consider the best means of educating women and impressing upon all the absolute necessity of the early recognition and treatment of cancer. They were instructed to present their conclusions to the society at its meeting in 1913.

This committee after months of investigation became firmly convinced that no permanent good could be accomplished except through the persistent efforts of an organized society, the objects of which would be not only to educate all lay people but to keep the needed facts constantly before the family practitioner, for it is to him that the patient will apply for what may appear as a slight and insignificant matter.

In the course of their investigations these conclusions were laid before several philanthropic men and women. Through their efforts and the hearty cooperation of prominent surgeons, the committee were instructed to report to the American Gynecological Society that a permanent organization would be formed provided the various national surgical and medical organizations should consider that such a society was needed. The formation of such a society was unanimously endorsed by all the interested national associations composing the Congress of Physicians and Surgeons of America. The movement was later unanimously endorsed by the American Medical Association.

The society has been fully organized. It is known as the American Society for the Control of Cancer, and has upon its board of trustees prominent lay people, both men and women, together with physicians and surgeons throughout America. Its membership list will be open to all who may wish to help in educating men and women for their own protection.

The objects of this society are many. Lay people will be informed through the daily press and through periodicals and by lectures of the necessity and of the importance of consulting their physicians on all matters in which there are departures from what is normal. The busy general practitioner, meting out help as he does from his rising until late at night, will have it frequently impressed upon him that all cancers have a *small* beginning and as such their significance may be overlooked, unless studied and definitely proved not to be of such a nature. What wonder it is that this busy and big hearted man should wish to encourage and reassure his patients, and the temptation is great to do this by a quick and superficial examination. Such a desire is inborn in the man of many patients and of a big heart. It will at times be difficult for him to insist on a thorough examination and determination of the true character of what appears to the patients as some trivial

matter for which they desire only an ointment or a wash. The knowledge, however, that by following such a course lives can be saved which would otherwise be sacrificed, will a thousandfold repay him for his painstaking care and conscientious study.

The scientific side of the problem will also be fully undertaken as to the value of the old and the recurring new methods of treatment. In this age of civic and benevolent orders, when we know that for all ages 130 women out of every 100,000 die of cancer of the uterus and the breast, and that between the ages of forty-five and sixty-four, one out of every eleven deaths in women is due to cancer of these organs, of which two thirds are from cancer of the uterus, we are forced to wonder that a national movement has not been started in America before.

A lump in the breast is at once detected, the patient has been educated to know its significance. She seeks advice at an early date and under the modern methods of treatment has every opportunity of being cured. This cannot, however, be said of cancer of the uterus. Here nothing is visible to the patient and the disease involving this organ does not have pain as its danger flag. This is absent in the earlier stages of uterine cancer, the curable stage, and it is only present in its later stages when the disease has extended into the surrounding tissues and is pressing upon the nerve ends. The monthly recurrence of the menstrual flow necessitates a certain amount of information that is sought by and imparted to the young woman. With increasing age this is added to by her female relatives and friends. Such knowledge passed from one to another has given rise to many erroneous ideas which have taken firm root in the minds of women. Chief among these are that the change of life commences around the age of forty-two, instead of the average of forty-seven, as has frequently been determined. Associated with the advent of this period it is the common opinion that the monthly flow is expected at times to be very profuse and at others even to extend over a considerable period with evidence of only slight coloration. There can be nothing more dangerous to the welfare of woman than such hereditary ideas. Through such ideas many women have been lulled into a feeling of security until forced to consult a physician, only to find that time that was invaluable has been lost and that the condition, if cancer it proves to be, has passed beyond the curative stage.

Cancer of the uterus occurs either in the body of the uterus or at its more exposed lower portion, known as the cervix. The great majority have an origin in this last mentioned part. The commonly attributed cause for this more common location of the disease is the constant local irritation due to extensive unrepaid tears that have resulted from childbearing. A counterpart of such a sequel is seen in the occurrence of cancer of the cheek in women of Central India, where the habit of chewing and carrying the betel nut within the cheek is common. There is also the smoker's cancer of the lip from the pipe. Another instance is that of the occurrence of cancer of the abdominal wall in cer-

tain tribes of Thibet who are in the habit of wearing a warming pan against the abdomen; also the chimney sweeps' cancer of the groin from irritation of the acrid soot. Cancer of the stomach is recognized as having its origin at times in the scars of ulcers, and Mayo states that it is a question whether the supposed repeated medical healing of ulcers of the stomach relieves the tendency to cancer.

It will be seen that the accepted opinion of surgeons that the constant local irritation of severe lacerations of the uterus predisposes the woman to cancer is abundantly sustained by like occurrences in other localities. For this reason it is highly important that such lacerations and erosions due to irritating discharges should be repaired in the former instance and excised in the latter; primarily as a curative means of conditions that give rise to a well marked nervous train of symptoms, and secondarily as a means of prophylaxis against the possible sequel of cancer. It is not considered the best practice to repair such lacerations immediately after the birth of the child, on account of the possibility of infection. A thorough examination should be made some months after the labor and when cervical lesions of any magnitude exist the patient should be informed of it and repair instituted as early as possible.

Cancer of the cervix takes on two characters. The one in which a spongy mass develops, readily bleeding on touch; this is called the *everting* type; the other commences more within the canal of the uterus at its opening. This is known as the *inverting* type. The latter type is more prone to recur than the former after a removal.

The occurrences that should attract the attention of the patient and cause her to consult her physician are the appearance of a persistent leucorrhœal discharge which did not previously exist. This discharge is later tinged at times with blood, especially on exertion. At other times the leucorrhœa may not be so prominent, but the first evidence may be a slight recurring show of blood or a bloody discharge between periods, which is accentuated by the touch of a douche pipe or otherwise. The flow may amount to a sudden profuse hemorrhage, but more often the amount is scanty, ceasing after a short time to recur at intervals on exercise, or on bending over. When such conditions occur at or near the age of the change of life, it is too often mistaken for some of the attendant vagaries of this period, a previous distorted knowledge having been absorbed by the younger generation of women from those who have gone before. Being armed with such erroneous ideas she fails to seek advice until the disease has advanced beyond the earlier stages. During the earlier stage, as has been stated, pain is as a rule absent. This is another erroneous conception frequently held by women, that nothing can be radically wrong in the pelvis if they do not have a feeling of discomfort and pain in this region.

With the absence of pain and discomfort they attach no importance to irregular show of blood especially if this should occur at or about the period of their lives when all women expect irregularities.

Cancer of the body of the uterus from the stand-

point of the patient has all the early symptoms of cancer of the lower portion (the cervix) of the uterus. They are irregular bleeding, watery discharge at times dark colored and the same absence of pain, as in the former instance. These symptoms having been given us by the patient on her first consultation it is our imperative duty to the patient to insist on a thorough local examination. The results of such an examination will give a full view of the neck of the uterus and will enable the physician to state whether cancer is present or whether it is absent. There are times when the involved area is doubtful. This is especially true in the earliest commencement of cancer of the cervix. Under such circumstances there is only one course to follow, that of speaking frankly to the patient or her relatives and urging that the diseased part shall be removed and submitted to a competent microscopist for examination. In general I think it best that when such an examination is needed, the patient should be placed in a hospital, and under general anesthesia, the part in question is removed and *at once* frozen and examined under the microscope. This method of procedure has many advantages over removing for examination such a section under cocaine in the office. Chief among these are that such an office procedure opens up lymph channels of absorption carrying further up into the uterus the cancerous juices if such a condition should be present. If the examination proves that cancer is not present, the patient being still under anesthesia can be given the benefit of having the neck of the womb repaired which she was evidently in need of and thus removing what was an irritating condition, and the possible cause of a future cervical cancer. If the examination shows that no disease of the neck of the womb exists, the examination must be extended to the inside of the body of the uterus to prove or disprove the presence of cancer of this part. This examination should not be done in the office. It should be done under an anesthetic with all surgical care. Under the anesthetic the uterus may be found to be a little larger than normal. The scrapings from the inside of the uterus are saved and submitted to the pathologist for a diagnosis. Many times the diagnosis of cancer is at once evident from the abundant brainlike material drawn away; at other times the decision of the pathologist must be awaited.

There are three conditions other than that of cancer that bring about irregular uterine bleeding. The one, harmless cervical polyps and also fibroid tumors of the uterus. The polyps are easily removed and the bleeding stopped. If there is any question of the presence of a fibroid or that cancer is the cause of the bleeding, an examination of the scrapings by the pathologist will determine the matter. The other two are miscarriages and extrauterine gestation. This history in both of these instances will lead us to suspect the condition; and in extrauterine gestation the pelvic condition outside of the uterus will usually prove the true state of affairs.

If the general practitioner will bear these elementary facts constantly in mind and with a fixed conscientious purpose, give every patient with questionable symptoms the benefit of a thorough local

examination the story that is now being told will soon be changed in many respects. *Bear always in mind that cancer in its earlier stages is a local disease and as such can be cured.* Many women leading useful and valuable lives to-day can attest to this statement. The experience in all clinics in America is that it is rare that more than one out of every four who apply with cancer of the uterus can be given any treatment other than something to ease their pain and make their short period of life more bearable. In a collection of all cases of cancer of the uterus who have entered the Woman's Hospital during the last six years; i. e., patients who have been sent there in hopes that something can be done, there were eighty-six patients with cancer of the cervix and vagina and 125 with cancer of the body of the uterus. Of the eighty-six cases of cancer of the cervix twenty-one, or less than one fourth, were discharged as possibly cured, that is such an operation was done as to insure every possibility of there being no return of the disease. The remainder could be given only palliative treatment.

Of the 125 cases of cancer of the body of the uterus, forty-one, or about one third, were discharged as cured. Among the remainder the disease had existed for such a length of time as to have extended beyond the uterus and had involved other organs.

This is a discouraging report and especially so when we recognize that in cancer of the body of the uterus the disease is of such slow progress that even though it may have existed for some time it is still confined to the uterus and we expect to cure almost every patient.

This same discouraging lack of intelligent self care existed in Germany and elsewhere abroad prior to ten years ago. Winter keenly appreciating this fact undertook a personal campaign of education on the subject of cancer in 1902 after moving to Königsberg, Prussia. His efforts were directed to educating physicians, midwives, and lay people. The results of his spendid labors have been far reaching, exciting similar movements in almost every country. The immediate results of his work in and around Königsberg he gives in a chart which is of much interest. Before commencing his propaganda the records of his hospital showed that for the three years prior to 1902 only thirty per cent. of the patients applied for relief within three months after the first symptoms. In 1903, the year following his educational efforts, fifty-seven per cent. applied within the above time. Among patients applying to midwives forty-six per cent. were prior to 1902 referred to hospitals as soon as the symptoms were known, while in 1903, the year following Winter's movement, eighty-six per cent were referred.

Such a system of education can only be productive of the greatest good and has been felt throughout all of the Continental hospitals where, in nine of the largest, sixty per cent. of the patients applying for relief have come sufficiently early to be given the opportunity of a permanent cure; while in our own country, with the exception of one hospital, twenty-five per cent. will be a liberal estimate for those capable of being benefited by a complete operation for cancer. Wertheim, whose name is

prominently associated with the complete operation for cancer, reports 1,430 cases seen in his clinic in fourteen years. Of this number fifty per cent. were operable, that is, half of them were patients who had a fair chance of being cured and included not only those in the very early stages where cure was almost a certainty, but those more advanced and still those in whom there was a question of the benefit of any operation. Including all of these three grades of advancement of the cancer, forty-three were cured.

Faure, in a recent review of 250 cases of cancer of the cervix operated in since 1896, divides the patients into three classes: 1. Those of early cancer in which the disease invaded only one lip of the cervix. In such the mortality was five per cent. and the subsequent return of the disease was the rare exception. 2. Those in which both lips of the cervix were involved, together with the vaginal mucosa and the base of the broad ligaments. Among these the operative mortality was twenty per cent. and the return fifty per cent. 3. Those in which the mobility of the uterus was almost lost. Here the mortality was fifty per cent. and the recurrence the rule.

These statistical data which may be of very little interest to you bring out strongly the one fact I am anxious to impress upon you, that *cancer is curable and that the time when this is possible is in the earlier stages of the disease.* It is at this time that the patient will appeal to you, the general practitioner. The responsibility is therefore yours, that correct and early diagnosis is made within the time when something of value can be done. It is for you to sight the danger flag when slight and apparently insignificant symptoms are mentioned by your patients. I beg of you not to treat such statements lightly but follow them up with close questioning and insist on an examination which should be thoroughly made. It is only in this way that you can fulfil the obligations placed upon you.

It matters little what may be the treatment of the future, whether by surgery, radiotherapy, chemical remedies, or immune serum, we must still have early diagnosis and early treatment as the basis on which our hopes are centred.

148 WEST SEVENTY-SEVENTH STREET.

## DIAGNOSIS OF ACUTE ABDOMINAL CONDITIONS.\*

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The diagnosis of the various intraabdominal conditions is always attended with great difficulty, and at times creates a great uncertainty in the mind of the attending physician or surgeon. The fact that various pathological conditions can produce almost identical symptoms makes the solution of the puzzle difficult, calls for the highest type of analysis, and entails painstaking care and careful thought. In spite of all care and close, minute, and repeated

\*Read before the Northwestern General Hospital Medical Society.



examinations, mistakes are frequent. It has been my experience to be compelled to change my diagnosis many times after opening the abdomen, and I have witnessed the same experience in the hands of the ablest and most skilled men in the profession. This state of affairs should not discourage us, but only urge us on to renew our efforts, as human life is oftentimes dependent upon our diagnostic skill, and sacrificed by the lack of the same. It is a common experience to see gallbladder disease, gastric ulcer, appendicitis, ovarian inflammation, etc., mistaken for one another, and many times even after the abdomen is opened, the riddle remains unsolved. Notwithstanding all this, much progress has been made in the last decade, and much of this progress can be traced to the opportunities offered to the abdominal surgeon to study, as Deaver puts it, the "living pathology," at close range.

In a brief article of this kind, no attempt will be made to delve into the finer points of the symptomatology of the various abdominal diseases, but I will call your attention to some of the more reliable symptoms and their possible meaning in order to refresh your memories, and possibly bring out a discussion that oftentimes is of more value than the original paper. The subject is such a large one that I will begin by dividing it into the acute and chronic diseases, and will take up only an analysis of the acute diseases, or those presenting acute symptoms.

In the acute abdominal diseases not only are we called upon to make an accurate diagnosis, but the question of operation must be settled, and settled quickly. When called to the bedside of a patient suffering from acute abdominal condition, every effort, therefore, should be made to make a diagnosis at as early a period as possible. This diagnosis should include not only the viscus involved, but also the character of the pathological process whenever this is possible. For practical purposes to aid in analysis of the symptoms it may be of some aid to divide the symptoms into the following groups:

1. Inflammatory symptoms—Those whose most characteristic symptoms are the result of inflammation.

2. Pain—Those where pain is the leading or most suggestive symptom.

3. Intestinal obstruction.

4. Shock due to internal hemorrhage.

While these divisions have been of considerable help to me in the past, and may be of some use to you, it must not be forgotten that a condition which ought to be found theoretically under one heading, will occasionally be found under another. On the other hand, if we train ourselves to a systematic method of thought, the presence, for instance, of pain, will suggest at once to us the condition tabulated under that heading, and we shall be less likely to make an error. More errors of diagnoses, in my opinion, are due to careless methods than to lack of knowledge; more often the error is a sin of omission, rather than of commission.

#### GROUP I. INFLAMMATORY SYMPTOMS.

The group symptoms of early suppurative are fever, sometimes chills, leucocytosis, and increased pulse rate. Under this heading are placed the following:

A. Acute cholecystitis.

B. Hepatic infections—Single tropical abscess. Suppurative pylephlebitis. Catarrh and suppurative cholangitis. Suppurative echinococcus. Multiple abscess of liver.

C. Primary peritonitis—Acute tuberculous. Pneumococcus. Gonorrheal.

D. Renal infections—Pyelonephrosis. Pyelonephritis. Metastatic abscesses.

E. Subphrenic abscess, usually secondary.

In addition to the group symptoms, local pain, tenderness, and rigidity will tend to suggest the viscus involved, but the symptoms of deep seated inflammation stand out as characteristic, and ought to be suggestive enough to make us consider carefully the possibility of some one of the foregoing groups.

#### GROUP II. PAIN.

In this group are placed the diseases in which pain is often the first or most characteristic symptom, and thus suggestive in a practical clinical way. They are as follows:

1. Appendicitis; locality of the pain.

2. Gallstone; pain coming on when relaxed, and also locality.

3. Perforations of (gastric, duodenal, typhoid) ulcers; shock following immediately.

4. Acute pancreatitis; agonizing pain and collapse.

5. Renal colic; pain referred to testicle and along the ureters. Urinalysis will probably help.

6. Kinking ureter (Dietl's crisis); replacement and relief.

7. Torsion of ovarian pedicle; locality, history, and pelvic examination. Shock and rapid pulse suggest beginning of peritonitis.

8. Visceral crisis (tabes); never to be forgotten.

9. Referred pain from thoracic and abdominal diseases.

#### GROUP III. ACUTE INTESTINAL OBSTRUCTION.

The patient, as a rule, has, 1, sudden abdominal pain; 2, constantly recurring vomiting; 3, obstructive constipation; and every effort to secure a passage of feces or flatus results negatively.

Constipation is often the first symptom; then vomiting, which is first, of undigested food; second, of mucus; third, of bile; fourth, of feces, the last usually not until the third or fourth day, and diagnosis should be made before this symptom develops.

Pain as a symptom of this condition is not reliable, as it is marked only when caused by volvulus, intussusception, bands and hernial kinking.

Increasing tympanites is a valuable and dangerous symptom; the pulse rate is not rapid until the onset of peritonitis, which later appears as a complication.

In this group are: 1. Strangulation by band, adhesions, hernial opening, Meckel's diverticulum. 2. Volvulus. 3. Intussusception. 4. Tumors. 5. Adynamic obstruction.

#### GROUP IV. SHOCK DUE TO INTERNAL HEMORRHAGE.

Symptoms of internal hemorrhage as follows: Face and mucous membrane pale and blanched, great restlessness, thirst, repeated attacks of syncope, rapid weak pulse, abdomen rigid (tender, but not so marked as in peritonitis), temperature at first

subnormal, cold extremity and sweats, later some elevation.

In this group are: 1. Extrauterine gestation. 2. Rupture of aneurysm. 3. Perforations of hollow viscera are included also in this group, as well as in group 11. It can be readily seen now that this classification is far from complete, and that a number of conditions can be correctly placed in several groups; but I have attempted to classify according to the most prominent symptoms present in each condition.

A few words now as to differential diagnoses of the diseases most likely to be mistaken one for the other.

#### ACUTE APPENDICITIS.

1. Muscular rigidity marked.
2. Pain begins higher and soon located at McBurney's point.
3. Tenderness right iliac fossa.
4. Nausea appears in a few hours.
5. Bimanual examination negative.
6. No history; indigestion, gonorrhea or other infections.

#### ACUTE SALPINGO-OOPHORITIS.

1. Very much less.
2. Pain lower (Poupart's ligament).
3. Tenderness low over pelvis.
4. Not often present.
5. Bimanual examination positive.
6. History suggestive.

Two conditions, however, may complete one another.

#### GALLSTONES.

1. Early fever due to cholecystitis.
2. Vomiting is an early symptom and more persistent.
3. Pain is more severe and colicky in nature.
4. Tenderness and rigidity higher up.
5. History of primary infection.

#### ACUTE APPENDICITIS.

1. (Fever later) few hours only, however.
2. Vomiting is also few hours later.
3. Pain not near so marked.
4. Tenderness at McBurney's point.
5. History not so valuable.

The study of the symptomatology and diagnosis of gastroptosis, chronic dilatation, pyloric obstruction, gastric volvulus, and hourglass stomach, would require a separate and distinct thesis, and will only be mentioned, not that they are not worthy of consideration, but the limits of the paper will only permit touching on the most prominent and practically diagnostic symptoms of the more common diseases within the abdomen.

Acute gastric dilatation on the other hand, is a subject of great importance to the surgeon, and is frequently the cause of postoperative deaths that are mistaken for postoperative shock. Hilton Fagge in *Guy's Hospital Reports*, 1872 and 1873, first described this condition, and since then Albrecht, in 1899, reports nineteen cases; Thomas, in 1902, forty-four cases. Since then many more cases have been reported, but notwithstanding this the condition is very often overlooked. The onset is sudden, twelve to twenty-four hours after the operation: epigastric pain; feeling of distention; vomiting without effort of large quantity of greenish gray fluid with no relief; vomitus not offensive; great distention of upper abdomen, especially on left side; splashing; introduction of tube gives relief only for a time. No operative treatment is of avail. Lavage will cure the early cases; it is only the cases that are overlooked that are beyond aid.

Gastric ulcer: Striking feature "remission." Most classical symptoms pain, vomiting and hematemesis.

Pain: Ulcer on posterior wall and lesser curvature is to left of median line; nearer the cardiac end of stomach; the pain is higher in the epigastrium.

In pyloric ulcer, the pain is later and more to the right. Lesser curvature pain is later and relieved by taking food. If the ulcer is on the anterior wall the pain is often referred to the left shoulder. Tenderness may be deep or superficial. Superficial tenderness is no value as it is too misleading. Deep tenderness and rigidity is very suggestive. If high to the upper left of the rectus, the ulcer is at cardiac end; if to the right, it is usually pyloric; in the neighborhood of the ninth to the tenth dorsal spine tenderness is always to be looked for.

#### DIFFERENTIAL DIAGNOSIS OF GASTRIC ULCER.

Gallstones: Textbook symptoms are late symptoms.

Inaugural symptom: Pain within an hour of taking food relieved by belching, chilliness after eating; pain not so regular; vomiting associated with more retching and no relief of the pain unless the stone passes.

Tabes: Diagnosis of same.

Appendix: Pain is epigastric; attacks often due to exercise, vomiting rare, nausea frequent, much chronic dyspepsia between attacks; symptoms of gastric ulcer, supposed to be due to pyloric spasm.

A few words in reference to two not so well known abdominal conditions:

Meckel's diverticulum, congenital abnormality of the small intestine due to persistence of the intra-abdominal part of the vitelline duct, which is obliterated during the sixth or seventh week of fetal life; usually at the convex border of ileum within two feet of its termination at the ileocecal valve. It is present in two per cent. of all human beings, and in form may be of one of the following varieties: 1. Small thimble shaped pouch. 2. Umbilical fistula. 3. Sinus—with blind end in the abdomen. 4. Tubular form has its own mesentery. 5. Sometimes forms a cystic tumor. The diagnosis depends on the complications, such as inflammation, intussusception, volvulus and strangulation, the last being the most frequent.

Hirschsprung's disease—idiopathic dilatation of the colon—is found in young children, especially boys; the symptoms are chronic constipation, extreme abdominal distention, colon dilated and hypertrophied, muscular coat thickened; small intestine normal. It usually affects the pelvic colon only. The treatment is usually medical. The surgical treatment is by resection, anastomosis, and sometimes, colostomy. Colopexy and coloplication are not successful.

At times, however, the differential diagnosis between these conditions is impossible, and can be made only by an exploratory incision, and the operation must be planned accordingly.

In conclusion, I should like to impress upon your minds, as I said in the beginning, that it is only by careful examinations and analyses that we can hope to have the least number of mistakes, and for illus-

tration take the old term indigestion. Indigestion is always a symptom, and never a disease. The sooner we get this fact clearly and conclusively settled in our minds, the better it will be for our patients. The patient who seeks relief from the various symptoms of indigestion cares little for the scientific classification of his or her illness, but wishes prompt and speedy results, and the doctor in his anxiety to bring about brilliant symptomatic cures very frequently does not seek for the actual underlying disease.

That we only have ourselves to blame for the many so called schools of medicine, which are now cropping up everywhere, I sincerely believe, for if we were more painstaking and careful in making diagnoses, and were never satisfied with the treatment of symptoms, there would be so few dissatisfied patients that the irregular practitioners would receive such poor support that their existence would be temporary indeed. Mayo, in 1900, strongly advised the medical profession, where any cases of cancer of stomach were suspected, to call in a surgeon, and insist on an early exploratory incision. His advice, also that of many other surgeons, has gradually become more and more accepted, and exploratory operations are more often resorted to each year, with some very gratifying and brilliant results.

While I believe that the radiologist, the laboratory worker, the clinician, and the surgeon should work hand in hand, my experience has been that a great deal of valuable time is often times lost by undue examinations, and at times have found that both the x ray and laboratory findings are confusing, and rather tend to, than prevent, diagnostic errors. To my mind, a careful history, combined with a painstaking physical examination and a moderate amount of medical treatment, will in the majority of cases serve the best interest of the patient, and will give sufficient data to decide as to the justification of an exploratory incision. I have at this time a patient who has been subjected to four analyses of stomach contents and one x ray picture, and the diagnosis was not made until an exploratory operation revealed a scirrhus carcinoma at the pylorus, on which a partial gastrectomy was done; also another patient who gave a history of seven years of chronic indigestion with acute exacerbations of pain and vomiting, and who in the last attack finally fell unconscious on the street. A hurried operation showed a gangrenous and adherent appendix, no doubt the actual cause of his long drawn out obscure illness.

In addition to this, within the last year, I have removed a surgical kidney containing a large stone and multiple foci of purulent infection. The patient had been treated more or less constantly for chronic intestinal indigestion. I have just discharged another patient who, after repeated examinations, both in this country and abroad, including all the accepted methods, and on whom three different diagnoses were made, has been cured by the removal of a large and edematous subperitoneal fibroid, which had reflexly produced her symptoms. These suggestive and illuminating experiences are the common experiences of every medical man, and surely argue very forcibly in favor of an early and cor-

rect diagnosis, and I know of no other as definite and precise method as the actual surgical incision. I do not wish to be understood as advocating an exploratory operation in all cases of indigestion, but I do think that patients who give histories of long drawn out indigestion, should be held guilty of harboring in their abdominal cavities some serious pathological condition, until it is proved otherwise, either by an absolute disappearance of the symptoms by careful (but not too long drawn out) medical and dietetic treatment, or by an exploratory operation.

I have about reached the conclusion that chronic and relapsing indigestion is just another way of saying that the patient is suffering from a real pathological change in one of the many intraabdominal organs, and we should never rest satisfied until the offending kidney, gallbladder, stomach, duodenum, uterus, appendix, pancreas, or what not, is ferreted out, and properly treated, and I know no other methods that are as sure, safe and reliable as first, a careful history; second, a precise and painstaking physical examination; and last, but not least, an exploratory incision.

1832 DIAMOND STREET.

## THE INDICATIONS FOR OPERATING IN ACUTE MASTOIDITIS.\*

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In many cases of acute mastoiditis the indications for operation are perfectly clear. In a large number of instances, however, the surgeon is confronted with considerable difficulty in deciding just when to operate. He desires, on the one hand, to avoid surgical interference if the patient will recover without it; on the other hand, he is even more anxious to avoid labyrinthine or intracranial complications by not unduly delaying operation.

One of the most constant symptoms of acute mastoiditis is pain over the mastoid. This pain is almost invariably worse at night, and is often described as "boring" in character. The patient may volunteer the statement that during the early stages of the otitis the pain was felt in the ear itself, but now is experienced over a different area, the mastoid region. In some cases, however, the pain is not felt over the mastoid bone, but over the parietal bone and the side of the head above the auricle.

Insomnia naturally accompanies pain in mastoid disease. We must remember that mastoid pain is not always present. A few months ago a woman was referred to me because of sudden unilateral deafness. On examination, I found acute purulent otitis media, with a slight amount of discharge in the canal. The patient complained of some discomfort in the ear, but no pain. I treated her for two and a half weeks, performed myringotomy three times, and finally opened the mastoid, which was filled with pus. From first to last she refused to

\*Paper read at the annual meeting of the American Academy of Ophthalmology and Otolaryngology in Chattanooga, Tenn., October 25, 1911.



admit that she suffered from pain. The indications for operating in this particular case were: 1. A bulging drum, in spite of repeated myringotomy. 2. No cessation of the discharge after two and a half weeks. 3. Moderate, persistent antral and tip tenderness. 4. Slight sagging of the superior canal wall. In this patient, a culture taken from the mastoid pus at the time of operation showed a growth of pure *Streptococcus mucosus*.

Elevation of temperature is a much more frequent symptom of mastoiditis in infancy and childhood than in adult life. Systemic disturbance is often shown by marked prostration, and by a heavily coated, tremulous tongue. The furred tremulous tongue should always be looked for, and should be given due weight in judging the patient's condition.

Tenderness upon pressure is one of the cardinal signs of mastoid suppuration, and is probably the most constant. It is well to remember that during the first twenty-four to thirty-six hours of an attack of acute purulent otitis media, there may often be slight tenderness over the antrum or tip of the mastoid. This tenderness disappears after myringotomy,—in uncomplicated cases,—only to return a few days later when the mastoid process becomes involved. In the more severe cases of mastoiditis, pressure tenderness may be present from the start. There are four points where tenderness may be elicited: 1. Over the mastoid antrum, i. e., just behind the superior attachment of the auricle. 2. At the mastoid tip. 3. Over the posterior part of the mastoid, at the point of emergence of the emissary vein. 4. Over the posterior root of the zygoma, where the so called zygomatic cells are located.

Sagging of the posterosuperior canal wall is another of the cardinal symptoms of mastoiditis. As a rule, it is not present early in the disease and it is usually accompanied by bulging of the drum membrane. In this connection, it is well to remember that we occasionally encounter mastoiditis with an almost normal drum membrane. However, the otoscopic picture will usually show a drum membrane red, angry, and bulging, which does not in any way suggest that the middle ear lesion is subsiding.

Anterior displacement of the auricle and edema over the mastoid are present in advanced cases of mastoiditis where perforation of the mastoid cortex has occurred. Furuncle of the canal is, however, a far more frequent cause of retroauricular edema.

In some cases we find a diffuse swelling beneath the sternomastoid muscle, due to pus perforating through the mastoid tip into the digastric fossa,—the so called Bezold type of mastoiditis.

In an ordinary case of acute otitis, the discharge is at first serous; later, purulent; and, finally, as the inflammatory process subsides, the discharge diminishes in amount and becomes mucoid.

In mastoiditis, instead of the patient's condition improving as the discharge ceases, we find that the cessation of the discharge is accompanied by an increase in the amount of pain, mastoid tenderness, and constitutional symptoms due to obstructed drainage. Or, again, the amount of discharge may be so great that we know it is a physical impossi-

bility for it to come from the tympanum alone. The mastoid cells must necessarily be involved. Thus we see, in mastoiditis, that the character and amount of the discharge are of value in helping us to arrive at a diagnosis.

The bacteriology of the aural discharge is often of considerable diagnostic value. A smear and culture should be made at the time the myringotomy is performed. Wittmanck studied fifty-five cases of acute purulent otitis media. He found ordinary streptococci twenty-four times; *Streptococcus mucosus*, twenty-one times; pneumococci, ten times; in seventy-five per cent. of the mucosus cases mastoiditis developed.

Libmann examined a series of 141 cases. He found streptococcus in eighty-eight cases (pure in seventy-nine); pneumococcus, eight times; *Streptococcus mucosus*, ten times; *Staphylococcus aureus*, four times; *Staphylococcus albus*, three times; *Bacillus proteus*, once; *Bacillus pyocyaneus*, twice.

It is now quite generally believed that the streptococcus and *Streptococcus mucosus* are more apt to cause acute mastoiditis than the pneumococcus or staphylococcus. In cases where the indications for operation are not perfectly clear, given the *Streptococcus mucosus*, we would feel it our duty to operate at an earlier period than otherwise. Occasionally meningococci are found in the discharge from the ear. This means that the patient is suffering from meningitis, or that meningitis is likely to develop.

One should remember that the pus from the canal is apt to present a mixed infection, with certain germs predominating, while the pus from the mastoid is much more apt to show a pure culture.

The blood count cannot be relied upon to differentiate acute otitis from acute mastoiditis. It is, however, of considerable value in determining the presence of such complications as meningitis, brain abscess, sinus thrombosis, or glandular involvement. McKernon, in the *Buffalo Medical Journal*, April, 1913, gives his conclusions, based on the study of the blood examinations in 400 aural cases. He states his belief that these examinations will show two things:

First: The resisting power of the patient, as shown by the number of leucocytes present, which, if over 15,000, shows a good resistance. If daily examinations show a steadily increasing number of white cells, we infer that the patient's resistance is improving, even though the inflammatory process is more pronounced. If, on the other hand, there is a small number of leucocytes from the first, the patient's resistance to the disease is poor, and during the further progress of the disease, should they steadily decrease, the resistance becomes still poorer, and frequently this an indication for an urgent operation, or calls for one being done earlier than would otherwise be necessary.

The second point of value for the clinician is the polynuclear percentage, which shows definitely the amount of absorption taking place in the system as a result of the existing suppurative process. The normal percentage in the adult varies from fifty-five to seventy; in the young child, from forty-two to sixty. In a suppurative lesion of the mastoid process without complications, the polynuclear percentage ranges from seventy to eighty; where adjacent structures are involved, as the blood current in the sinus or vein, it ranges from eighty to ninety-six. In other words, the higher the polynuclear percentage the greater the absorption and the more urgent the demand for operative procedure, and this is especially true if frequent examinations show a steadily decreasing

number of leucocytes. If, however, repeated examination show a decreasing polynuclear percentage with a stationary or slowly decreasing leucocyte count, it is evident that the suppurative process is diminishing and that Nature is eliminating the poison from the system.

*The relation between the leucocytosis and the polynucleosis is the valuable feature.* Increasing leucocytosis, with stationary or falling polynucleosis, indicates better resistance and less absorption; while decreasing leucocytosis and increasing polynucleosis indicates less resistance and a greater absorption.

The preservation of the hearing must always be considered in deciding for or against operation. In certain border line cases, where the indications for the mastoid operation are not entirely clear, a marked diminution in the patient's hearing, especially in the presence of other symptoms, would induce us to operate at once. On the other hand, we know perfectly well that this type of case very likely may end in recovery without operation, but with the sacrifice of considerable hearing. To sum up: Marked diminution of the hearing, in certain border line cases, is an additional indication for opening the mastoid.

Radiography of the mastoid is a valuable aid in deciding when to operate. It also furnishes information in regard to the anatomy and pathology of the mastoid bone. Doctor Law, radiographer of the Manhattan Eye, Ear, and Throat Hospital, has written an excellent paper on this subject,<sup>1</sup> from which I shall quote freely: "The x ray plate shows: 1. The size and extent of the mastoid cells. 2. The position of the lateral sinus and emissary vein. 3. The presence of pus or granulations in the mastoid. 4. In chronic cases, cholesteatoma. 5. Sometimes, the presence of sclerosis. In the x ray plate the normal mastoid shows as a dark area, while the bony partitions between the cells appear as light lines. In the bony structures of the skull, the sinus and emissary vein are seen as dark streaks. Where the lateral sinus crosses the mastoid, the cavity of the sinus is superimposed upon the cavities of the cells, and consequently the outline of the sinus is less distinct. In cases where the lateral sinus stands out very clearly in the mastoid bone, we are dealing with either pathological material,—i. e., pus or granulations in the cells—or with a dense hard cortex. In the normal plate, the auditory canal appears as a dark spot, about one quarter of an inch in front of which is seen the articulation of the jaw. When the outline of the auditory canal is rendered indistinct by the presence of pus, the location of the shadow cast by the pinna and the condyle of the jaw aid in determining its site."

Mastoiditis, according to Law, "is shown by the appearance of the cells as compared with the normal side. This may vary from a slight hazy appearance to complete occlusion of the cells. In a mild condition, there is a slight haze over the cells, but the bony partitions are still intact. As the condition progresses, the haziness increases; light spots appear, which indicate collections of pus or spots of granulations. In a severe case, the haziness becomes a dense white blur, with no partitions visible, the lateral sinus standing out clear, and the auditory canal barely showing."

Occasionally a case of furuncle of the external auditory canal is encountered, accompanied by intense edema of the canal, auricle, skin over the mastoid, and side of the head. Further to complicate matters, we may get a history of a purulent discharge from the canal. We elicit a certain amount of soreness or pain upon pressing over the mastoid, and are uncertain in our own mind whether it comes from mastoid disease or from the furuncle. In such cases as this, the x ray examination is our sheet anchor and can be depended upon to clear up our dilemma.

137 EAST FIFTY-FOURTH STREET.

## THE RELATION OF HYPERTHYROIDISM TO THE NERVOUS SYSTEM.

*With Report of a Psychosis Occurring Four Years  
after Thyroidectomy.\**

BY ALBERT C. BUCKLEY, M. D.,  
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To one examining the literature of the last twenty years upon the subject of disease associated with hyperplasia of the thyroid gland, it would seem at first sight that the nervous system is credited with almost all the responsibility, causally considered, in the production of the conspicuous and almost constant symptoms. The alleged factors in the cause of exophthalmic goitre and its accompanying syndrome cover a field extending from eyestrain to hemorrhage and degeneration in the central nervous system. Certainly there is much to attract the attention to the nervous mechanism. Just how much that is concerned is yet to be told. It is very clear that the nervous system is implicated to a serious extent. There is much evidence to show that the disease occurs in individuals who seem to be predisposed in that they are the possessors of inherently unstable nervous systems. Exophthalmic goitre and nervous diseases including insanity occur frequently in different members of the same family. An exophthalmic woman is recorded as having a daughter a cretinic idiot. F. H. Packard<sup>1</sup> analyzed a series of eighty-two cases of Graves' disease with mental disorder, with physical signs "tolerably well marked"; twenty of the patients were men and sixty-two were women. He found a neuropathic heredity marked in sixty-three per cent. In six per cent. there was a definite heredity for Graves' disease. Of the whole number, fifteen per cent. had suffered attacks of mental disorder before the thyroid disease was noticed, so that the psychoses might have developed without the goitre.

The symptoms of hyperthyroidism as seen in exophthalmic goitre present the antithesis of the syndrome associated with absence of the thyroid. They correspond rather with the symptoms attending the administration of thyroid gland in full doses. Comparing the two conditions, it is well known that in myxedema there is slowness of the pulse, cold, thick, and dry skin, and sluggishness

<sup>1</sup> A. Law: *Radiography as an Aid in Diagnosis of Mastoid Diseases*. Read before the New York Academy of Medicine, Section on Laryngology and Rhinology, April, 1913.

\*Read at a meeting of the Philadelphia Clinical Association, November 3, 1913.

<sup>1</sup>*American Journal of Insanity*, October, 1909.

and dullness of the mental powers, in some instances amounting to idiocy or imbecility. In hyperthyroidism there is rapid action of the heart, the skin is thin and apt to be moist, and there are signs of increased nervous activity in the form of tremors, excitability, and mental irritability. According to Magnus Levy, the respiratory exchange of gases is increased by fifty per cent. Sugar toleration is diminished so that glycosuria may occur. Sufferers from chilblains and ordinary colds are said to become immune when they become hyperthyroid, and tuberculosis, it is stated, rarely occurs in uncomplicated cases of Graves's disease.<sup>2</sup>

By far the majority of patients suffering from hyperthyroidism present mental symptoms in some degree. In fact, mental symptoms may be the earliest noted, that is before the cardiac or ocular symptoms become manifest. The most commonly noted are an intense and indefinite agitation with more or less mental and motor restlessness. The patient is unable to settle down to any occupation, and complains of being distressed by any sudden noise, or unexpected news, this being accompanied by a palpitation that may last for several hours. Other patients suffer with marked excitement, restlessness, sleeplessness, hallucinations, incoherence, violence, refusal of food, dirty habits, emaciation, diarrhea, and exhaustion which may terminate fatally.

In 1883, Savage, in *Guy's Hospital Reports*, reported several cases of insanity with Graves's disease, with the conclusion that when insanity is associated with exophthalmic goitre the prognosis as to life is very grave. Three of his cases were of a severe type; two cases terminated fatally. With marked and distressing palpitation the patients later became dull and sleepy and died of exhaustion. Another case began with mental depression followed by a maniacal state. Some instances of recurrent insanity are mentioned in which the mental symptoms and the goitre appeared and disappeared simultaneously.

Dr. George Murray, in his *Bradshaw Lecture of 1895*, reported that out of 180 patients, three became insane, while ten others had hallucinations without other evidence of mental disorder. It should be mentioned here that mental symptoms, especially hallucinations, can be produced by the administration of thyroid extract to persons who are susceptible. No one type of mental disorder can be said to be characteristic of hyperthyroidism, but in the cases of severe grade agitated depression and confusion with hallucinations seem to be more frequent. One case reported by J. P. Grieves was of a severe form of mania which terminated fatally after six days of pyrexia. Three days before death the gland was so reduced in size that it could not be palpated.<sup>3</sup> Four cases are reported by R. H. Steen,<sup>4</sup> three making good mental recoveries, one after two years' duration, and all with a subsidence of the goitre symptoms. One patient died within a week after admission. Of the recovered cases, it is said that improvement was decided after the

administration of adrenal extract. Gilmour<sup>5</sup> gives an optimistic report of seven patients, four of whom recovered. He found a neuropathic history in most of the cases.

An interesting phase of the subject is furnished in a patient now under the writer's observation.

A young woman in whom the usual symptoms of hyperthyroidism had developed was operated upon for a partial removal of the thyroid gland with what was considered a remarkable recovery. Four years after the operation the patient heard of a friend who had undergone a similar operation and had suffered a return of the symptoms. Almost immediately the patient became depressed and worried lest she should experience a return of her trouble. She was examined by her physicians who were able to assure her that there were no indications of a recurrence of any signs of the condition. When search was made for another cause for her mental depression the examination revealed a laceration of the cervix which was repaired, and a displacement for which a shortening of the round ligaments was done. No improvement followed the operations and the patient continued depressed, became discouraged, refused to see her friends, and dwelt almost continually on the one idea of the possible return of the goitre. About six months ago she suffered intensely from the effects of an abscess following the infection of a tooth. After the extraction of the tooth she became acutely ill with fever and rapidly passed into a typhoid state which lasted about four weeks, during which time she lost about thirty pounds in weight. For a few days she was stuporous, with difficulty in speech and swallowing. She slowly became clearer mentally, but still showed decided mental confusion. About six weeks later the confusion disappeared, but she had not returned to her normal mental state. She was apt to give way to violent attacks of temper, especially if crossed.

At the time of her admission to the hospital she presented a suggestion of an exophthalmos, which persisted although there had been no change in that respect in the past three months. There was a fine, scarcely noticeable tremor of the extended fingers which became more marked when she was much disturbed. There was also a fine tremor of the muscles about the mouth, likewise increased under emotion. The superficial and deep reflexes were all exaggerated. There were no disturbances of sensation and no vasomotor abnormalities had been observed. The heart showed some extension of percussion limits beyond the normal. There had been no tachycardia noticed at any time, the pulse rate being about 76 to 80 a minute, soft, but showing a quick rise under emotion. Urine was strongly acid, eighty per cent.; contained no albumin, no sugar, and no indican.

At the time of report the patient was in a state of depression with agitation only shown when she was addressed, when she usually burst into a flood of tears, and at times almost a frenzy of grief. She was able at times to occupy herself with light work but seemed to be constantly engrossed with thoughts of herself and was apparently just on the verge of an emotional outburst at all times. Occasionally she expressed indefinite fears of impending danger and seemed to be unable to realize that she was mentally ill. She was well oriented, had no fixed ideas and was not hallucinatory. The patient seemed to be more or less in constant fear lest she might do something which will reflect upon her mental condition and thereby delay her returning to her home. On account of her marked emotional disturbance, she seemed confused; said that she could not make her mind up to do things and that she was unable to interest herself in anything.

The particular interest in this case centres about the fact that the psychosis developed in an individual who had been in good health for four years following a cessation of the symptoms of hyperthyroidism. If the gland was secreting in excess it was not sufficient to produce the usual subjective symptoms during that time between the thyroidectomy and the psychosis. Two factors, however,

<sup>2</sup>George R. Murray: Address in Medicine, *British Medical Journal*, July 26, 1913.

<sup>3</sup>*Journal of Mental Science*, January, 1905.

<sup>4</sup>*Journal of Mental Science*, October, 1903.

<sup>5</sup>*Journal of Mental Science*, October, 1909.



entered to change the situation; first, a mental shock, the knowledge of the failure of a similar operation; second, a severe infection; both of these were operative in an individual with a predisposition, as shown by the prompt reaction in the form of mental depression following the shock.

There are at least three possibilities to be considered in the case, from the standpoint of the exciting cause. The present attack may be the beginning of a terminal mental condition—dementia præcox; it may be the forerunner of a return of the hyperthyroid syndrome, with mental symptoms exaggerated; it may be an infective exhaustive psychosis dependent upon the severe infection of the tooth abscess. I am inclined to believe that the last named is the chief exciting factor, acting in conjunction with the mental shock; also, it seems reasonable to believe that the psychosis might have occurred without the exophthalmic goitre. Whether the hyperthyroidism, shock or infection, or all three factors were responsible, the essential factor, however, lies in the predisposition in the form of a hypersensitive nervous mechanism.

Concerning the pathogenesis of exophthalmic goitre practically nothing from the causal side of the question is known. The four principal theories offered in regard to the etiology of the disease, three of which refer to the nervous system, are the following: 1. That it is a disease of the sympathetic nervous system. 2. That the seat of the disease is in the medulla oblongata. 3. That it is a neurosis. 4. That it is primarily a disease of the thyroid gland.

The cervical sympathetic was, and even recently, has been the subject of study. Lewin,<sup>6</sup> in 1888, examined thirteen cases and found the cervical sympathetic normal, while others have reported definite findings. Belacescu<sup>7</sup> regards the thyroid enlargement as due to the dilatation of the large vessels which in turn is produced by stimulation of the vasodilators. The increased vascularity causes an increased secretion in the gland. Section of the sympathetic, he believes, prevents the exophthalmos. Jonnesco regards the struma as due to the permanent stimulation of the secretory fibres of the thyroid. Whichever theory may be correct atrophy is said to follow in every case of resection of the cervical sympathetic.

More recently Héraud<sup>8</sup> found a distinct thickening of the trunk of the right cervical sympathetic compared with the normal, and the cells or the ganglion had to a great extent disappeared. There was also found at the periphery an infiltration with newly formed connective tissue. A series of thirty-seven cases with changes in the nervous system was collected by Klein.<sup>9</sup> Fifteen of the cases showed lesions in the neighborhood of the floor of the fourth ventricle. In four there were hemorrhages in the nucleus of the vagus. The tenth nucleus is regarded as belonging to the cell system of the intermediolateral tract which is the spinal localization of the sympathetic.

A. Ninan Bruce<sup>10</sup> reported a case of myxedema

following Graves's disease with mental symptoms leading to death from cardiac syncope, in which there were found hemorrhages into the nuclei of both vagi.

Although it must be admitted that the frequency of lesions in the central nervous system is, to say the least, worthy of attention, it must not be forgotten that the occurrence of hemorrhage can be explained by the mechanism of the altered vascular condition. A case has been reported<sup>11</sup> in which enlargement of the thyroid gland suddenly developed in a middle aged woman with the physical signs and symptoms of hyperthyroidism, and at the same time paralysis of the third, fourth, and sixth cranial nerves. This would suggest a thyroid which had been secreting in excess for a time without producing symptoms severe enough to attract the attention of the patient. Later, a sudden exacerbation made itself manifest in the form of the above mentioned symptoms, the paralysis being the result of a sudden vascular disturbance or the sudden overwhelming of the nervous centres by the obnoxious materials. A remarkable peculiarity of the symptoms of Graves's disease is the variability in the severity of the symptoms, as is shown by the frequency of nervous and vascular crises. Dinkler<sup>12</sup> states that the number and the severity of the symptoms in exophthalmic goitre suggest an anatomical basis for the manifestations on the part of the nervous system, but no constant lesions have yet been described, the various nervous changes reported having been more of the nature of complications or incidents. The case which he reported with autopsy and histological examination showed changes in the cerebral cortex, the ganglia of both sides, descending degeneration in the medulla and cord, and involvement of the facial and hypoglossal nuclei.

Of the nervous manifestations there were tremors of the hands, diminution of the electrical resistance of the skin, tendency to cry and to laugh, hasty speech and marked acceleration of all voluntary movements. The patient's entire character changed; there were hallucinations of all the senses, the patient becoming egoistic, disorderly, wasteful, and untidy. These mental symptoms were followed by twitching of the left arm, face, and leg, similar to that of chorea. The movements later disappeared and the side became hemiparetic, with added palsy of the tongue and bulbar symptoms. That author regards the cause of the disease as one of intoxication.

In a series of experiments upon animals by Tedeschi<sup>13</sup> in which lesions were produced in the restiform bodies, distinct symptoms of Basedow's disease occurred. Also it was found possible to reproduce those symptoms after they had diminished or disappeared, by producing a condition of hyperthyroidism. In thyroidectomized animals lesions of the restiform bodies did not produce the symptoms. In animals in which lesions of the restiform bodies and symptoms of hyperthyroidism were produced, removal of the thyroid causes the

<sup>6</sup>Quoted by Gowers, *Diseases of the Nervous System*, 1897.

<sup>7</sup>*Archiv für Klinische Chirurgie*, vi, April, 1902.

<sup>8</sup>*Revue neurologique*, October 15, 1910, 344; July 15, 1911.

<sup>9</sup>*Deutsche Zeitschrift für Neurologie und Psychiatrie*, xiv, p. 431, 1904.

<sup>10</sup>*Revue de Neurologie und Psychiatrie*, p. 172, 1911.

<sup>11</sup>*NEW YORK MEDICAL JOURNAL*, November 4, 1905.

<sup>12</sup>Ueber den klinischen Verlauf und die pathologischen Veränderungen eines schweren durch Hemiplegie bulbäre und psychische Störungen ausgezeichneten Falles von Basedowscher Krankheit, *Archiv für Psychiatrie und Neurologie*, xxiii, p. 2, 1900.

<sup>13</sup>*Revista di patologia nervosa e mentale*, vii, fasc. 6, June, 1902.

disappearance of the greater part of the symptoms.

Some observers are willing to go so far as to state that the primary disturbance is in the cerebral centres controlling the nutrition of the thyroid and regulating the circulation. The author of this statement also says that in instances in which Graves's disease exists there is almost uniform evidence of a neuropathic family history, and that these centres are constitutionally weak and the weakness is increased by emotional strain and infection.<sup>14</sup> Dana reported two cases with autopsy with findings which led him to believe that the changes in the pneumogastric and other cranial nerve nuclei are important and constant lesions.

From this glance at the experience of a few careful observers it is evident that there are many features concerning the malady under discussion which point to a very close relationship of the nervous system, as most of the symptoms implicate the nervous mechanism. The question still to be answered is whether the disease is primarily one of the thyroid gland or of the nervous system. If the gland is the primary seat of the disorder, the nervous system suffers chiefly in the reaction. If the disorder is fundamentally one of the nervous system, the thyroid is apparently affected through its blood supply which has been altered by reason of a disturbance of the vasomotor apparatus. No matter which may be the original seat of disturbance there is doubtless established a vicious circle. The excessive secretion affects the nervous mechanism controlling the circulation in the organ, which in turn intensifies the state of hypersecretion.

There seems to be little doubt that certain individuals are by reason of inborn characteristics peculiarly susceptible to the effect of thyroid secretion. In fact, Kocker<sup>15</sup> has shown that iodine applied to the skin may, in certain persons produce a condition which closely resembles Basedow's disease without producing the usual signs of acute iodism. Whether this is an accident or coincidence, there does seem to be an hyperthyroid potentiality which is present in certain individuals, coupled with a peculiar nervous instability, and this combination of predisposing factors is what presumably is needed for the establishment of the syndrome seen in hyperthyroidism. There are doubtless many individuals in whom the activity of the thyroid gland varies considerably at different times, just as under varying conditions any other epithelial organ may vary in activity. All of these persons do not present the usual symptoms of hyperthyroidism, for the reason that they are not sensitively reactive to the secretion of the gland.

There is an heredity chart<sup>16</sup> on record showing a pedigree in which three sons and five daughters and three grandchildren were subjects of exophthalmic goitre.

Until more knowledge is obtained in regard to the action of thyroid upon persons who have neither hypothyroidism nor hyperthyroidism the pathological physiology will be still a matter of speculation.

FRIENDS' ASYLUM, FRANKFORD, PA.

## HIGH FREQUENCY CAUTERIZATION IN THE TREATMENT OF URETHRAL CARUNCLE.

BY SOLOMON WIENER, M. D.,  
New York.

Urethral Caruncle, M. D. S. H. C.

Urethral caruncle causes symptoms and gives rise to inconveniences of treatment out of all proportion to its small size and importance. The dysuria and tenesmus which so frequently accompany it may, by their psychic effect, render the life of a sensitive woman almost unbearable. Nor have we had a method of treatment which did not entail more or less discomfort, if not considerable pain, extending over a period of several days.

It is not feasible to twist off these little tumors because they have too broad a base. This applies whether the caruncle is only a granuloma, or a papillary angioma, or a telangiectatic polyp; for all three of these lesions are connoted under the common term "caruncle."

The treatment heretofore in vogue may be summed up in two words—cauterization and excision. The excision may of necessity be extensive enough to require the passing of one or more sutures, and the discomfort and pain of sutures at or within the meatus is too obvious to require further comment. Moreover they may necessitate rest in bed and the use of a permanent catheter.

The cauterization in vogue has been either chemical or by the actual cautery; the latter is the more efficacious method. Both give rise to a rather smart reaction which may render the patient's life miserable for several days.

The work of E Beer<sup>1</sup> of New York in the treatment of bladder tumors by high frequency cauterization suggested to me that this might prove a satisfactory method of treating urethral caruncula; and such indeed it has proved beyond all expectation.

The technic is exceedingly simple: The caruncle and contiguous mucosa are anesthetized by the surface application of a five per cent. cocaine solution. An ordinary insulated wire electrode is used with a spark of medium intensity. The tip of the electrode is held about one eighth of an inch from the surface, of the growth, and the spark is passed successively over every part of its surface. The normal mucosa should be avoided. The entire application need not take longer than one minute. No pain whatsoever is experienced by the patient provided the cocaine has had sufficient time to act. There is no reaction after the effects of the cocaine have worn off; in fact, where dysuria and tenesmus are present, the very first urination following the treatment is less painful than those preceding it. Only very small caruncula can be destroyed at a single sitting. Usually two or three applications will be necessary. These had best be made at intervals of five or six days. In one case, of the flat angiomatous type, involving almost half the circumference of the meatus and extending a considerable distance upward along the posterior urethral wall, it was made wholly to disappear in three treat-

<sup>14</sup>C. L. Dana, *New York Medical Journal*, June 14, 1902.  
<sup>15</sup>Proceedings of the Thirtieth Congress of German Surgical Societies, *Seminare medicale*, 1902.

<sup>16</sup>Davenport, C. B., *Heredity in Relation to Eugenics*, New York, 1911.

<sup>1</sup>Beer, Edwin: Concerning the Treatment of Tumors of the Urinary Bladder with the Uudin High Frequency Currents, *Annals of Surgery*, August, 1911.

ments. This particular patient had been subjected to chemical cauterization by several physicians with out any subjective benefit. There was marked diminution of her dysuria after the first application of the cauterizing spark. I may add that in all cases the mucosa remaining after the destruction of the caruncle was smooth and in all respects normal in appearance. There is nothing new claimed for this treatment; it is the same method which has been employed by dermatologists for a number of years in the destruction of cutaneous warts.

To sum up the advantages of this treatment for urethral caruncle, they are: 1. The ease and painlessness of its application. 2. The immediate alleviation of dysuria and tenesmus. 3. The absence of local reaction. 4. No necessity for confining patient to bed, as after excision and suture. 5. The complete *restitutio ad integrum* of the mucosa.

The success of this method has been so positive and pronounced in my hands that I am eager to recommend it to the profession.

67 WEST EIGHTY-NINTH STREET.

### CANCER.

By J. A. GUTHRIE, M. D.,

Porthmouth, Va.,

Surgeon, United States Navy, Retired

Up to the present time, there seems to be no cure for cancer; therefore, my plan would be to discover a cause, and then work on the destruction of this cause, when, perhaps, we might establish a cure along this path of investigation. Most diseases are produced by germs; here is one that is apparently not.

We are chary of theorizing, and yet we know that the dreamer of yesterday, in his visionary outbursts, calling forth criticism, ridicule, and even persecution, has foreseen many of our commonplace topics of to-day. So expecting caustic analysis I shall launch my theory, notwithstanding.

A few years since we accepted as gospel truth quite a number of unchangeable chemical elements. One molecule magnified by comparison from the size of a billiard ball to that of the earth would show an appearance, say, of so many apples joined together, another so many pears, another so many marbles, another so many pith balls, *ad infinitum*. Now, we are guessing whether all of these elements are not one and the same, with, perhaps, variations in arrangement within the molecule. Suppose a molecule presents an appearance of a bushel basket filled with oranges, is there no reason why one of these atom oranges should not be divided and subdivided to infinity? Everything comprehensible through our five senses is by comparison. Something without beginning and without end cannot be impressed upon these senses. Suppose we say there is no beginning nor end to an atom, then we may vaguely conceive an entire solar system, ay! an entire universe wrapped up in a grain of sand. Some of this has already been threshed out by the radium maniacs.

Every individual cell of the human organism has, within itself, a guiding force, a microscopic soul, as it were. When many of these cells of the same natures congregate coordinately there is formed some distinctive organ, the liver, say.

These cells are likened to so many thoroughly disciplined armies, working, not through leaders, but by unanimous obedience to the wireless influence from the central powers. Now let some disintegrator, some disturber, some sort of upsetting of the rank and file step in, and one of these little armies becomes a disorganized mob. A cancer is the corruption of cell elements of the skin, kidney, liver, stomach, or what not, from an organized and well disciplined army, into a riotous mob pushing, shoving, overturning (but forever increasing as mobs do) each other until destruction is the inevitable end of all. Make haste and harness radium so that we may send it into this mob, to take every individual cell by the scruff of the neck and throw it into a newly formed marching line. Or, sort out the dissenters, execute them, and build up a new army from the loyal remnant. The difference between a healthy cell element and a cancerous cell element is the difference between the spick and span uniformed soldier with high ideals and the mud bespattered, torn, ragged, bleeding, dishevelled one, involved in mental turpitude. The ancient idea providing roots for cancers, explanatory to the laity, meant the ramifications of stragglers, encouragers, and walking delegates from the riotous assemblage, scouting off and from the inflammatory mass.

It is impossible in many cases to get at these ramifications by means of so clumsy an instrument as the knife, therefore it is imperative that we enlist an agent, filmy, yet vastly more potent than surgical tools. In cutting, we of necessity destroy the good with the bad, endanger vital organs, and use a harsh method that often results, as in the case of a barn burned to destroy the rats therein.

When any topic, presented or discovered, warrants investigation—and surely that which is corroding and destroying human life should be found worthy—I believe, along every road, no matter how dimly perceptible, leading to this investigation, it would be well to send a scouting party, so to speak. Some will discover potent signs, some mysterious omens, and others will return hopelessly disappointed. Persistence, however, will win, so let us encourage every effort toward the right road.

In this age of radioactivity, microscopy, and the wonderful advances in photography, why not get at that cancerous tissue in its minutest detail? Another suggestion I would advance by way of simile, is the fact, that apparently there is an increase of vegetable cancers, along with the progress of civilization, due to the tampering with foreign flora by horticulturists, who wish to provide for the demands of acquired wealth, for instance. Experimenting in transplanting trees and shrubs to suit the tastes and desires of these, will show, to the close observer, a development not consistent with the original plans of Nature. Who cannot see the difference between the artistic lines, the fragrance, and the beauty of any wild tree, or flower, growing where it was planted, and one nurtured on forced draught, as it were, artificially, and far from its place of nativity? Wild animals in captivity do not thrive. Man is a captive, living within the prison walls of his clothing, his bed, and his food. In order to compromise, he must provide cures rather than prevention, which would exist primarily did he



but break through these walls and live the simple life, as shown to some extent, by the Arab of the desert, and certain tribes of Southeastern Europe. With our vast store of knowledge, and with the abandoning of our luxuries, how long and peacefully might we remain upon this dear old earth—our mother. But, when we disobey her mandates, surely we have sinned; and so, crop up the lowest forms of life,—the germs, to bring us to the state where we began—aons of time ago. Let us not go backward in vitality, while surging ahead intellectually; let us keep pace with both. Pleasure does not consist in charging through life, and sniffing for new joys; but, if we love Nature, and are kind to her, we shall find that her returned happiness, in the shape of perfect health, will constitute all the pleasures we need. Therefore, back to Nature, as far as is compatible with present conditions. To do this, in a nutshell, make laws to prevent the wholesale destruction of our five senses. Muffle all unnecessary noise, brilliant lighting, disagreeable odors, and touch not. Last and most important, eat and drink no poison, even though it should savor of the nectar and ambrosia of Olympus. With the revivifying of the sensory nerves, all the rest will sail in and become strong again. And then, we may expect to find eyeglasses, ear trumpets, and all such aids cast upon the trash heap. There will be nothing to cause irritation, and so we shall have no cancer.

### Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXL.—How do you treat the symptoms of senility, without organic disease, but showing approaching dissolution? (Answers due not later than November 15th.)

CXLI.—How do you treat frostbite? (Answers due not later than December 15th.)

CXLII.—How do you treat chronic constipation? (Answers due not later than January 15, 1914.)

CXLIII.—How do you treat gallstone colic? (Answers due not later than February 16, 1914.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best essay submitted in answer to Question CXXXIX was awarded to Dr. J. Walker Moore, of Philadelphia, Pa., whose article appears below.

### PRIZE QUESTION NO. CXXXIX. TREATMENT OF CHANCROIDS.

By J. WALKER MOORE, M. D.,  
Philadelphia.

Chancroid is a specific, infectious, highly contagious disease caused by the bacillus of Ducrey. It

is characterized anatomically by a local inflammation of the genitalia, proceeding to pustular formation and rapid ulceration; clinically, by a punched out ulcer, which has sharply defined and undermined margins, boggy or doughy in consistence, with a grayish sloughing base, discharging a profuse, purulent, foul, and autoinoculable material, pain to a considerable extent, and a tendency to the occurrence of certain complications, notably, bubo, phagedena; and if the lesion is subpreputial, phimosis and gangrene.

The infection is purely local to the parts upon which it develops and to the lymphatic vessels and ganglia in immediate anatomical association with the parts. Chancroid has its origin mainly, though not entirely so, from traumatism during sexual contact, thus accounting for the high proportion of genital lesions. There are a few reported cases of extragenital lesion, but these are rare. At times it is not an easy matter to make a diagnosis clinically between chancroid and other ulcers on the genitalia, particularly chancre. Thanks to our modern laboratory methods the debatable question can be settled within a few hours. The finding of *Spirocheta pallida* by means of dark field of illumination, or by Giemsa's stain is diagnostic of chancre on the one hand, and the finding of Ducrey's bacillus is diagnostic of chancroid on the other. We should always bear in mind the possibility of the ulcer being due to a mixed infection. Thus it is never safe to exclude syphilis until three or four weeks have elapsed.

The basis of treatment of a chancroid is something more than treatment of an ordinary ulcer, namely, cleanliness and antisepsis. We are here dealing with a microorganism, whose characteristics are essentially different from the ordinary pus producing bacteria, in that, 1, the epithelial cells are penetrated by the bacillus, which in turn causes coagulation necrosis, with subsequent erosion, possibly leading to phagedena; 2, the lymphatics are eager and do carry the organism to nearby glands, producing a complication (bubo) rather rare to pus organisms; 3, the power of autoinoculation is quite characteristic of the chancroid bacillus, thus the sore is usually multiple, rarely single, and occasionally with relapses. The multiplicity being due to the fact that the pus from the chancroid is acrid and irritating, thus rendering the epidermis softer (Morton), and by friction or otherwise, the epithelial barrier is made vulnerable to the attack of the microorganism. Suffice it to say that an abraded surface in a restricted sense is not essential for the entrance of the destructive foe. Like the pus producing ulcer, however, the chancroidal ulcer is superficial. Thus it would seem, the indications for treatment is to destroy the chancroidal character of the sore, and to transform it into a simple, noninfected ulcer when possible and no contraindications present.

The best means to this end are: Cauterization, cauterization with curettement, fulguration, excision, and radiant heat.

Cauterization.—Nitric acid and carbolic acid are the best caustic solutions. After the part has been rendered painless by local anesthesia, let me insist that a thorough cleansing of the entire penis should be carried out with green soap and water, and then

with warm bichloride (one in 1,000), and finally a rinse in sterile water. If the chancroid is superficial, carbolic acid is indicated. Anesthetize with cocaine solution, ten to twenty per cent., and then apply carbolic acid with a glass rod or wooden applicator directly to the ulcer, making sure no part is left untouched. A neutralizing agent, such as alcohol, should be applied after one or two minutes' action. Now, should the chancroid be deeper and more extensive, with a pseudomembranous coating, nitric acid or the actual cautery should be employed. Local anesthesia should be accomplished by the hypodermic injection of eucaine. In case of nitric acid, it is well to protect the surrounding tissue with petrolatum, and neutralize the acid with sodium hydroxide after one to two minutes. The actual cautery is a most efficient agent, and is especially desirable in severe cases. The small point of the Paquelin or galvanic cautery should be used and cauterization carried a little beyond the diseased tissue. The only drawback being that at times it is objectionable to patients, and of course cauterization of large areas means that the patient has to be anesthetized. Pedersen and Marsh, of New York, recommend the procedure used by Peterson, of St. Petersburg, in the early eighties. The procedure is as follows: The lesion is cleansed with water and gauze, cocaine is applied for five or ten minutes, then nitric acid is flooded upon the sore, care being taken to work it well beneath the overhanging edges into all pockets; after the acid is allowed to remain two or three minutes, the lesion is wiped with blotting paper; then with a sharp curette the slough is thoroughly and deeply removed until clean, smooth, healthy looking tissue is reached. They further advised the ulcer to be touched up with ten per cent. silver nitrate, and wet dressings applied. This treatment is founded on sound reasoning, in that the affected area is rendered sterile, and by removing the necrotic tissue, healthy granulations make their appearance early. A rapid recovery is to be expected, as borne out by clinical results.

**Excision.**—The use of this procedure should be restricted. In the beginning of the chancroid, even if there is doubt about the diagnosis, and if the lesion is limited to the foreskin, excision is an excellent procedure. It should be carried out by thorough cleansing of the parts, a hypodermic injection of eucaine around and beneath the ulcer, and painting the lesion with iodine solution, picking up the diseased area with a pair of mouse tooth forceps, cutting it out with scissors, and closing the wound with suture.

**Fulguration.**—The high frequency current has gained an important place in the treatment of certain pathological conditions, namely, cancer of the bladder, etc. It has been used and is still in use by a number of enthusiastic workers in the treatment of chancroid. The results are not altogether edifying, but rather condemned by most genitourinary men. It acts through cauterization of the tissue, but has no advantages over the simple caustics. In fact, the degree of cauterization of the tissue is better controlled by the use of the simpler cauterants.

After the chancroidal ulcer has been destroyed, the basis of treatment is cleanliness and antiseptics.

namely, cleanse the ulcer with hydrogen dioxide and boric acid solution, Thiersch's solution, or lead water and alcohol, cover with a gutta serena tissue or paraffin paper, and retain with a bandage. The frequency of the dressings is to be carried out according to indications, usually three times daily.

There are certain contraindications for cauterization that must be adhered to: When the sore is attacked by a high grade of inflammatory edema, prolonged immersion of the involved part in hot water, or in a hot bicarbonate of soda solution or, if you please, the entire body may be immersed in hot water, and the affected part sprayed with hydrogen dioxide and protargol one in 1,000, the dressings being kept constantly wet with the following solution:

R Hydrargyri chloridi corrosivi, gr.  $\frac{1}{16}$  (0.01 gramme);  
Zinci sulphatis, ..... gr. ix (0.60 gramme);  
Acidi boric, .....  $\frac{3}{4}$  (4.00 grammes);  
Glycerini, .....  $\frac{3}{4}$  (4.00 grammes);  
Aque, .....  $\frac{1}{2}$  (180.00 grammes).  
Misce. Fiat solutio.

Gauze wrung out of a solution of ammonium sulpho-chthylate, one in 1,000, may be used (Martin). This should be applied three or four times daily. If the chancroids are numerous and only a few are exposed, or if treated on the meatus, here conservative treatment is again indicated. Thus, the spots should be sprayed with hydrogen dioxide and protargol, one in 1,000, and a wet dressing of the solution given in the above formula applied. The prepuce may be stretched, and a thin layer of absorbent cotton, moistened with the solution, introduced between it and the glans penis. The patient should change the dressings every time he urinates or oftener. During the reparative stage when healing granulations make their appearance, scarlet red ointment or balsam of Peru, retained by cotton, is valuable. Schaltz recommends basic fuchsin in this stage also. I have purposely omitted the use of dry dressings, the objection being that powders tend to cake and through the retention of secretion bubo is very likely to occur.

**Vaccine therapy.**—Herbst, Gatewood, Ito, and others have done considerable work along the line of preparing a vaccine for treatment of chancroid. The results have not been gratifying. As yet, they have been unable to make a culture of the bacillus of Ducrey. Nevertheless, Herbst and Gatewood have treated a number of cases with autogenous vaccine, composed of a bacillus belonging to the pseudodiphtheroid group that they have isolated constantly from the sore, and at times found in pure culture. They report from this treatment alone a trifle less than thirty per cent. of cures.

**Phimosis.**—When the care of a subpreputial chancroid has been neglected phimosis is a usual sequel. It is best treated by injecting with a flat billed syringe under the foreskin a protargol (one in 1,000) or weak sublimate solution; during the intervals of treatment the foreskin should be retracted if possible, care being taken that the mucous membrane is not torn, and a piece of absorbent cotton, saturated with Thiersch's solution, the solution given in formula, or bichloride solution, put in place. The penis is then wrapped in wet dressings of bichloride, or lead water and alcohol. Now,

should the edema subside, thus permitting the foreskin to be retracted with ease, the parts should be cleansed and the ulcer cauterized. If in spite of careful treatment the edema progresses, surgical treatment is indicated—cleanse the penis in the usual manner, and split the prepuce upon the dorsum as far back as within one quarter inch of the coronary sulcus. The chancroids are exposed and cauterized, as well as the fresh cut wound; then treat as a common ulcer.

*Paraphimosis.*—This is relieved by cutting the constricting band and cauterizing the chancroids and the fresh cut as well.

*Phagedena.* This condition is usually due to the low resistance of the individual attacked, as a result of alcoholism, syphilis, tuberculosis, etc. According to Scholtz, in seventeen cases of phagedena that came under his observation, the minority showed weakness, debility, etc., while the rest of them were of good physique and of a robust appearance. He concludes, and rightly so, that the extreme virulence of the streptobacillus is a frequent cause. Here general and local treatment is indicated. Rest in bed, soft nutritious diet, stimulants, and tonics, in the form of iron, quinine, and strychnine are of prime importance. Potassium tartrate of iron, five grains given every three hours, is said to be of great value (Ricord). Opium is given to relieve pain. These cases are often manifestations of late syphilis, hence mercury and the iodides should be given a fair trial. Locally, the actual cautery is essential and every portion of the ulcer should be thoroughly cauterized. If anesthesia is necessary, as is frequently the case, gas or ether should be given. Good results are obtained by hot baths, or sitz baths given four to five times daily, or the patient may be allowed to remain days or weeks at a time in the bath. A powerful therapeutic agent that should be used only in this variety of chancroid is the x ray. Scholtz has achieved excellent results from the use of the x ray treatment, and recommends the strength of the current to be two milliamperes; distance from the tube, six inches; duration of the treatment, ten minutes; and exposure amounting to a half erythema dose. The therapeutic action that the x ray has in this condition is not definitely known, as the rays are not germicidal. Scholtz suggests the curative value to be due to the peculiar property of the rays to attack all pathological formation and tissue in preference to healthy tissue. Inasmuch then as the pathological tissue is attacked by the rays and is caused to slough away, healthy granulations gain a foothold and the ulcer soon heals.

Radiant heat has a number of advocates. The pioneer of this treatment was August Bier. It was first used in this country by Ruggier, of Rochester. Scholtz advises the treatment to be carried out as follows: A daily exposure of from 10 to 20 minutes, of a fifty candle power incandescent lamp, at a distance of from 6 to 12 inches. He cites a case where the chancroid had resisted all forms of treatment; after ten exposures he states that healthy granulations appeared. After healthy granulations appear in these ulcers balsam of Peru, scarlet red ointment and basic fuchsin are indicated as healing

agents. The germicidal value of radiant heat is explained by Scholtz as being due to the action of high temperature upon the bacillus of Ducrey. The bacillus is killed at 122° F., and as I have pointed out in the beginning, that the streptobacillus is found very superficially located in the diseased tissues, the thermic theory appears to be the correct one. However, we must not lose sight of the value of active hyperemia in this treatment, as has been pointed out by Bier himself.

If, then, the virulent organism is attenuated by heat or what not, active hyperemia plays an important rôle in controlling the local condition.

*Bubo.*—The pathological process begins as a focal necrosis in the centre of the node, and ends in a complete resolution or more likely, if not properly treated, in a breaking down and abscess formation involving the surrounding tissues through direct extension. A single gland is rarely involved *per se*, usually several, and the stages of suppuration are almost always at different intervals.

The streptobacillus has been found in the tissues of an affected gland before suppuration had taken place by Audrey, and in the periglandular tissues by Krepling. Ricord explains the virulence of a bubo as due to external contamination, and believes that if the incised bubo is well protected from the secretion of the chancroid, the virulent condition would not arise.

Sovinsky has pointed out that the bacillus of Ducrey is carried to the glands and perishes there after giving rise to suppuration. Thus, he asserts, self-destruction explains why the bacillus is not found in the bubo after maturation has taken place. Early or latent virulence in a bubo may be explained then by external contamination, but there are cases on record where the bubo became virulent after the chancroid had healed. If we bear in mind that a bubo is a polyadenitis, and these glands suppurative at different intervals, we may understand how the virulent organism may exist in a recently affected gland before self-destruction has taken place. If the ulcer is present, and we have reason to believe that the bubo has been well protected from external contamination, and latent virulence of the bubo makes its appearance, I believe the lymphatics in this case carry the bacillus to the noninfected bubo and there set up an active process. Thus, I fail to see the efficiency of injecting antiseptic solutions into the glands to prevent suppuration, as recommended by Welduder, Lang, Cordier, and others. Lehner advised puncture, expressing the retained pus, covering the opening with a moist dressing, and changing the dressing frequently. Mosetig, Moorhof, and Lasser advocate the removal of the infected glands if they are deep seated. Total extirpation of the inguinal glands, however plausible it may seem, is to be feared, owing to the fact that permanent edema (elephantiasis) may be the result, as pointed out by Lasser, Virchow, Neisser and others. From Sovinsky's experimental deductions, and from the pathological process that takes place, I can see where no benefit can be derived in early suppuration of the inguinal glands from the use of small incisions, evacuations of pus, and the injection of iodoform and glycerin into the cavity. If a



single gland is affected, the procedure is admirable, but if there is present a polyadenitis, the method is usually an endless procedure.

In nonsuppurating adenitis, rest in bed, cold applications, evaporating lotions, moderate pressure obtained by shot bag, sandbag or by a bandage and compress, as recommended by Kollmann, and revulsion produced by blisters, give the best results. Cumston states that a bubo can be aborted before suppuration appears, if a blister is applied. After suppuration is well established, the best results are obtained by thoroughly cleansing the penis and surrounding parts, protecting the field of operation, making free incision, evacuating the pus, curetting or dissecting out the partially broken down remains of the glands, and packing with iodoform gauze, renewing the dressing daily.

#### EPISCOPAL HOSPITAL.

*Dr. F. D. Austin, of Charlotte, N. C., says:*

In the treatment of chancreoids it must be remembered that we have to deal with a severe local infection, that is autoinoculable, and very destructive to the tissues, which must be immediately and rightly handled.

The main indications are: 1. To destroy the infection, which is due to Ducrey's bacillus; 2, to prevent the autoinoculation; 3, to heal the ulcer; 4, to treat the complications as they arise. To destroy Ducrey's bacillus, there is perhaps nothing as reliable as a thorough cauterization of the ulcer. First touch each ulcer with a little pure phenol and neutralize with a little alcohol for its anesthetic effect, then swab out the ulcers with pure nitric acid. This will burn quite a little for a few minutes, but the action will soon subside. To prevent autoinoculation, we must keep all the ulcers as nearly free from discharge as possible, using frequent baths of one in 2,000 bichloride of mercury solution, prevent the ulcers from touching the healthy skin at any point, and change the dressings every three or four hours.

The most satisfactory local dressings used in my office are as follows:

R Five per cent. solution of tincture of iodine  
in liquid petrolatum, ..... 120 c. c.

Sig.: Apply to ulcers on a little absorbent cotton every four hours.

This is not at all irritating, and the tincture of iodine will greatly aid in the destruction of the infection.

Another old dressing, and a very good one, is as follows:

R Spiritus terebinthinæ, ..... 2 c. c.;  
Emulsionis iodoformi (five per cent.), ..... 58 c. c.

M. Sig.: Apply locally on a little absorbent cotton.

The spirits of turpentine will deodorize the iodoform pretty well and render it less objectionable.

Or,

R Iodoformi, ..... 30 grammes.  
Sig.: Use as a dusting powder after each bath.

The odor of iodoform is very disagreeable, and the tincture of iodine will take its place very nicely

Or,

R Lotiois nigris, ..... 120 c. c.

Sig.: Apply locally every three hours on absorbent cotton.

After three or four days of the foregoing treat-

ment, if the ulcers are enlarging, cauterize again; but if the ulcers show healthy granulations, it is well to stop the tincture of iodine, iodoform, or black wash treatment, and use a simple dusting powder, together with a one in 2,000 bichloride of mercury solution, used twice a day, to keep them free from discharge till nature can have time to heal the damaged tissue.

A very good dusting powder is:

R Thymolis iodidi, ..... 15 grammes.  
Sig.: Use as a dusting powder after each bath.

Or,

R Bismuthi subnitratæ, .....  
Hydrargyri chloridi mitis, ..... } ..... āā 4 grammes.  
Lycopodii, ..... }

M. Sig.: Use as a dusting powder after each bath.

Either of the above dusting powders will give excellent results if followed as per directions. Some physicians prefer plain calomel as a dusting powder. It is very good, but it has seemed to irritate the ulcers on several of my patients, and for this reason I combine it as suggested. Under this treatment, if no complications arise, the patient will usually be entirely free from infection, and the ulcers healed within ten or twelve days.

The most usual complication of chancreoid is bubo, and this is best treated as follows: As soon as tenderness or pain begins in the inguinal region, apply the iodine compress. The compress consists of painting the groin with tincture of iodine, cover with a little gauze and cotton, and bandage with a spica of the groin. It is advisable to put the compress on twice a day for two or three days.

Another excellent addition to the abortive treatment is mixed staphylococcus and streptococcus vaccine. This should be given in doses as follows:

1st day—50 millions staphylococci and 100 millions streptococci.

3rd day—100 millions staphylococci and 200 millions streptococci.

5th day—200 millions staphylococci and 100 millions streptococci.

7th day—400 millions staphylococci and 200 millions streptococci.

9th day—800 millions staphylococci and 400 millions streptococci.

11th day—800 millions staphylococci and 400 millions streptococci.

A great number, I will say eighty per cent. of the chancreoid buboes will be absorbed, and give very little trouble in from six to twelve days, under this treatment. Some of the beginning buboes disappear after I begin the vaccine as if by magic. During such treatment, if there are any signs of suppuration, the inflammation is increasing, or if the patient complains of great pain, we must stop them at once and resort to hot poultices. Ice bags can be used in very acute cases; they relieve the pain and prevent suppuration, but do not aid the resolution of the disease as well as hot poultices, and therefore are not as good for a bubo that you are leading toward suppuration.

*Operative treatment.*—Simply open up the bubo by an incision directed with the long axis of the body, drain and pack with iodoform gauze or plain gauze, dressing it twice a day. Some men are in favor of removing the inguinal glands just as soon as they show signs of infection, but most men,

and the majority of the best men, condemn it, therefore, I do not use this method at all.

Phimosis is another complication that must be relieved when the chancroid is located under the prepuce. A simple dorsal incision through the prepuce will suffice.

Paraphimosis sometimes, though very rarely, occurs as a complication of chancroid. This is best treated by hot compresses and gentle reduction, but if it cannot be relieved a dorsal slit will take care of this also.

Chancroids sometimes assume the phagedenic condition. If they do, the foregoing treatment, together with systemic tonics, etc., will suffice.

Serpiginous chancroids are treated likewise.

(To be continued.)

### Therapeutic Notes.

**Treatment of Fissured Hands.**—Brocq, in *Nouveaux remèdes* for June 8, 1913, is credited with the following combination, a few drops of which are to be well rubbed over the hands morning and evening:

R. Aquæ rosæ, ..... ʒiiss (100 grammes);  
Glycerini neutralis, ..... ʒi (30 grammes);  
Acidi tannici, ..... gr. viiss (0.5 gramme).  
Misce.

Before retiring there should be applied to the affected parts either pure hydrous wool fat or one of the following preparations:

#### I.

R. Vanillini, ..... gr. viiss (0.5 gramme);  
Olei rosæ, ..... gtt. 1;  
Adipis læne hydrosi, ..... gr. lxxv (5 grammes).  
M. Ft. unguentum.

#### II.

R. Mentholi, ..... gr. xxii (1.5 grammes);  
Phenylis salicylatis, ..... gr. xxx (2 grammes);  
Olei olivæ, ..... ʒiiss (10 grammes);  
Adipis læne hydrosi, ..... ʒiiss (50 grammes).  
M. Ft. unguentum.

**Treatment of Intestinal Toxemia.**—A. L. McIlroy, in the *Glasgow Medical Journal* for September, 1913, states that the first essential in taking up the treatment is to have the mouth put in a healthy condition, the teeth being gone over by a dentist and the gums disinfected with tincture of iodine or by ionic medication. As for the diet, dry meals are often of benefit, copious draughts of water being taken, however, between meals and in the early morning. A plentiful supply of fat in the form of butter is of value. Green vegetables are difficult of digestion. In some cases of marked toxemia, even of the chronic variety, it is necessary to put the patient on a milk diet for several weeks. In severe forms, too, it should be borne in mind that small and frequent meals are preferable to large meals at long intervals.

Exercises to strengthen the abdominal muscles are of great value, e. g., lying flat on the floor and raising the trunk to a sitting posture without the aid of the arms; lying flat and raising the legs perpendicularly; standing straight with the feet close together and bending forward until the fingers nearly or quite touch the ground. These exercises are best performed after the morning bath, and each

should be repeated about a dozen times. Abdominal belts or binders are of benefit in many cases, their object being to prevent the downward pressure of the viscera and lend support to the abdominal walls. In women of the hospital class, the author advises a broad binder of new flannel, carefully applied with safety pins while the patient is recumbent.

In regard to medicinal treatment, the writer lays stress upon the avoidance of frequent doses of purgatives in chronic cases, though occasionally calomel and other drugs have to be given for diagnostic and surgical purposes, as well as in acute conditions. In cases of obstinate intestinal stasis, he has had excellent results from the following procedure. On rising in the morning the patient takes a tablespoonful of pure liquid paraffin, about half an hour or more before breakfast. This acts as an intestinal lubricant, and prevents septic absorption. After breakfast the patient must go daily to stool whether defecation takes place or not, and in time will find that a regular bowel movement results. Sometimes an additional dose of the liquid paraffin is given at bedtime, if required.

Natural mineral waters may be given, and in cases of fecal accumulation, a small enema of olive oil at bedtime is of benefit. The author has at times employed pituitary extract for chronic constipation, and has found it of value, whether given hypodermically or by mouth.

Where an obvious lesion is present, or where all other measures have been tried without success, due consideration should be given to the benefit to be gained by short circuiting operations between the small and large intestine, or even the removal of part of the latter.

**Subcutaneous Injections of Oxygen in Acute Psychoses.**—Toulouse and Puillet, in *Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, July 24, 1913, report excellent results in cases of acute mania, mental confusion, and manic depressive psychosis, such as commonly result from physical and mental overstrain as well as infections—especially in the puerperal period—by subcutaneous oxygen injections. A remarkably prompt effect upon the mental excitement and confusion in these patients was observed, a tendency to quietude and return of mental lucidity being apparent on the day of the first injection, and improvement being so marked on the succeeding days as to result in a complete cure of cases otherwise destined to follow a protracted course. Two illustrative cases are reported, both in puerperal women, but one showing excitement while the other was depressed, in which the oxygen injections clearly brought about recovery in a few days, although the trouble had already persisted for some weeks. The measure was also tried in other forms of insanity, including dementia, to overcome excitement and insomnia, and was found to bring relief in most instances.

The apparatus used consisted of two communicating bottles, one filled with water and connected with an atomizer bulb, pressure upon which forced the water into the second bottle, into which oxygen had previously been passed. The filling of the second bottle with water forced the oxygen in it through a rubber tube and hypodermic needle into the tis-

sues. This device permits of exactly regulating the speed of introduction and amount of gas used. The oxygen is washed by passage through water at the time of introduction into the apparatus. Over one hundred injections were given without a single case of infection. The amount introduced was from 120 to 150 c. c. at the first injection from 200 to 250 c. c. at the second, and 500 c. c. at subsequent injections. The injections were administered daily under the skin on the external aspect of the thigh. In some instances, when the 500 c. c. dose had been reached the interval was lengthened to forty-eight hours. The two thighs were injected alternately. The time consumed for an injection was ten to fifteen minutes for a 500 c. c. dose. The slight pain resulting from the injections disappears very soon, but the skin becomes quite red and there develops a subcutaneous emphysema at times affecting the whole external surface of the thigh and disappearing in from six to twelve hours. No other local or general reaction was in any case witnessed. In addition to the favorable effect on the nervous system, however, there was noted a marked and prompt increase in the appetite—with normal digestion and absence of either diarrhea or constipation—as well as a tendency to increased body weight.

**Treatment of Gonococcal Arthritis.**—A. S. Solovtsova, in *Semaine médicale* for September 17, 1913, is credited with having obtained good results in gonococcal arthritis by application of compresses moistened with the following solution:

R Acidi salicylici, ..... 5v (20 grammes);  
Alcoholis, ..... 5viii (200 grammes);  
Olei ricini, ..... 5v (20 grammes).  
M. et ft. solutio.

In a young man who had been suffering three weeks from gonococcal arthritis of the left knee, with rather high fever, and in whom sodium salicylate, bromides and iodides internally, as well as methyl salicylate, alcohol, and tincture of iodine, externally, had failed to bring lasting relief, application of the solution here formulated caused marked improvement within twenty-four hours, and in five days the patient was able to stand on the involved limb. The joint returned to its normal size, the fever subsided and the patient was able to leave the hospital in a week. When swelling of the other knee, with pain and difficulty of motion, later appeared, the solution again caused the trouble to disappear in a few days. The solution causes redness, and after three or four applications, an actual burn of the skin. A bland ointment should therefore be used in the intervals.

**Use of Formaldehyde in Anal Surgery.**—Robert Engel, in *Progrès médical* for April 26, 1913, warmly recommends the employment of dilute formaldehyde solutions in the postoperative treatment of anal and perianal affections. For all patients operated upon for anal fistula or hemorrhoids he orders two sitz baths, each of twenty minutes' durations, containing two per cent. of commercial formaldehyde solution, to be given daily. The strength of the solution is then gradually increased to eight per cent., which is generally attained on the tenth day after the operation. At first, the patient's bowels are kept inactive with

opium pills. Under the formaldehyde treatment local infective processes rapidly subside and as a rule the wound heals before the patient has been to stool. In cases of fistula, the gauze wick draining the canal is removed by the patient while in the first bath; a fresh, dry dressing is afterward applied. At the second bath the drainage wick need not be disturbed at all. After Whitehead's operation, the formaldehyde baths gave very satisfactory results. The gut sutures around the anus were absorbed less rapidly, moreover, than is usually the case, thus completely preventing loosening of the anal mucous membrane and its ascent into the rectum. The postoperative treatment of fistula in ano was also often markedly shortened by the formaldehyde baths. The baths cause at first a slight stinging sensation, but this soon disappears.

**Treatment of Neuralgia.**—A writer in *Paris médical* for May 31, 1913, recommends the following liniment for neuralgia:

R Chloroformi, ..... 5ss (30 grammes);  
Aetheris, ..... 5iiss (30 grammes);  
Alcoholis, ..... 5iv (90 grammes);  
Camphoræ, ..... 5iii (8 grammes);  
Tincturæ opii, ..... 5l50 (3 grammes).  
M. et ft. linimentum.

A square piece of flannel should be moistened with the liniment, placed over the seat of pain, and covered with some impermeable material.

In pain at the anus, not accounted for by a fistula or rectal lesion, the following liniment may be rubbed over the part several times a day:

R Extracti belladonnæ foliorum, ..... 5ss (2 grammes);  
Chloroformi, ..... 5ss (3 grammes);  
Glycerini, ..... 5ss (15 grammes).  
M. et ft. linimentum.

In periorbital neuralgia and ophthalmic migraine, Galezowski uses the following ointment:

R Mentholis, ..... gr. xiii (0.85 gramme);  
Cocainæ, ..... gr. iv (0.25 gramme);  
Chlorali hydrati, ..... gr. iiss (0.15 gramme);  
Petrolati, ..... gr. lxxv (5 grammes).  
M. et ft. unguentum.

Sig.: Rub ointment over the seat of pain and cover with oiled silk.

**Treatment of Chronic Spastic Constipation.**—Pissaff, at a recent meeting of the Paris Société de Thérapeutique (*Paris médical*, July 5, 1913), asserted that, clinically, patients with chronic constipation due to spasm may be divided into two groups, viz., 1, those who experience no discomfort and in whom the spastic state is the result of excessive local irritability, and, 2, those who do suffer and are the subjects of spasm arising through nervousness and general irritability. In eighteen patients of the first group, the following combination of remedies uniformly gave permanently successful results:

R Bismuthi subcarbonatis, ..... 5ss (2 grammes);  
Magnesii oxidi, ..... gr. xv (1 gramme);  
Belladonnæ foliorum, ..... gr. 1/2 (0.02 gramme).  
Ft. in chartulam No. 1.

Sig.: One powder to be taken a half hour before each meal.

In the second class of patients, on the other hand, these remedies were of but little use, bringing about only temporary improvement in three patients and failing to benefit the others.



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**DRUG SUBSTITUTES AND PEDDLERS.**

The evils of substitution have reached a point that may justly be called appalling in the absolutely conscienceless manner of their exploiting the retail pharmacist and dispensing physician alike. The physician suffers in reputation and pocket more than the retailer, for he is unfamiliar with market quotations and lacks the business instinct which would arouse his suspicions at unusually low rates. The pirate manufacturers who make substitute tablets are, moreover, clever enough to include in their formulæ a small dose of the genuine drug so as to meet the qualitative analysis which is likely to be the sole reliance of even the best qualified general practitioner. There is little if any excuse for the retailer, for the salesman's visit is preceded by a circular from the fraudulent manufacturer, the terms of which are sufficiently explicit to permit of no doubt as to the base nature of the product. Moreover, many of the retailers purchase by mail order. The plain hints as to the fraudulent nature of the goods are omitted from circulars sent to physicians. Ignorant of the fraud to which he is a party, both when dispensing and when prescribing, the physician wonders why the prescribed drug fails to manifest its usual action; he is led to increase the dose, to try something else, even to doubt his diagnosis.

He is likely to lose his grasp of the case and the confidence of his patient who seeks medical aid elsewhere.

Physicians are awaking finally to this kind of fraud and, to protect themselves, are not unlikely to equip and maintain pharmacies of their own, which could be easily conducted at a small but satisfying profit. Such a course would deal the death-blow to the present sort of combined pharmacy and novelty store and make every druggist choose whether he will be a professional pharmacist or a mere tradesman without either professional responsibility or prestige. Is there a doubt in the mind of any thinking pharmacist as to the cause of the springing up everywhere of the new "chain stores?" Both physician and patient have, rightly or wrongly, confidence in the immense resources of these establishments and believe that they are supplying genuine and pure drugs at reasonable prices.

The products of every legitimate manufacturer have suffered from this illegal and outrageous substitution, but especially the modern synthetic preparations, most of which represent invaluable and now indispensable additions to the materia medica. They mark a distinct evolution in modern pharmacological research, and every pharmacist should encourage these advances in pharmaceutical chemistry, since it is his duty to be equally interested with the physician in the stay of disease and the relief of suffering. It is beginning to look as if the tremendous strides of modern biochemistry would soon force a parting between the present type of druggist and a more highly educated successor who will rank, in training and responsibilities, as an absolute equal of the physician. Meanwhile, however, the retailer must preserve the finest type of moral conscience, while the physician forced to dispense must learn that probably only the highest priced and most carefully sealed and safeguarded packages contain pharmaceutical products worthy of his attention and confidence. He can begin at once by buying nothing from the door to door peddler.

These peddlers, to put it mildly, are quite irresponsible even when they are honest, while among them are many individuals of the lowest type, who combine with their sales to physicians the vending of morphine and cocaine to habitués. It is to the activities of this class that we owe the persistent spread of drug habits in spite of the most stringent State and Federal legislation. By refusing to purchase of peddlers, the physician can practically put them out of business, for their underground traffic would perish with their ostensible occupation. The physician is in the gravest danger in accepting goods from these men who generally "represent" some manufacturing pharmacist without ethical or

business standing, who circulates through the peddlers tablets containing only a small fraction of the proper dose of some trustworthy synthetic product, which fraction is included for the sole purpose, as we have stated, of meeting a possible qualitative test. Apart from all the obvious reasons for refusing to deal with peddlers, the physician should remember that he may at any time be made the defendant in a suit for damages on account of the serious consequences of the administration of a fraudulent tablet, made by a rascal probably unskilled in pharmacology and unfamiliar with the dangers of the potent agents he handles.

### THE DIAGNOSIS OF CARDIAC TUMORS.

Textbooks are singularly deficient in information concerning the various forms of tumor which may occur in the heart. This, doubtless, is due in part to Oppolzer's misguided remark that these neoplasms have no clinical interest because it is hardly ever possible to recognize their existence during life. Clinicians have thus been led to overlook cardiac growths in the differential diagnosis of heart disorders, with the result—suggested by the relatively large number of tumors found post mortem, the existence of which had not been suspected,—that deaths occur, at least in a small proportion of cases, which might have been prevented by timely treatment. Cardiac gummata, which are promptly amenable to appropriate measures, afford a typical example of this fact; even sarcomata might, perhaps, be successfully mastered by means of Coley's fluid. These facts clearly sustain the view that in the study of organic disorder of the heart, cardiac tumors should always be included among the possible causes. Especially does the utility of this course assert itself when the diagnostic features brought out recently by clinicians who have followed it are added to those previously at our disposal.

The signs of cardiac tumor vary obviously with the location and size of the growth, but all cases may present more or less prominently the symptoms common to the more frequent forms of heart disease; precordial pain, dyspnea, vertigo, edema, syncope, murmurs, etc. More or less suggestive signs begin to appear, however, when the location of the growth is such as to interfere directly with cardiac functions. Thus, as recently noted by Horneffer and Gautier in three cases of tumor of the left auricle, the dyspnea differed from that observed in the average case of heart disease in that it was particularly severe; it was also accompanied by distressing paroxysms pointing to temporary obstruction, more or less complete, of the orifice, sufficient

at times to cause brief periods of syncope. These also occurred when the position of the body was abruptly changed. A systolic murmur or duplication of the second sound, with irregularities of rhythm and marked inconstancy of heart findings, were also noted. Bard has observed a suggestive phenomenon, viz., that when the jugular and esophageal pulse tracings are compared—the jugular representing the activity of the right auricle and the esophageal that of the left auricle, the region most frequently the seat of primary cardiac growths,—distinct differences between them may be observed. The esophageal tracing shows a much less pronounced postsystolic rise than normal, the curve at this point attaining a level much lower than that of the presystolic and systolic elevations, whereas normally the opposite is the case. This is due to rigidity of the posterior wall of the left auricle owing to its infiltration by the tumor. Another abnormality is the marked diminution in the presystolic rise, contrasting with the normal rise seen in the jugular tracing and referable, therefore, to the right auricle. The history likewise affords considerable aid in such cases. Thus, as shown by Huchard and Fiesinger, the occurrence in old syphilitics of gradually progressive dyspnea, edema, and cyanosis, often with a small, rapid, high tension pulse, is very suggestive of cardiac gumma, which appropriate measures soon overcome where cardiac therapy on the usual lines will prove absolutely sterile in results.

On the whole, it is clearly evident that Oppolzer's advice to ignore cardiac neoplasms as clinical entities should no longer be followed, and that the only course warranted, nowadays, is to trace carefully to their source all signs that the diseased organ affords.

### ETIOLOGY AND TREATMENT OF BERIBERI.

Although beriberi is, strictly speaking, a tropical disease, it is nevertheless one which may at any time fall under the observation of the physician in seaport towns of the temperate zone. This fact, together with our new policy of national expansion into tropical regions, make it desirable that the profession at large should maintain an active interest in the researches conducted under the auspices of the Philippine Bureau of Science into the etiology and treatment of this disease. For many years there has been a practical consensus that the multiple neuritis which is the concomitant of beriberi is in some way related to the ingestion of rice. The older textbooks speak of the disease as being caused by the ingestion of spoiled rice. The later ones lend themselves to the view that hand

polished or highly milled rice is responsible for the condition. The truth appears to be established that in the external layers of the rice grain there exists a substance, the absence of which is in some way connected with the development of beriberi. One of the proximate principles of this substance has been isolated by Young and is variously known as Young's basic substance or "beriberi vitamine." The researches of Vedder and Williams seem to indicate that this basic vitamine has a specific action in preventing the development of the paralytic symptoms of "dry beriberi," whereas another substance in the pericarpal layers of the rice grain is specific against the edema and heart failure arising in connection with "wet beriberi." Whether the disease is a purely nutritional one dependent upon the absence of phosphorus-containing vitamins in spoiled or highly polished rice, or whether it is due to an infection against which the vitamins act as specific antidotes are points which the researches of Vedder and Williams (*Philippine Journal of Science*, June, 1913) do not appear to have satisfactorily solved. Their investigations have resulted, however, in the finding of what amounts to a practical cure for the disease. For although its essential causation remains unknown, the fact has been demonstrated that the administration of unhydrolyzed extract of rice polishings is curative for the symptoms of dropsy and cardiac failure that are encountered in some forms, whereas Young's basic vitamine promptly relieves the paralysis which is sooner or later developed in all chronic forms.

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#### HIPPOCRATES AND MODERN MEDICINE.

Dr. Eduard Baeumer, of Berlin, describes in an essay, *Der Hippokratismus*, some of the remarkable conditions in the medicine of the present time and points out the necessity of returning to the principles of Hippocrates.

The disciple of modern medical science, entering into practice armed with a great amount of knowledge and fairly trained in exact methods, finds sooner or later that scientific glory is not all sufficient, not all reliable. He finds that one thing alone is essential—to know how to heal—to become an adept in the art of healing. All knowledge and all science are of value only as a means in the service of the healing art; science is never the art itself.

The wonderful progress made in the natural sciences during the nineteenth century has brought to the front great changes in medicine. With new methods of investigation discoveries after discoveries have been made, and the beneficial influence of natural science cannot be overestimated.

Facts innumerable have been disclosed—so many, indeed, that it has become impossible for *one* man to grasp them all; so many that even a specialist cannot master his entire specialty, and specialisms of specialisms have arisen. The whole body of investigators exerting themselves throughout the year are bound to make new discoveries and to publish them; hence a surprising growth of medical literature. And who is able at present simply to survey the valuable publications, not to speak of the ability to separate the wheat from the chaff?

Hippocrates was the first to lay down the basis and the principles of the healing art for all time, and Hippocrates repeatedly in the course of history has been the salvation of medicine. The genuine Hippocratism lives in eternal youth, because the observations of Hippocrates, free from theories, are drawn from the inexhaustible well of Nature, and retain, therefore, their value independent of even the most progressive phase of medical development. Hippocrates inspires with fresh and youthful ardor the researcher who has entered into his spirit, because he does not demand faith in scientific dogmas, but, on the contrary, incites step by step to sober observation. It is true we possess a greater fund of facts and a more intimate knowledge of anatomy and physiology than he, but nevertheless we can learn from him. He knew no medical "science," he only knew the art of healing.

When we take up the study of Hippocrates we are surprised how modern everything sounds, for we have entered on this study with the idea in our minds, "What can this old Greek teach us, who are so far advanced in knowledge and technic?" We forget that it was Hippocrates who established the fundamental principles of the healing art. The principles and foundation of our art undergo no change, no evolution; hence the eternal youth of Hippocrates. Hippocratism has had, and always will have, an historical mission. He liberated medicine from dogmatism and faith in authority even during the Middle Ages.

What is the significance of Hippocratism in modern medicine? The division of medicine into more and more specialties must lead to untenable conditions, and Hippocratism alone will have to be our salvation.

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#### SYMPATHETIC ASEPTIC POSTOPERATIVE FEVER.

In discussing the results achieved by anoci association anesthesia before the New York Society of Anesthetists Dr. George W. Crile, of Cleveland, pointed out that most of the so called aseptic post-



operative fever is essentially a matter of pure fright. In fact, he asserted and gave evidence that a temperature chart of the friends or family of the patient would not infrequently show cases of "aseptic postoperative fever" on the part of relatives who had not been on the table at all and whose rise of temperature was due solely to sympathetic fright. In one case reported the patient operated upon presented no rise in temperature, whereas the sister, merely from sympathetic fright, showed a temperature quite in keeping, in its rise, duration, and decline, with what has hitherto been known as "aseptic postoperative fever."

Doctor Crile's study of surgical shock and its consequences has a wide application in medicine outside the realm of pure surgery. The illustrations which were shown by him on the occasion referred to of the effects of fright on brain tissue and the apparently logical deduction which he draws regarding so called aseptic postoperative fever, convey a significant warning to physicians as well as surgeons, for the physician not infrequently occupies a position where, unless he exercises tact and discretion, he may administer a shock or cause a fright which will have an important bearing upon the physical as well as the mental poise of the patient.

#### CLOSURE OF THE OPENING PRODUCED IN PARACENTESIS ABDOMINIS.

E. Lebrun, in *Quinzaine thérapeutique* for September 25, 1913, refers to the fact that all the measures commonly employed to arrest the flow of ascitic fluid after tapping the abdomen not infrequently fail. Lately he has been applying a Michelin clamp over the trocar opening in every case of paracentesis, with uniformly successful results, subsequent drenching of the dressings and bedclothes with the fluid being always prevented. A trocar of rather large calibre is used, in order to evacuate as much fluid as possible at the first tapping. As the trocar is withdrawn, the margins of the opening are held together between the thumb and finger of the left hand, tincture of iodine applied, and the previously prepared clamp attached, including as great a thickness of the local tissues as possible. A sterile dressing is then applied, next a pad of cotton wool, and finally a moderately tight bandage. Later the clamp is removed. In one of the author's cases subcutaneous infiltration of the lower abdominal wall and scrotum took place, but this is an occurrence not uncommon after any form of paracentesis, even where nothing obstructs the continued flow of fluid through the trocar opening. Furthermore, such infiltration automatically brings into play a therapeutic influence sometimes purposefully availed of, viz., autoserotherapy. By laying hold of the skin deeply before the clamp is applied, subsequent infiltration is almost always avoided, and the flow to the exterior invariably.

#### News Items.

**Changes of Address.**—Dr. S. R. Klein, to 2321 Cambrelling Avenue, the Bronx, New York.

**Southern Surgical and Gynecological Association.**—The annual meeting of this association will be held in Atlanta, Ga., December 16th to 19th, under the presidency of Dr. John Y. Brown, of St. Louis, Mo. Dr. W. D. Haggard, of Nashville, Tenn., is secretary.

**Harvey Society Lectures.**—The fifth lecture in the course will be given on Saturday evening, December 13th, at the New York Academy of Medicine, by Dr. Rufus Cole, of the Rockefeller Institute for Medical Research, his subject being *Pneumococcus Infections and Lobar Pneumonia*.

**Cholera in Rumania.**—According to official reports of the United States Public Health Service, dated November 28, 1913, there were reported in Rumania 22 cases of cholera and 28 deaths from the disease during the period from October 23 to October 29, 1913, making a total of 5,656 cases with 2,908 deaths from the beginning of the outbreak to date.

**Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.**—Monday, December 8th, Northwestern General Hospital Medical Society; Tuesday, December 9th, Pediatric Society; Wednesday, December 10th, Philadelphia County Medical Society; Thursday, December 11th, Polyclinic Ophthalmic Society, Pathological Society; Friday, December 12th, Northern Medical Association.

**The New Montefiore Home.**—More than five thousand persons attended the dedication of the group of new buildings of the Montefiore Home, in East 210th Street, New York, on Sunday, November 30th. There are nine large buildings, which will accommodate nearly seven hundred patients. The total cost of the new buildings with equipment was nearly \$2,000,000, and the expense of maintenance will amount to about \$300,000 a year. Dr. Siegfried Wachsmann is medical director and general superintendent of the institution.

**The Mütter Lecture to Be Given by Doctor Coffey.**—The joint course of special lectures being given in Philadelphia this season under the auspices of the Rush Society, the College of Physicians of Philadelphia, the University of Pennsylvania, the Philadelphia Pathological Society, and the Mütter Museum, includes the Mütter Lecture, which will be given on the evening of December 12th, at 8:30 o'clock, at the College of Physicians, by Dr. R. C. Coffey, of Portland, Ore. His subject will be the Surgical Treatment of Chronic Constipation.

**Legislation on Mercuric Chloride Tablets.**—There are now three bills before Congress intended to regulate the sale of mercuric chloride tablets. One of these requires that the tablets shall be green in color and cubical in shape. The latest bill introduced is that proposed by Senator Gallinger, of New Hampshire, who is a physician. This bill requires that all tablets of mercuric chloride shall be flat, triangular, or three cornered in shape, colored blue, and dispensed only in blue or amber colored corrugated bottles, conspicuously labelled "Poison" in red letters. An ordinance prohibiting the sale of these tablets has been proposed by the Board of Aldermen of Baltimore. The matter is under consideration by Health Commissioner Lederle, of New York, who has received various suggestions, but has not yet decided what action he will take.

**The Death of Dr. Louis Feiser.**—At a meeting of the Medical Board of the Bronx Hospital and Dispensary, held November 11, 1913, it was unanimously

*Resolved*, That we deeply deplore the untimely death of our colleague and fellow member, Dr. Louis Feiser. We recall his cheery and happy disposition, his unflinching courtesy, his constant endeavor for the uplift of his profession, and his scientific interest therein. We shall miss his sage counsel and sincere willingness to bear his share of the work in the building up of our institution, and we tender our most respectful condolences to his bereaved family. Be it further

*Resolved*, That a copy of these resolutions be sent to his family and the medical press and be entered in our minutes.

EMIL MAYER, M. D.  
ROBERT T. FRANK, M. D.  
HENRY HEIMAN, M. D.

**Personal.**—Dr. George W. Outerbridge has been selected to fill the vacancy on the visiting obstetrical staff of the Maternity Hospital of Philadelphia caused by the recent resignation of Dr. L. J. Hammond, a member of the staff since 1893.

Dr. J. Solis-Cohen was elected an honorary member of the Philadelphia Laryngological Society at its November meeting.

**The Bay Ridge Hospital.**—The directors of this hospital have acquired title to a parcel of land situated at Ninety-second Street and Seventh Avenue, Brooklyn, on which it is their intention to erect a modern hospital, large enough to accommodate one hundred patients, at a cost of approximately \$150,000. Dr. Robert E. Coughlin is chief of clinic and president of the medical staff; Dr. Bruce G. Blackman is treasurer of the board of directors; Dr. Frank E. A. Stoney, corresponding secretary, and Dr. Joseph W. Malone, recording secretary.

**New Building Assured for St. Giles Hospital, Brooklyn.**—In the last hour of a ten day campaign to raise \$100,000 for the erection of a modern hospital building for the House of St. Giles the Cripple, \$12,000 was subscribed, bringing the total amount up to \$104,460.50. The trustees of the hospital give the greatest credit for the success of the campaign to Dr. Burr Burton Mosher and Mr. A. E. Hoffsommer. The House of St. Giles the Cripple is the only institution in Brooklyn devoted exclusively to the care of crippled children, and its present accommodations are wholly inadequate to the demands made upon it, Brooklyn and Long Island finding it necessary to call upon Manhattan to treat two thousand of their children annually. The crippled children themselves gave \$500 toward the fund.

**The Safety and Sanitation Conference.**—In connection with the International Exposition of Safety and Sanitation, a conference will be held in Rumford Hall, Chemists' Building, 50 East Forty-first Street, New York, on Wednesday, Thursday, and Friday, December 10th, 11th, and 12th, under the auspices of the American Museum of Safety. There will be two sessions daily, in the mornings and afternoons. A preliminary programme has been issued giving an outline of the work of the conference. Among the subjects to be discussed are industrial accidents, accident prevention and the public, industrial hygiene, employer and employee, and the coming generation. This conference will present unusual opportunities for studying the recent developments in the nation wide movement for accident and disease prevention.

**Street Accidents in New York.**—Thirty-eight persons were killed in the streets of New York by automobiles during the month of November, according to the report of the National Highways Protective Society. The number is three more than the highest previous month of which there is a record, and 17 more than for November, 1912. Of the 38 persons killed, 15 were children under sixteen years. Nine persons were killed by trolleys, as against 13 for the same month last year, and 11 by wagons, as compared with 22 for November, 1912. The number injured by automobiles was 115, as compared to 50 by trolleys and 34 by wagons. The total number of persons killed in New York by all kinds of vehicular traffic was 59 in November. During the first three days of the past week more than six hundred drivers of automobiles were arrested in New York for fast or careless driving. Fines of from \$25 to \$50 were inflicted.

**To Unify Federal and State Laws on Food and Drugs.**—For the purpose of ascertaining and suggesting means for the reconciliation and unification of Federal and State laws on food and drugs, a committee composed of members of the National Conference on Uniform State Laws for Purity of Articles of Commerce is now engaged in a consideration of this subject, with a view to making recommendations to this end at the next annual conference of the commissioners on uniform laws. At a meeting of this committee, held in New York on November 21st and 22d, a number of representatives of various organizations presented the results of their investigations and proposed remedies for variances and inconsistencies in the Federal and State laws. These suggestions were discussed at length, but no formal action was taken. It is understood to be the purpose of the committee to prepare recommendations to be submitted to the commissioners at their next meeting.

## Pith of Progressive Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

October 6, 1913.

**Physiological Albuminuria from the Military Medical Standpoint.**—Hecker says that although the last word had not been said in the teachings concerning physiological albuminuria, still it can with certainty be stated that the excretion of albumin over a period of many years, recurring regularly under certain conditions, is compatible with general health, and there is no reason to couple this occurrence with the fear of a severe kidney lesion. From this viewpoint the author believes that the 25,000 men who are now barred from service could be restored to the German army.

**Epidemic of Paratyphoid in the Infantry Regiment No. 78 in Osnabrück.**—R. Otto proves on the basis of a bacteriological and serological investigation that the infection of the men with paratyphoid bacilli and their poisons was due to the meat consumed on a certain day. The slaughtered animal was positively healthy, but the butcher also sold meat from imported sources, so it is possible that the healthy meat was infected by the imported meat by being carried in the same meat containers.

**Pure Cultures of Smallpox Germs.**—Fornet freed the raw lymph (Rohlymph) of calves of all foreign bodies by agitating it with ether. The effectiveness of the lymph is in no way lessened by thus treating it with ether. In contradistinction to the glycerin lymph used at the present time, the bacteriological sterile ether lymph can be kept for a long time, even in high temperatures. The virus of smallpox can be cultivated from one reagent glass to another, but loses a little in virulency in the passage; these cultures may be obtained from the real pox as well as from the cowpox. *Microsoma variola seu vaccinia* is the active agent, because it is the only living organism in the effective cultures; it resembles the smallest forms described by many authors under diverse names.

**The Danger of Pestilence in War.**—Landgraf discusses the military medical measures taken in war to prevent the appearance of pests and the prevention of their spread after introduction.

October 13, 1913.

**Late Abscesses after Appendicitis.**—E. Melchior's observations give a typical example of the oft recurring phenomenon in surgery, namely the latent infection. These late abscesses presented a prognostically good course.

**Therapy of Chronic Anacidity.**—M. Hirschberg found that in the therapy of the anacid stomach affections, a whole series of factors must be considered, to none of which can be ascribed the sole curative action, but that all, in combination, bring about the successful issue.

**Recurrent Eclampsia.**—C. Holste reports this case, which although it came to autopsy, did not offer important data for the solution of the clinical picture of this condition. In a similar case of tendency to eclampsia, as this reported case, the author

advises resection of the tubes to sterilize the patient in order to make subsequent conception impossible.

**Serological Pregnancy Reaction after Abderhalden.**—F. Ebeler and R. Lönberg found in one hundred cases of pregnancy the positive ninhydrin reaction. It is also present in nongravid woman and therefore at the present time, with the incomplete technic cannot be regarded as specific. They believe, however, that the method will gain a permanent position as a diagnostic aid in clinical routine.

**The Dangers of Mercurial Treatment and Their Prevention; A Case of Mercurial Vaginal Gangrene.**—W. Wolffstein shows that mercury under certain conditions, and irrespective of the method of application or of the preparation used, is a dangerous poison. In every case where symptoms of incipient intoxication appear, the administration of mercury is to be immediately discontinued. The observance of careful rules of administration and of all contraindications will make it possible to avoid the severe intoxications or at least reduce them to a minimum.

October 20, 1913.

**The Nephritic Heart Anomalies in Scarlet Fever, and Their Treatment.**—Adolf Baginsky, in many cases of the combined symptoms of the usual kind, with dilatation of the heart and failing compensation, with hydrops, high fever, and severe dyspnea, has applied the "cold sweat packing" with actually life saving results.

**Resistance of the White Blood Corpuscles.**—A. Fraenkel demonstrates by experiments on the resistance of the blood cells, that the small and the large lymphocytes possess a stronger resisting power than the others; he concludes from this an eminent biological significance for these cells.

**Vaccination Therapy of Cancer.**—A. Pinkuss and Kloninger express the hope that vaccination therapy may be able, through the administration of suitable vaccines in combination, to prevent the recidives far from the field of operation or of metastases. The results from mesothorium radiations in recurrences in the field of operation have given rise to this hope.

**The Immunization of the Blood against Septic Disease.**—P. Krehl observes that women who have, recently or long ago, undergone mercurial treatment have a normal puerperal or postabortive period, notwithstanding the fact that there were present extraordinarily unfavorable hygienic conditions. Systematic animal experiments show that mercury injected intramuscularly, as a prophylactic measure in the form of hydrargyrum benzoicum, renders the organism immune for streptococcus infection, in insufficient doses the infective process was at least limited to a local process. Small and delayed injections of mercury did not help the organism in its fight against the infection.

#### CORRESPONDENZBLATT FÜR SCHWEIZER AERZTE.

October 11, 1913.

**Röntgenograms of Pulmonary Tuberculosis.**—Hans Staub presents a beautiful series of twenty

röntgenograms illustrating lesions in the lungs, but to abstract his paper is not feasible.

October 18, 1913.

**Clinical Experiences in the Treatment of Pneumothorax in Pulmonary Tuberculosis.**—O. Amrein and F. Lichtenhahn report twenty cases. They say that when the cases are not too far advanced, and the lung can be totally compressed, operation is usually followed by immediate disappearance of fever and general improvement. Failure occurred in three of their cases, one because of the onset of empyema, another because of inanition and intestinal tuberculosis, a third because of the subsequent appearance of the disease on the other side. They find that to carry out this treatment without danger the aid of the x rays is always necessary.

#### ZENTRALBLATT FÜR CHIRURGIE.

October 18, 1913.

**Gangrene of the Feet in the Balkan War.**—A. Welcher and Lothar Dreyer refer to previous publications on the subject and maintain that the gangrene was not caused by frostbite. Welcher saw 115 cases in which the men had suffered a week or two before from a typical attack of cholera, dysentery, or diarrhea. In forty-five other cases it developed in men who had just recovered from typhoid fever. At another time he saw many cases of frozen feet, and the symptoms in these cases were materially different from those of the gangrene following intestinal trouble. In the second Balkan campaign the cholera arrived during the summer, but no cases of gangrene came to his knowledge. Dreyer seems to think freezing played a part, favored by their foot covering, but that it was largely due to malnutrition and intestinal disorders.

#### ZEITSCHRIFT FÜR AUGENHEILKUNDE.

October, 1913.

**Angioma of the Choroid.**—Robert Salus reports a case of this nature and concludes that the early anatomical condition of an angioma of the choroid is characterized by a number of changes that seem to belong quite regularly to the development and extent of this form of growth. These are: A high degree of cystoid degeneration of the retina, confined to the region of the tumor, leaving the surrounding parts of the retina nearly or quite normal and capable of function; the limitation of the detachment of the retina to the region of the tumor and its extremely slow increase, although the opposite would be expected from the nature of the growth; the appearance of adhesions between the outer layers of the retina and the subjacent tissue without any signs of inflammation; the appearance of a more or less thick and dense connective tissue or epithelial layer separating the tumor from the interior of the eye.

**Chance of the Conjunctiva of the Upper Lid.**—Theodor Fischer-Galati reports a rare case of chance of the transition fold of the conjunctiva of the upper lid, met with in a man twenty-six years old. The infection may have been carried by kissing, or by the finger.



## PARIS MÉDICAL

November 1, 1913.

**Diuretics.**—A. Pic classifies diuretics according to the form of diuresis they induce, viz., as hydriuric, producing a watery urine, chloruric, increasing the elimination of sodium chloride more than that of the other urinary constituents, and azoturic, increasing especially nitrogen elimination. In the first group belong water, infusions of various drugs, such as uva ursi, juniper, scoparius, etc., and several sugars; in the second, theobromine, theophylline (dimethyl xanthene), caffeine, calcium chloride and sodium chloride; and in the third, squill, formic acid and its salts (to be used only with great circumspection), and sugars, such as lactose, which though acting chiefly as a watery diuretic, brings about an abundant excretion of urea. The diuresis brought on by water is accompanied by intracellular changes, with vacuole formation, showing heightened activity on the part of the renal cells. The colder the water ingested, the greater is the diuresis. Distilled water yields a pronounced diuresis, contrary to the view formerly held. Sugars probably act both by an osmotic influence and by excitation of the renal epithelium and are especially effective in oliguria due to infections, combining cardiac stimulation with the other effects. In doses of from 0.5 to 2 grammes, calcium chloride causes a parallel increase in the quantity of urine and its chloride content, while the urea and phosphates remain unaffected; it can be of considerable value clinically. Sodium chloride injections increase chloride elimination only in small doses, in isotonic or hypertonic solutions, and where no edema-producing nephritis exists.

**Treatment of Amebic Lesions with Salts of Emetine.**—C. Dopfer advises that not less than 0.04 gramme of emetine hydrochloride be injected at a dose in amebic dysentery, and that the drug be continued for some days after clinical recovery, to prevent early recurrence of the trouble. Doubt is still permissible as to whether emetine can completely sterilize the human organism of amœbe, some patients presenting in the stools, after apparent clinical cure, amebic cysts upon which the drug does not seem to have much destructive power. The fact remains, however, that emetine is more effective in arresting the dysenteric paroxysm than any other agent.

**Pituitary Extract in Obstetrics.**—Metzger agrees with the conclusions of previous writers as to the indications for pituitary extract, but advises that the fetal heart sounds be kept under careful observation during its use, slowing and irregularity of the beats, owing to excessively prolonged uterine contractions, having been so marked in four of his cases as to necessitate rapid delivery with forceps.

## PRESSE MÉDICALE.

November 1, 1913.

**Action of Sodium Chloride on Renal Secretion.**

—H. Roger reports experiments in rabbits which showed that whereas intravenous injection of large amounts of isotonic sodium chloride solution leads to an increase in the amount of water in the system,

injection of hypertonic solutions causes dehydration. The hypertonic solutions are strongly diuretic, but as the water passes through the kidneys more easily than the salt, the urine at first secreted is relatively poor in salt. Later, however, after the preliminary paroxysm of polyuria, the proportion of salt in the urine may rise to as much as 5.49 per cent. Where the amount of salt introduced has not exceeded four grammes per kilogramme of body weight, it is completely eliminated in twenty-four hours, or even, an excess may be eliminated over that introduced; where the amount introduced equals or exceeds five grammes in each kilogramme, chlorine retention results. Toxic effects depend on the amount of salt retained in the system rather than on the amount originally given.

**Galyl in the Treatment of Syphilis.**—P. Troisfontaines administered galyl, or tetraoxydiphosphamino diarsenobenzene, which contains 35.3 per cent. of arsenic, to twenty-one syphilitic patients. Three or four intravenous injections of from 0.2 to 0.55 gramme were given at intervals of from four to seven days. The drug dissolves readily in water to which a small amount of sodium carbonate has been added. The larger doses—0.4 to 0.5 gramme—gave results but slightly better than the smaller amounts. Chancres promptly healed; secondary eruptions faded in twenty-four hours and disappeared in four or five days, with the exception of the papular form, complete eradication of which required at times eighteen to twenty days; mucous patches disappeared with extreme rapidity, while tertiary ulcers were also observed uniformly to heal. On the whole, Troisfontaines considers galyl a practically nontoxic, well borne drug, at least as efficacious as salvarsan and other similar arsenicals. Trial of galyl on a larger scale is advised.

November 3, 1913.

**Diagnosis of Gastrointestinal Ulcerations by Study of the Feces.**

—R. Goiffon points out that Weber's guaiac test for blood in the feces at times yields a negative result in spite of the presence of a considerable amount of blood, and advises the routine employment of Meyer's phenolphthalein test. —with the fecal material greatly diluted to avoid excessive sensitiveness of the reaction—as a check for the guaiac test. As regards albumin in the feces, he strongly recommends the test recently described by Triboulet, which is advantageous in being simple and in demonstrating albumin only where the latter exists in a pathologically significant amount. It is performed by adding to diluted feces in a test tube a few cubic centimetres of a solution of 3.5 grammes of mercury bichloride and one cubic centimetre of acetic acid in 100 cubic centimetres of distilled water. After from fifteen minutes to an hour, instead of a division of the fluid into a lower sedimentary and upper turbid layer, there is observed merely a clot formation, with clear fluid between the retracted portions of the clot, the presence of albumins—not mucin or nuclealalbumins—is shown. Such albumins always indicate tuberculous, cancerous, or other variety of ulceration in the intestine, and further, tend to show that the trouble is in the large bowel, since albumin from the stomach or small intestine is digested before evacuation.

**The Antigen in Wassermann's Reaction.**—A. Desmoulière describes the preparation of an antigen which he has found far more sensitive than those now in general use. Dried and powdered human liver tissue—not necessarily from a congenital syphilitic—is completely extracted with ether. One gramme of the residue is macerated three days at 37° C. with twenty c. c. of absolute alcohol, and filtered after cooling. To ten c. c. of the fluid thus obtained is added 0.1 gramme of pure, powdered cholesterolin, which is brought into solution by incubating at 37° C. for a few hours. This antigen must be kept in darkness at a temperature of about 15° C. A one in fifteen dilution of it, to the amount of 0.3 c. c., is used in performing the Wassermann reaction. The latter should always be preceded by a simple test, which Desmoulière describes, to determine the proper amount of complement to be used. After this, only two tubes need be used in carrying out the reaction. An exact scale of the intensity of the reaction is afforded by comparison with a solution of acid fuchsin and picric acid. Thus performed, the Wassermann reaction will give identical results in the hands of different observers; will permit of diagnosing syphilis even in the first few days of the disease, a result not attainable with the old Wassermann technic, and will demonstrate syphilis in cases in which the old Wassermann technic gives only doubtful or negative results (including cases of inherited syphilis). In a number of cases wrongly considered cured—as shown by subsequent recurrence—after salvarsan treatment, the author's Wassermann reaction was positive at a time when the reaction as ordinarily conducted was negative. Desmoulière also presents a formula for an artificial antigen, i. e., one not made from liver tissue, which he found in about two hundred trials to give results equivalent to those obtained in the Wassermann reaction with syphilitic liver antigen as ordinarily prepared.

#### BRITISH MEDICAL JOURNAL.

November 8, 1913.

**The Rational Treatment of Chronic Bacillary Dysentery.**—Leonard Rogers says that the pathological findings in this form of the disease consist mainly in lesions of the lower portions of the large intestine. Here extensive, depressed, ser-piginous ulcers are found on a thickened intestinal wall. Between these are small islets of mucous membrane. The diagnosis of the condition is sometimes very difficult, on account of the clinical similarity between it and the chronic form of amebic dysentery. If, however, a few doses of emetine are not followed by marked improvement it is almost certain that the condition is of bacillary origin. On account of the site of the lesions drugs given by mouth do not come into contact with the diseased tissues in concentration sufficient to have any material remedial action. The ideal way would seem to be to treat the condition from below. Experiments with a number of antiseptics and germicides, carried on with cultures of the Shiga bacillus, both in broth and in saline solutions containing organic matter, led Rogers to the conclusion that those drugs which were not precipitated by the broth or the salt would be the most effective clinically. His subsequent trials in the treatment of a number of cases have

confirmed this conclusion. The most satisfactory drug so far tested has been albarin or silver gelatose, in solution of about one in 500, injected by rectum and retained as long as possible. His results with this method of treatment have been very good, but he has encountered some cases in which little or no relief was afforded, indicating that the method is only relatively successful.

**Acute Dilatation of the Stomach during Operation.**—W. G. Richardson had just completed an operation for the repair of a perforated duodenal ulcer, and had begun to suture the abdominal incision, when the upper abdomen began to enlarge. The enlargement proceeded so rapidly that in half a minute the stomach was bulging into the wound. The dilatation of the stomach continued until that viscus was like a drum. The veins on the wall of the organ became very much engorged. There was no distention of the duodenum or of any other portion of the intestinal tract. The contained gas escaped with a rush through a tube which was passed into the stomach through the mouth. The distention was immediately followed by a marked contraction of the stomach, which became no larger in diameter than the large intestine. The venous engorgement also passed off. At the same time respiration, which had been greatly embarrassed, became easy and thoracic, and the complexion became pink. The dilated pupils contracted. The entire series of phenomena lasted less than five minutes. It is to be noted that the operation had been accomplished with little disturbance of any of the abdominal organs except for the slight handling of the duodenum itself in the course of its suture.

**Chronic Interstitial Nephritis in Children.**—Hugh Barber's first patient was a boy, seven and a half years old when first seen in 1905. At that time his growth was obviously stunted, and, although no definite symptoms were complained of, an analysis of his urine showed it to be of low specific gravity 1,010—and that it contained albumin, but no casts. There was no change from that time until 1911, the urinary findings remaining almost constant. Though fourteen years old, he seemed to be only about seven or eight, and was only four feet tall. His genitals were undeveloped and there was no growth of hair on the body. The urine then ranged from 1,003 to 1,006 in specific gravity, and contained one part of albumin per mille. There were still no casts. He was pale, had no edema, and there were no signs indicative of arteriosclerosis. His complaints were of intense thirst and polyuria. He had occasional attacks of headache and vomiting. He died when fifteen years old, the albumin having gradually increased to two parts per mille. On post mortem examination the kidneys were found to be very small, and presented both gross and microscopic features typical of advanced chronic interstitial nephritis. His sister began to have thirst and polyuria, with urine of low specific gravity and containing albumin, when twelve years old. She also seemed considerably undeveloped. She is still living, three years after first observation, and has all of the typical features presented by her brother. Neither of the children had any of the usual children's diseases. The striking feature in the etiology of these two cases is found in the fact that their mother was physically much overworked

during the time that she was pregnant with these children. Her other children were all well at the time of the writing of these notes. One other case is reported, coming from another family, and presenting symptoms similar to those already recorded. Post mortem examination in this case confirmed the diagnosis. It is suggested that in the cases of the two children from the same family, the kidneys may have been damaged in the intrauterine life of the children through toxic absorption from the mother, who was not well at the time of these pregnancies.

**Micrococci in the Blood and Cerebrospinal Fluid of Two Cases of Mania.**—William Boyd and G. L. Brunton report the isolation of micrococci from both blood and cerebrospinal fluid in each of two cases of acute mania. The organisms did not correspond in either case with any of the known varieties, and were not alike in the two cases. Both organisms were diplococci; one Gram negative, the other strongly positive.

November 15, 1913.

**Treatment of Gonorrheal Epididymitis by Bier's Method.**—A. C. Wilson first passes a strip of lint bandage around the cord on the affected side, just above the testicle. This is continued along the median raphe between the two testicles, and over it is applied a piece of fine rubber tubing which is then tightened until no pain results after its application. It is held by artery clamps, and allowed to remain *in situ*, usually for an hour on the first day, increasing up to as long as eight hours a day toward the end of the treatment. The treatment causes immediate relief of pain, such that the patient is often enabled to return to work in less than two days after the first application. With this treatment it is well to continue all of the usual measures employed. The method not only relieves the pain of the disease, but shortens the course of treatment from the usual ten days to two or more weeks down to from four to ten, or twelve days. It is applicable to all chronic cases and to most of the acute ones.

**Diagnosis and Treatment of Epidemic Bacillary Dysentery.**—J. Graham Willmore and A. Harold Savage, contrary to the generally accepted views, find that it is neither practicable nor necessary to identify the precise strain of infecting bacillus, and that many cases harbor more than one of the types. It suffices to plate out cultures from the stools and to test the colonies which conform culturally to the general class of dysentery organisms by means of agglutination reactions. This greatly simplifies the diagnosis and shortens the time required before the treatment can be instituted. In their hands the most satisfactory results of treatment have been secured by the injection of large doses—up to 120 c. c.—of polyvalent serum, made from cultures of all four of the dysentery bacilli. Such treatment has reduced the mortality from about seventy per cent. to between twelve and twenty-one per cent. In their experience the use of the serum is not fraught with danger, as has been stated by others to be the case.

**Phlebotomus Fever and Dengue.**—C. Birt calls attention to the very great similarities existing between certain cases of yellow fever, dengue, and phlebotomus fever. All three diseases are known to be transmitted by mosquitoes or by the sand fly;

all are caused by viruses which are filterable through bacteria proof filters; all are most prevalent in the tropical regions; all occur both epidemically and sporadically; and the symptoms of mild cases of yellow fever may very closely resemble those of either of the other diseases, while dengue and phlebotomus fever are strikingly alike in symptomatology. It is also known that the prevalence of dengue is often parallel to that of yellow fever. Between these three diseases, otherwise so similar, the most striking differences are to be found in the length of time which an insect remains infectious after it bites an infected person, the number of days after infection before a person can infect an insect, and the variety of insect which most commonly carries each disease. In spite, therefore, of the other features, which tend to suggest that the three diseases may be more closely related etiologically than has been thought, it is not probable that there is any identity of causative agent.

LANCET.

November 15, 1913.

**Gonorrhea Phylacogen.**—L. W. Harrison, from an experience of sixteen cases, finds that this remedy is "chiefly successful in relieving pain." In practically all of his cases of epididymitis, and in the single case of gonorrheal arthritis, pain was more or less ameliorated after the first injection. In most, however, the pain returned within a few days, although the phylacogen was still being administered. In only one case did the use of the phylacogen seem to hasten recovery—the case of arthritis. It had no influence whatever upon the cases of gonorrheal urethritis. The doses used by Harrison were large, and the subcutaneous, intramuscular, and intravenous methods of administration were all tried. The injection was very often followed by a reaction. In the majority of cases the pain was very great at the site of injection, when this had been subcutaneous or intramuscular. In some of the cases of intravenous injection there was a marked constitutional reaction. The temperature of one patient rose to 105.6° F. after an intramuscular injection. The pain was so severe in a few of the cases that the patients expressed themselves as preferring the suffering from the epididymitis to that from the phylacogen. By complement deviation tests, Harrison has not been able to prove the presence in the blood of gonorrheal patients of any antibody to phylacogen.

**Epidemics of Poliomyelitis.**—Paul B. Roth reports an epidemic of six cases of poliomyelitis which involved five small villages, separated from one another by not less than two and a half miles. The individuals involved in the outbreak were never in direct communication with one another, nor was there any traceable evidence of the intervention of any possible carrier. All of the cases occurred within a little more than a month in the summer. The one common feature among the several cases lay in the environment, all patients residing in the immediate vicinity of barns or stables where the fly, *Stomoxys calcitrans*, was very abundant. On the basis of the findings of Rosenau, confirmed by Anderson and Frost, to the effect that these flies are capable of carrying the virus of poliomyelitis,



and in the absence of all other means of transmission, Roth believes that this insect was the means of the spread of the disease in this epidemic. Quite different are the observations made by George Jubb from an epidemic of eight cases in an urban locality in which there had been no previous case of the disease. Jubb believes that his first case originated from a donkey which was brought in from another region, and which was badly infested by lice. It seems possible to trace all of the succeeding cases to direct or indirect contact with the first patient, or with subsequent cases. It is interesting to note, however, that after the first case appeared there was an interval of about a year before the remainder of the patients became infected. It is believed that this is due to the harboring of the virus by a brother of the first patient, who acted as a carrier, himself not becoming infected.

**Polyvalent Tuberculin.**—Halliday Sutherland prepares a polyvalent tuberculin of the following composition in each c. c.: Tuberculin Koch, 0.025 c. c.; bovine tuberculin, 0.025 c. c.; vacuum tuberculin, 0.025 c. c.; bovine vacuum tuberculin, 0.025 c. c.; tuberculin T. R., 0.05 c. c.; bovine tuberculin T. R., 0.05 c. c.; bacillary emulsion, 0.033 c. c.; bovine bacillary emulsion, 0.033 c. c.; polygenous bacillary emulsion, 0.034 c. c.; T. O. A., 0.35 c. c.; and P. T. O., 0.35 c. c. This mixture is diluted in series, each dilution being one tenth the strength of the preceding. Injections are made as usual, using the largest dose possible without causing a severe reaction. It is deemed absolutely necessary to record the patient's temperature at least three times daily. The type of temperature curve obtained after the injection is held by Sutherland to be of the utmost prognostic and therapeutic value: 1. An immediate rise of temperature with a fall by crisis is the mildest reaction and calls for an increase in the dose for the next injection. 2. A delayed rise with a fall by crisis comes next in degree and calls for the repetition of the same dose. 3. Next in severity is an immediate rise with a fall by lysis, which calls for a reduction of the dose by one fifth. 4. A delayed reaction with a fall of the temperature by lysis demands a reduction of the dose by one half. 5. A progressive rise of temperature with a fall by crisis is the indication for a reduction to one tenth of the dose. 6. Lastly, a progressive rise and a fall by lysis requires the withholding of tuberculin, and is indicative of a very bad prognosis. These preparations and methods of dose determination have given very promising results in a series of 131 ambulant patients.

**The Diagnostic Value of Abderhalden's Method in Carcinoma.**—R. St. Leger Brockman has obtained positive results in twenty-five undoubted cases of carcinoma, and negative in twenty non-carcinomatous cases, using the dialysis technic of Abderhalden.

#### INDIAN MEDICAL GAZETTE.

October, 1912.

**A Surgical Curiosity.**—L. Bodley Scott reports a case in which a young man fell from a tree so that a piece of bamboo penetrated his thigh. The piece of bamboo was pulled out, and the wound healed at first, but later an abscess formed and broke, leaving a sinus from which pus and urine escaped for two

years. At the end of that time a stone could be detected in the bladder both by a sound passed through the urethra and by a probe passed upward along the sinus at the apex of Scarpa's triangle. Lateral lithotomy was performed and a large stone was removed, in the centre of which was a small piece of bamboo. The patient recovered.

#### BOSTON MEDICAL AND SURGICAL JOURNAL.

November 2, 1912.

**Observations on Summer Diarrheas in Children during 1911.**—Arthur I. Kendall, Alexander A. Day, and Edward P. Bagg say in conclusion: The striking fact brought out by the summer's work is that in every case of infantile diarrhea studied (with the exception of the few fermentative diarrheas) there was a general conformity in bacterial type of the intestinal flora, which was uniformly proteolytic in character. This proteolytic flora forms a striking contrast to that of normal children of similar age, in which the putrefactive activities are minimal. Superimposed upon this proteolytic background various well known intestinal pathogens may stand out conspicuously. In the past the isolation of such organisms has sufficed to establish the diagnosis; it now appears that such is not necessarily the case, inasmuch as one or more of them may be present without the production of noteworthy symptoms. On the other hand, cases are met with in which these organisms cannot be found, yet show blood, pus, and mucus in the stools, and severe toxemia. In these latter cases the flora has been found to be proteolytic in character.

**Saprophytism, Parasitism, and Pathogenism.**—Arthur I. Kendall defines these terms, which he says are frequently confounded. Saprophytic bacteria are those subsisting upon dead organic matter. Parasitic bacteria are those living on living organic matter. Pathogenic bacteria are those which produce disease in living plants and animals. The writer speaks of three babies found to harbor typical dysentery bacilli, and other bacteria commonly regarded as pathogenic, yet presented no characteristic symptoms. They were taken to be cases of improper feeding, and the discovery was the result of the policy of examining each patient to determine the bacteria in the intestinal flora. Two of the patients were twins. The cases were under observation for several weeks and successive isolations of the bacteria were made. Aside from a wrong bacterial diagnosis, which is unlikely, there are three possibilities to explain the situation: 1. The patients were immune both to the dysentery bacilli and the other associated pathogenic bacteria; in that case the babies were bacilli carriers. 2. The cases were mild ones of dysentery; in that case the associated organisms were innocuous or at best very inactive. 3. The organisms were nonvirulent, in which case they might be assumed to be innocuous for the average nonimmune into whom they might find their way. The evidence for each possibility is given. No definite decision is made.

**Observations on Summer Diarrheas in Children during 1912.**—Arthur I. Kendall and Alexander A. Day say that this summer was note-

worthy from the bacteriological point of view for the large numbers of cases of severe diarrheas apparently of gas bacillus origin.

#### JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

November 22, 1913.

**Present Status of the Diagnosis and Treatment of Vesical Tumors**, by H. H. Young.—See this JOURNAL for July 5th, p. 48.

**The Transverse Incision in Abdominal Fascia as a Method of Approach in Suprapubic Operations on the Bladder and Prostate**, by Granville MacGowan.—See this JOURNAL for July 5th, p. 48.

**Vasostomy—Radiography of the Seminal Duct**, by W. T. Belfield.—See this JOURNAL for July 5th, p. 48.

**Treatment of Inguinal Hernia in Children**, by A. E. Hertzler.—See this JOURNAL for July 5th, p. 41.

**Hospital Management of Contagious Diseases**, by D. L. Richardson.—See this JOURNAL for July 5th, p. 41.

**Transplantation of the Testicle**.—V. D. Lespinasse describes previous attempts at transplantation and his own experimental work, reports a human case, and presents the following conclusions: Transplantation of the testicle is a perfect operation in frogs and chickens; spermatogenesis and sexual characteristics are preserved. In guineapigs, rabbits, and dogs the results are variable. In the two human cases which have been tried to date the one with the bloodvessel anastomosis was certainly a failure as far as spermatogenesis is concerned, but the interstitial cells may be, and probably are present. In his own case the result clinically has been absolutely perfect; the man has regained his sexual powers completely, both as to desire and ability to perform. Furthermore, these powers have remained present for two years.

**Operative Treatment of Hallux valgus and Bunion**.—J. D. Singley states that the method of Fowler, modified by himself, possesses certain advantages which may be summarized as follows: 1. The incision is in a place where, even on theoretical grounds, it cannot be objectionable. 2. It affords a much better exposure of the diseased end of the bones than any other method, and permits accurate shaping of the new articular surfaces. 3. The joint is opened on the outer side, dividing the shortened external ligament; an important step in avoiding recurrence. 4. Ankylosis is prevented, and a new joint formed by the interposition of a fatty fibrous flap.

**Local Specific Therapy of Infections**.—Simon Flexner (second Harben lecture) presents the results already obtained by this method, derived partly from experiment and partly from experience with human cases of disease, and relating chiefly, but not exclusively, to the infections of the membranes of the central nervous system which have formed the starting point of the studies on which the method has come to rest. Among the points brought out are the following: The accumulated experience of the past six years has demonstrated the value of antimeningococcus serum and made necessary a revision of certain notions concerning its action. Formerly no fundamental biological

distinctions were made between meningococci; now differences in power of resistance to solution by immune serum are being recognized. Under the influence of the serum the diplococci come, as a rule, to be more and more within the leucocytes, and as recovery from the meningitis progresses, even though no antiserum has been employed, a corresponding phenomenon is noted. Indications exist, however, that certain examples of epidemic meningitis in man which respond imperfectly to the therapeutic action of the serum are caused by meningococci resistant or "fast" to the antiserum employed. Also, under special circumstances the meningococci seem to acquire a serum fastness which thwarts the specific action; but the original fast strain is uncommon, and acquired fastness, at most, of only occasional occurrence. Although at first regarded as doubtful, it now appears that fulminant cases of meningitis are not wholly without the sphere of beneficial influence of the serum. The extension of the practice of lumbar puncture as an aid to the diagnosis is serving to reveal the important fact that the influenza bacillus is a not infrequent cause of severe and usually fatal seropurulent cerebrospinal meningitis. Antiinfluenza serum is just now being issued for use in man. It has been applied too seldom to warrant any deduction but one, namely, that under its influence the bacilli in the cerebrospinal liquid diminish in number and are taken up more freely by phagocytes. Other matters treated of are pneumococcus meningitis, tabes, and paresis.

**Hollow Foot—Pes cavus**.—C. A. Parker states that so called true or essential cavus is rare. Cavus is practically always of neurogenic origin. Leaving out of account the paralytic calcaneus and possibly the congenital types, it is safe to assume that a perversion of the normal reciprocal action between the flexors and extensors of the toes can account for most, if not all, of the remaining types. In the initial stages simple measures commonly suffice to restore the normal balance, while in the fixed deformity severe force, often accompanied by resection of bones and section of soft tissues, is frequently required.

#### MEDICAL RECORD.

November 22, 1913.

**Indications from the Urine in the Treatment of Certain Diseases of the Skin**.—L. D. Bulkley urges that, the urine being the most perfect exponent of the catabolism and anabolism of the system, too much stress cannot be laid upon the importance of its repeated and complete volumetric analysis in connection with the treatment of very many cases of diseases of the skin. He refers particularly to such dermatoses as eczema, psoriasis, acne, lichen planus, urticaria, and certain bullous dermatoses, and describes the urinary conditions under the heads of quantity, specific gravity, volumetric acidity, urea, indican, sulphates, chlorides, phosphates, urates and uric acid, and oxalates.

**Communited Fracture of the Larynx; Accidental Tracheotomy; Multiple Trauma; Extensive Frostbite: Recovery**.—D. B. Delavan records this case, which is that of a patient, now dead, who was formerly a well known figure in the

throat clinics of Central Europe, and who came to this country about twenty years ago for the purpose of making a living principally by the exhibition of his throat at various medical schools. He was a Roumanian, and received his injuries at the hands of a band of outlaws, who hanged him to the limb of a tree and left him to die. He struggled so desperately that he not only caused a multiple fracture of his larynx, but succeeded in breaking the rope. His loudly stertorous breathing, however, quickly attracted the attention of the bandits, who were still in the vicinity, and he received three vicious cuts with a large knife—one in the abdomen, one across the face and over the forehead, and one straight across the throat, passing between the thyroid and cricoid cartilages and dividing the cricothyroid membrane. He lay exposed to a temperature below zero until the next morning, when he was discovered and removed to a hospital. His ears, hands, and feet were frostbitten, and so severe was his condition that he was obliged to undergo a Symes amputation of the right foot, a partial amputation of the left foot, and the loss of most of the fingers of both hands. Notwithstanding all these injuries, the man recovered.

**The Fundamental Principles of Biochemistry; Their Application in the Study of Colloidal Minerals, and Their Resulting Use in Medicine.**

—J. A. Handy, in this paper, says: The reason why most of the so called organic salts of silver, mercury, iron, etc., are not much more efficient or much less poisonous than their purely inorganic salts appears to be the fact that most of them are merely loose associations of the inorganic, poisonous metal with organic substances like albumin, casein, sugar, etc. In order to become truly organic, or vitochemical, the mineral part of the combination must be colloidal in nature. All our wholesome, natural food is of this character. Milk, butter, cheese, eggs, meats, vegetables, fruits, etc., are colloids—not only their protein, carbohydrate, and fat constituents, but also their mineral bodies. These mineral bodies in true organic or vitochemical form, which have been almost totally ignored in medicine and dietetics, appear to be of such vital importance that not one of the vital processes of the human organism is possible without them. Progressive physicians are beginning to recognize that the mineral salts of our food, which have been considered secondary in importance to the proteins, carbohydrates, and fats, are really of the first importance. The natural mineral salts are not only of the first importance as tissue foods, but are also the chief waste eliminators in human metabolism. Is it not true that if the physician can control nutrition he can control disease? If this is true, and the author believes it is, then a thorough knowledge of the mineral salts in true organic or vitochemical form—both in their native occurrence in our natural foods and in their synthetic forms—is necessary.

**A New Method of Repair for Vaginal Hernia; With a Report of 140 Cases in Which It Was Used.**—H. A. Wade describes this operation, a special procedure in which is the dissecting upward of a flap of mucous membrane, which is held clear of the field of operation by means of a clamp, and subsequently, acts as an umbrella to protect the

plastic work done below from the irritating discharges above. The distinguishing features of the operation are mentioned as follows: 1. Fascia repair; we have a fascia, and not a skin perineum subsequently. 2. The mucous membrane flap protects the sutured tissues from irritating discharges, and the operation may be done in the presence of active bleeding from the uterus after an incomplete abortion, and within four days after delivery in a full term pregnancy. 3. The catgut is entirely buried by sealing the wound with Michelin clips. No catgut perineum can be a success if any catgut is allowed to be exposed after the operation. 4. The operation is a simple one and may be completed in from six to ten minutes.

**NEW YORK STATE JOURNAL OF MEDICINE.**

October, 1913.

**Near Death from Intravenous Injection of Salvarsan.**—Victor C. Pedersen's patient was a man, fifty years of age, whose only ailments other than his syphilis were a very slight grade of nephritis and chronic alcoholism, of the type which results from the long use of moderate quantities of the drug. Within a few hours after the injection of 0.6 gramme, the patient went into a state of collapse with pallor, barely palpable pulse, and profuse sweating. Although the man was *in extremis*, he remained perfectly conscious. Immediate drastic stimulation was instituted and within twelve hours the patient had recovered. Following the recovery the urine was greatly diminished, contained an abundance of albumin and was loaded with all varieties of casts. It is believed that the cause of the bad reaction to the salvarsan in this case was to be found in the presence of an obscure alcoholic myocarditis.

**Infant Feeding with Undiluted Cow's Milk.**—William B. Hanbridge here adds the report of a series of fifty patients fed on this plan, to his previously reported series of thirty-nine cases. Of fifteen cases in his own practice, five were suffering from digestive disturbance while the others were healthy. The whole milk disagreed with one of the ten healthy children, but a mixture of whole milk with cream overcame this trouble. All five of the others, having digestive disturbances, did well on the whole milk. The remaining patients in the series were treated by other physicians and the reports are equally favorable. Hanbridge calls attention to the fact that when the usual formulas are given, the child is compelled to take an excessive amount of fluid in order to get sufficient nourishment. This, he believes, is a potent cause of later digestive disorders. The use of whole milk overcomes this tendency to overdistention of the stomach, and permits of its proper emptying between feeds, which is an essential factor in good digestion. He finds that the use of from one and one half to two and one quarter ounces of whole milk for each pound of an infant's weight provides enough nutriment for each twenty-four hours. The intervals between feedings should never be less than two and one half hours, better longer. The child, if healthy, should be fed when hungry, rather than by the clock, and should never be wakened to be fed.



## OPHTHALMIC RECORD.

October, 1913.

**The Implantation of Fat in Tenon's Capsule.**—

Charles Nelson Spratt urges the implantation of fat after the enucleation of an eye, to form a mobile stump for the support of a prosthesis, as an operation that deserves a wider use. He asserts that by the use of fat a sterile, autogenous graft is secured which, when inserted within Tenon's capsule, has less tendency to change its position than any foreign substance. It offers little or no chance for extrusion, unless an infection takes place, or faulty methods of suturing are used. The conjunctiva is divided close to the limbus and dissected backward beyond the insertion of the recti muscles. These are picked up on a strabismus hook, separated from the surrounding tissue, each is caught by a small, delicate hemostat, their tendons cut at their insertions, and the eye enucleated in the usual manner. A piece of subcutaneous fat is then removed from the abdomen, inserted in the cavity left by the eyeball, the superior rectus is sutured to the inferior by a mattress suture of double O chromicized catgut, the loop placed beneath the inferior and the knot on the outer surface of the superior. The two lateral recti are sutured in a similar manner, each needle being passed through the previously sutured recti. By this method a fixed point for all four muscles is formed. The conjunctiva is closed by a purse-string suture.

**The Care of School Children at Moorfields.**—

Samuel Horton Brown discusses the difficulties met with in the eye clinics in the larger cities of the United States when they find themselves overwhelmed by thousands of refraction cases referred to them by the school inspectors. Unfortunately they all appear well nigh simultaneously, and consume the most of the time of the junior assistants. He then describes what he found in the Royal London Ophthalmic Hospital, which is a very large institution. Being essentially a graduate school the assistants and students are averse to this dry, monotonous work, preferring to see inflammatory and surgical cases. Yet it is fitting that the children should be examined and prescribed for in a well equipped hospital with skilled consultants at hand, rather than in a poorly equipped department of some municipal bureau. The London County Council agreed to pay the hospital £1,000 annually to care for not more than 5,000 school children who require glasses. The hospital retains one half of the money received to cover its expenses, and divides the balance equally among the five physicians who are in attendance. The hospital equipped a model department, separate from the other clinics, which is practically a school eye clinic. Five physicians are engaged, together with part of the time of the nursing, domestic, clerical, dispensing, and optical staff. It is so arranged that each doctor sees not more than twelve new cases daily, and such old cases as have been referred to his service. Nothing but refraction cases are attended to. An optician attends daily and is authorized to charge certain prices for the glasses. If these prices cannot be paid an arrangement is

made by which they can be obtained free. These glasses come in for criticism. "Rimmed glasses are the proper style and the saddle bridge is fitted without regard to centering or anything else, that is, as we understand such things. The diameter of the lenses bears no relation to the size of the eye, or to the interpupillary distance, but the sizes are selected solely by inspiration." Gold or gold filled frames are considered an extravagance. The efficiency of the inquiry officer as a means of eliminating the dispensary dead beat and increasing the hospital's revenues at the same time is dwelt upon at some length.

**Burn of Eyeball Due to Caustic Contents of Golf Ball.**—L. W. Crigler relates the case of a boy whose eye was severely burned by the contents of the small rubber bag in the centre of a golf ball which he was cutting up.

**Proceedings of Societies.****CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.**

GEORGE EMERSON BREWER, M.D., PRESIDENT.

*(Continued from page 1090.)*

**Educational Value of Cancer Statistics to Insurance Companies, the Public, and the Medical Profession.**—MR. FREDERICK L. HOFFMAN, of Newark, New Jersey, stated that during the year 1910 the average age at death in cancer and other malignant tumors combined was 59.2 years for the registration area of the United States. For males the average age at death was 60.4 years, and for females, 58.4 years. Considered by organs or parts affected, the average age at death in cancer of the buccal cavity was 63.1 years; in cancer of the stomach and liver, 61.2 years; in cancer of the female generative organs, 53.8 years; in cancer of the breast, 58.3 years; in cancer of the skin, 68 years; and in cancer of other organs and parts not specified, 56.9 years. Cancer was distinctly a disease of advanced adult life. Of the mortality from all causes in the registration area, ages forty-five and over, the proportion of deaths from cancer was 8.6 per cent., or, respectively, 6.4 per cent. for males and 11.2 per cent. for females. During the decade ending with 1911 the cancer death rate for all ages had increased from 65.8 per 100,000 of population in 1901 to 83.9 in 1911. The cancer death rate of males had increased from 48.7 per cent. to 64.2 per 100,000 of population, or 31.8 per cent.; and the cancer death rate of females had increased from 83 to 104, or 25.3 per cent. Considered by divisional periods of life, the death rates had increased at all ages and for both sexes, with unimportant exceptions, at ages from five to fourteen inclusive. For males the increase in cancer during the ten year period, and at the ages from forty-five to fifty-four, was twenty-one per cent.; at ages from fifty-five to sixty-four, it was thirty-nine per cent.; at ages from sixty-five to seventy-four, it was forty per cent., and at ages seventy-five and over, it was also forty per cent. For females the increase in the cancer death rate at ages from forty-five to fifty-four was

eleven per cent.; at ages from fifty-five to sixty-four, it was twenty-seven per cent.; at ages from sixty-five to seventy-four, it was thirty-two per cent.; and at ages of seventy-five and over, it was forty-four per cent. There was sufficient evidence to sustain the conclusion that in quite a number of cases of suicide the underlying motive for self murder was the insufferable torture of a hopeless case of cancer, and while here again the statistical evidence was incomplete and not available for the country at large, there were a sufficient number of individual cases on record to warrant the conclusion that the recorded cancer death rate was perceptibly diminished on this account.

Cancer, in the experience of life insurance companies, has been the subject of occasional consideration, but not of very extended and thoroughly specialized inquiry. A review of the available statistics, extending over more than a century, tended to confirm the conclusion that, during the long intervening period of time, the mortality from cancer had gradually and persistently increased, from a comparatively low rate of frequency to proportions which might appropriately be considered a menace to civilization. The earliest data are those of the London Equitable Society, for the period 1800-1821, in which, out of 1,930 deaths from all causes, only twenty-five, or 1.3 per cent., were from cancer; or, eliminating deaths under age of forty, it appeared that out of 1,720 deaths from all causes, twenty-four, or 1.4 per cent., were ascribed to cancer.

A large number of physicians had been reached in an effort to improve medical education with reference to the earliest possible diagnosis of the disease. Since in Germany a large number of confinements were without proper medical attendance, but under the supervision of more or less qualified midwives, a special effort was made to reach this class, also with fairly satisfactory results. Finally, the public at large was reached through articles prepared by laymen for publication in the principal newspapers and periodicals. A special leaflet was prepared for public distribution on a large scale, which contained in the simplest form the required but pertinent suggestions to women, and especially that class approaching the change of life. One of the chief objects of the campaign had been to warn the public against blind faith in alleged cancer cures, and treatment by unqualified physicians or quacks. Winter was able, in 1911, to report that out of 1,000 cases of cancer of the uterus in his experience, twelve per cent. of the women had come to him during the first month of the probable beginning of the cancerous growth; in thirty per cent. of the cases, the duration had been over one month; in twenty-seven per cent. over three months; and in forty per cent. over six months. One of the most recent contributions to the subject was a study of the statistics of cancer of the breast, by Dr. Ernst Schwarzkopf, of the surgical clinical of Prague, who found that out of 350 cases of cancer of the breast, 321 were operable and only thirty-nine were not operable. Practically all of the early cases which came to him, say of less than six months' duration, were within the

operative group. He included a table giving the operative mortality among early surgeons, and those of more recent times, which showed a most gratifying reduction in the mortality rate. The investigation suggested a corresponding collective study of the subject for this country, which probably more than anything else would aid the efforts of the Society for the Control of Cancer to bring about a nation wide interest in the facts, and by degrees, a reduction in the mortality rate from this always lamentable disease. For the present purpose the speaker had made a special analysis of the General Memorial Hospital of New York with the following results: This hospital, during the period 1902-11, treated 1,337 patients on account of malignant disease. Of this number, 531 were males and 806 females. Of the total number treated, 460 or 34.4 per cent. were cured; the number of improved was 391 or 29.2 per cent.; the number of not improved cases was 266 of 19.9 per cent.; and 11.5 or 8.6 per cent., were either not treated or remained in the hospital at the end of the period. There were 105 deaths, equivalent to a fatality rate of 7.9 per cent.

There were the strongest possible reasons for believing, however, that if the cancer facts, including medical and surgical experience, were brought together in an authoritative form, they would not only materially aid the work of the American Society for the Control of Cancer, but the various cancer research funds, as well as the individual practitioner in his relations to the patients and the public at large. With this end in view, however, it was necessary that there should be intelligent and active cooperation between the laity and the profession, on the one hand, and the life insurance companies and the Federal and State governments, on the other.

**A Very Recent Investigation of the Outcome of the Cases of Cancer Recorded in the Johns Hopkins Hospital and the Surgical Pathological Laboratory.**—Dr. JOSEPH C. BLOODGOOD, of Baltimore, said that in eighty-five cases of benign lesions of the lip there were one hundred per cent. of cures. In lesions of the lip which to the sight and touch seemed benign, but which under the microscope proved to be early cancer, there were nine cures, ninety per cent. The failure to cure in the one case was due to an incomplete operation on the lower lip. When the lower lip only was removed and not the glands, they had cured but seven patients, or sixty-three per cent. The failure to cure in four cases was due to the involvement of the glands under the jaw. When the complete operation was performed, that is, removing the lesions of the lip and the glands of the neck, there had been twenty cured five years, or ninety-five per cent. If the lesion of the lip had had previous treatment and had recurred on the lip, and the recurrence was cancer, the probability of a cure was reduced from sixty-three to twenty per cent, ninety-five to sixty per cent., and fifty to twenty per cent. The operation for recurrent cancer of the lip reduced the probability of a cure at least forty-two per cent. Similar figures could be duplicated with lesions of the tongue, face, skin of the body, and extremities.

The same investigation was now complete with over one hundred lesions of the skin and mucous membranes.

As to cancer of the breast, in the least malignant forms, there were thirty-five patients cured, five years or more after operation. There were fifteen patients who came for treatment so early in the disease that a diagnosis of cancer could not be made out until at the operation when the lump was explored. Every one of these patients had remained well five years or more, that is, one hundred per cent. of cures had been accomplished when the operation had been in the early stage in the less malignant forms of cancer of the breast. In this same form of cancer there had been twenty patients who came for treatment late. The same complete operation was performed, but the percentage of cures was but sixty-four per cent. Results, therefore, in the less malignant form of cancer of the breast were: thirty-five cases, seventy-six per cent. of cures; early cases fifteen, one hundred per cent. of cures; in twenty late cases, sixty-four per cent. of cures. The figures thirty-five, fifteen, and twenty represented the actual number of cured patients. The per cent. of cures in all cases of cancer in which complete operation could be done, and in which the period of time since operation was five years, was now forty-two per cent. Five years ago it was only thirty-five per cent.

In cancer control and precancerous lesions the great hope for increasing the number of cures of cancer and decreasing the number of deaths from cancer lay in the education of the public and the profession on the significance and potential danger of the precancerous lesion, the education of the surgeon as to the best surgery, and the education of the surgeon and the pathologist as to the recognition of the earliest stage or the beginning of cancer in the benign precancerous lesion. Incomplete treatment in the earlier stage of cancer often yielded a worse result than complete treatment in a later stage.

**Further Observations on Chronic Intestinal Stasis.**—SIR ARBUHNOT LANE, of London, mentioned a case that taught him how a patient might lead an active and happy life with only a small portion of the jejunum left after operation. In this case he removed a large portion of the jejunum, after which the patient gained in weight rapidly and her strength improved correspondingly. The knowledge he gained from operating in this and similar cases had been of the greatest importance to him and had enabled him to save a number of lives. He referred to the circumstances which led him to remove the large bowel for chronic intestinal stasis.

Chronic intestinal stasis was one of the most formidable causes of crime. Several patients had attempted suicide on account of chronic intestinal stasis, and in all such cases the removal of the large bowel had restored the sufferer, not only physically but mentally. The headache of varying intensity from which these unfortunates suffered was also relieved by the operation, also the sleeplessness which accompanied it. Such patients put on fat; the pallor and staining of the skin disappeared and were replaced by a healthy color. He

quoted Dr. James Mackenzie as saying that the majority of degenerative changes in the heart were due to autointoxication. Doctor Mackenzie sent him a patient from whom he removed the large bowel with the greatest benefit to the cardiac condition, as well as to the general well being of the patient. To summarize: Of 100 cases in which he had performed the short circuiting operation for chronic intestinal stasis there had been four deaths.

**On the Relation of the Ductless Glands to the Work of the Surgeon.**—DR. ROSWELL PARK, of Buffalo, New York, said that the internal secretions, so often spoken of as hormones, exercised an apparently controlling influence on many of the organs and functions, and this not alone on the ordinary body functions, but on the nutrition and regulation of individual organs and their particular activities, even to the extent of becoming responsible for the development of certain mental traits or personal characteristics which might make or mar the individual, and might thus affect both his physical and intellectual welfare. For example, dwarfing or gigantism, each of which seemed due to the perverted activity of one or more of the ductless glands, naturally affected the social and school life of the growing child, and to such an extent that when conspicuous deformity resulted the entire course of life was affected to an extent which might be appalling.

The hypophysis, as a whole, was a persistent organ and, therefore, must have throughout life a continued function. Extracts of the whole gland increased pressure, caused uterine contraction, increased peristalsis, lowered carbohydrate assimilation, and had a mydriatic effect. Used to excess they caused emaciation, degeneration of the liver, and increased metabolism. Extirpation produced in animals a peculiar cachexia, reduced pulse rate and respiration, and caused fibrillary tremors and death from apathy and coma. The overgrowth of the pituitary sometimes occurring after typhoid fever, or its clinical evidences, was to be considered as the result of toxines which stimulated its growth, as well as perhaps that of the epiphyseal bony borders, thus accounting for excessive overgrowth after this fever. Something of the same kind was often seen after marriage when the stimulation of the sexual glands seemed to extend in a short time to the hypophysis.

As to the influence of the ductless glands in general on growth and development, it was found that a loss of the genital glands in youth led to overgrowth of the truncal skeleton, while the cranium did not seem to grow so fast. The distribution of fat about the body was disturbed. Epiphyseal consolidation in those places where it naturally occurred least or last was delayed. This would account for the overgrowth, and it was not necessary to seek for its cause in the pituitary. The sexual glands, therefore, especially at puberty, exerted a marked influence over the development of the bones during the last portion of adolescence.

Even to-day there was much to learn concerning the functions of the thyroid. It was once regarded as a reservoir by means of which blood pressure in the brain was equalized. It seemed to have an influence on the formation of the blood, slightly resembling the action of the spleen, possibly acting



vicariously for it. The most important part of its work appeared to be elaboration of iodothyrene. Certainly iodine was its most important constituent, and in this the thyroid was richer than any other organ.

The parathyroids, these four little bodies, had only within late years been given their proper consideration, and in that short time had attained an importance in pathology quite disproportionate and in inverse ratio to their size. It was now generally believed that nearly all causes of tetany in man were of thyroidal origin, and due to defective function and consequent evidences of hypoparathyroidism.

Conditions which required surgical intervention were the thyroid extirpation, which must be partial, save when dealing with malignant disease, ligation of bloodvessels, transplantation as in tracheotomy, operations for consequences of osteomalacia, achondroplasia, etc., involving the pelvis as Cæsarean section, etc., operations on the teeth and jaws for various congenital defects, cleft palate, etc.

**A Summing Up of the Goitre Question.**—Dr. CHARLES H. MAYO, of Rochester, Minnesota, stated that many enlargements of the thyroid were the result of temporary excessive physiological demands, as at puberty, pregnancy, infection, menstruation, etc. Many goitres of the simple and mild exophthalmic type undoubtedly recovered spontaneously and, in many instances, various forms of medical treatment might hasten the recovery and restoration of the gland to an apparently normal condition. Simple goitres of long standing were often thrown into degeneration by giving iodine, causing thyrotoxicosis, but not exophthalmos, although some symptoms were the same in these two forms of toxic goitre. Encapsulated adenomas and simple colloid goitres which had resisted treatment were in most instances best treated by removal of enough of the gland to extirpate the disease. In simple goitre the more enlarged lobe should be extirpated; encapsulated adenomas should be enucleated and thyroids which were bilaterally enlarged should have double partial resections with division of the isthmus. Exophthalmic goitre was essentially a disease chronic in character, presenting exacerbations and ameliorations of symptoms extending through a period of months or several years. While this disease was amenable to surgical treatment by the removal of a large part of the hypersecreting gland, this procedure should by no means be considered emergency surgery, and during exacerbations all cases should be considered medical. Surgery was indicated during the upward wave of improvement. Extreme conditions, especially dilatation of the heart, might require preparation medically before instituting operative interference, and this should be confined to a preliminary ligation of the left upper pole. Should resection follow this, ligation of the right upper pole was indicated a week later and thyroidectomy reserved until the patient had gained in weight and general health. Otherwise thyroidectomy was made at a second operation. In operating on the thyroid the best exposure was obtained by the curved transverse incision through skin and platysma between the anterior jugular veins, making a wide separation of the flaps, and a midline vertical division of the muscles to expose the thy-

roid. This division should be made high near the insertion to break the line of the scar and preserve the function of the muscle. In some cases the wound might be closed without drainage, the cavity being filled with salt solution. As a rule, however, patients were more comfortable if drainage was instituted for twenty-four hours. A subcuticular closure of the wound with catgut, approximating the platysma muscle, secured an almost imperceptible scar.

(To be concluded.)

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

**Clinical Surgical Diagnosis.** For Students and Practitioners. By F. DE QUERVAIN, Professor of Surgery and Director of the Surgical Clinic at the University of Basle. With 510 Illustrations and Four Plates. Translated from the Fourth Edition by J. SNOWMAN, M.D. New York: William Wood & Co., 1913. Pp. xv-779. (Price, \$7.)

This translation of the fourth German edition of Quervain's work on surgical diagnosis will be welcomed by the English reading members of the profession. It presents the subject of surgical diagnosis from a standpoint not usually taken in books on this subject. In place of describing the surgical condition under discussion and enumerating the various affections which may be mistaken for it, it gives first the findings of a physical examination and then constructs a diagnosis on these findings. Later the student is taught to clinch the diagnosis by a process of exclusion of the various allied conditions. As this is the method actually used by the successful practitioner at the bedside, its value to the beginner cannot be too highly emphasized. Quervain shows himself a master in this form of diagnosis and his book should be an inspiration to teachers of surgery. Furthermore, the book contains a full and accurate description of the various aids to diagnosis with which no surgeon should be unfamiliar. These include bacteriological, histological, serological, and radiographic investigations. The author has put into the work the results of his own experience, not only in the clinic, but also in the classroom, and for this reason the book has a personal touch and a vividness of description not often found in textbooks. The illustrations, most of which are taken from personal cases, are unusually clear and well executed. They are of great value in helping the student to fix in his mind a picture of the various surgical affections. The book should have a wide distribution and is particularly adapted to the needs of third and fourth year students in our medical schools.

**Gynecological Operations.** Including Nonoperative Treatment and Minor Gynecology. By HENRI HARTMANN, Professor of the Faculty of Medicine, Paris, Surgeon to the Laennec Hospital, Paris, etc. Authorized Translation Under the Author's Supervision by DOUGLAS W. SIBBALD, M.B., Ch.B., Edin., Formerly Physician to the British Hospital, Levallois-Perret, Paris. With 422 Illustrations, a Number of Which are in Colors. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. xvii-536. (Price, \$7.)

In this work the author has endeavored to give as complete an exposition as possible, of the various methods of treatment employed in gynecology, and it is for the opinion of this experienced authority on disputed questions, in the treatment of diseases of women, that the reader will most probably search the pages of his book. Apart from the descriptive operative technic of Doctor Hartmann with conservatism as his keynote, together with brief references to the procedures of other gynecologists, the author has very wisely given an important place to the nonoperative treatment of the subject, recognizing the fact that there is a general return to this branch of therapeutics.

Careful consideration is given to minor gynecology, electrotherapy, the mineral water cures, and kinesiotherapy. Special attention has been given also to procedures of choice and to a large number of figures and diagrams to illustrate each stage of an operation, also the details of ante partum and post partum treatment.

The book is eminently practical, characteristic of the author, containing 422 illustrations, and cannot but be of value to all who treat gynecological cases.

*Manual of Operative Surgery.* By JOHN FAIRBANKS BINNIE, A. M., C. M., Surgeon to the General Hospital, Kansas City, Mo., Fellow of the American Surgical Association, etc. Sixth Edition, Revised and Enlarged. With 1,438 Illustrations, a Number of Which Are Printed in Colors. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. xiv-1251. (Price, \$7.)

The sixth edition of Binnie's well known work on operative surgery marks a great improvement in our textbooks on this subject. The work represents a ripe experience of a practitioner in surgery which insures a practical treatment of operative methods. Furthermore, there is present in this work an unusually clear description both of the indication and objects of the operation, and of the various steps in technic. Every chapter is bristling with useful "points" which have been found helpful to the author after years of experience, and hence will be of inestimable value to the student and practitioner first approaching any particular operation. The author has included many of the older methods of procedure which have long since ceased to be used in our modern technic and which are employed now only in the courses of operative surgery on the cadaver. On the other hand he has included all the modern operations, many of which are performed chiefly by the specialist in that field. These rarer operations, such as, for example, the removal of the Gasserian ganglion, are described with great accuracy, so that they become perfectly intelligible to the student, as well as sufficient in detail to the surgeon who wishes to perfect himself in the technic of these operations. The book will be found, therefore, of great value to beginners in surgical work, and to the general surgeon who wishes to familiarize himself with any new form of operative procedure.

*Diagnosis of the Malignant Tumors of the Abdominal Viscera.* By Professor RUDOLPH SCHMIDT, Professor of Medicine in the University of Innsbruck. Authorized English Version by JOSEPH BURKE, Sc.D., M.D., Attending Surgeon, Buffalo Hospital of the Sisters of Charity, etc. New York: Rebman Company, 1913. Pp. xiii-361. (Price, \$4.)

To either the surgeon or the internist this book should prove extremely useful. The first part takes up the general considerations concerned in making a diagnosis of an abdominal tumor. The methods employed in making the physical and clinical examinations are given and some interesting points are mentioned in the suggestions for the taking of histories of malignant neoplasms. The remainder of the book is given over to differential diagnosis between tumors and conditions simulating them and to the presentation of case histories. Of cancer of the stomach 105 are given, the other organs not being represented in such large number. The histories are interesting and instructive, and the book can be highly recommended, both on that account and because the diagnostic part is so well presented.

*Acute Abdominal Diseases.* Including Abdominal Injuries and the Complications of External Hernia. By JOSEPH E. ADAMS, M.B., M.S., F.R.C.S., Senior Assistant Surgeon, East London Hospital for Children, Hunterian Professor, Royal College of Surgeons of England, etc., and MAURICE A. CASSIDY, M.A., M.D., B.C., F.R.C.P., Physician, with Charge of Outpatients, St. Thomas's Hospital, Honorary Physician, the Putney Hospital. New York: William Wood & Co., 1913. Pp. x-571. (Price, \$4.50.)

Since the classification of the various acute abdominal lesions has become complete through the investigations of the pathologist, the internist, and the abdominal surgeon, a want has been felt for some book dealing solely and exhaustively with all the acute abdominal emergencies encountered at the bedside. The value of such a book both for the physician and surgical consultant is inestimable in that it brings together the various lesions and compares

and contrasts them. The present volume is the first to undertake this function and the authors are to be congratulated on the systematic and clear manner in which they have done their work. Such a book could be written only by a practising surgeon who has familiarized himself also with the diseases of other localities simulating acute abdominal disease. In addition to the description of the pathology, physical signs, differential diagnosis, and treatment the authors have inserted an account of illustrative cases taken from their own experience. The work is of chief value to the physician and surgeon in actual contact with these acute abdominal emergencies. As the fate of the patient is primarily in the hands of his first medical adviser it is he who would profit most by the assimilation of the valuable information contained in a book dealing with these most important conditions.

*A Treatise on the Diseases of Women.* For Students and Practitioners. By PALMER FINDLEY, B.S., M.D., Professor of Gynecology, College of Medicine, State University of Nebraska; Gynecologist to the Clarkson Memorial Hospital and the Douglas County Hospital, etc. Illustrated with 632 Engravings in the Text and Thirty-eight Plates in Colors and Monochrome. Philadelphia and New York: Lea & Febiger, 1913. Pp. xx-954.

Although this book is an outgrowth of the author's *Diagnosis of Diseases of Women* it is so extensively revised and enlarged that there is little resemblance. This present volume covers the subject very thoroughly and in an up to date manner. The illustrations are numerous and well chosen, and aid the student greatly in getting a clear understanding of the matter. In every way this textbook forms a valuable addition to the literature.

*Vaccine and Serum Therapy.* Including Also a Study of Infections, Theories of Immunity, Specific Diagnosis, and Chemotherapy. By EDWIN HENRY SCHOREN, B.S., M.D., D.P.H., Assistant, Rockefeller Institute for Medical Research, etc. Second Revised Edition. St. Louis: C. V. Mosby Company, 1913. Pp. xv-300.

During the four years since the first edition of this work was published, the progress in vaccine and serum therapy has been such as to warrant a large number of changes in the present edition. An entire chapter on the general principles of specific diagnosis of the causative factor has been added; this being supplemented, in the last chapter, with the differential diagnostic points "for infection with each of the organisms for which specific therapy is discussed." *Seriatim*, the subjects treated are: Infections; immunity; specific diagnosis; specific therapy; specific chemotherapy; specific diagnosis, treatment, and prophylaxis in the different infections; and diagnosis, treatment, and prophylaxis in syphilis and malaria, as an appendix.

The work, though sparsely illustrated, is well and clearly printed and reflects credit upon both author and publisher.

## Interclinical Notes.

Physicians will be interested in *Through the Land of Witchcraft*, by P. Amaury Talbot, the fourth installment of which appears in the December *Wide World Magazine*. Many instances are given of the treatment of disease by witchcraft, while fetich stones, the river that brings good luck, secret societies, and sacred musical instruments are other subjects of entertaining and significant description.

Physicians, being often chosen to act on town schoolboards, will read with interest and attention the essay of Charles Leonard Moore on Education in the *Dial* for November 16, 1913. The dangers of vocational training, which seems so ideal to the unthinking taxpayer, are clearly indicated and the inevitable reference is made to the Greeks, whose methods are so little known to the students of the present generation. Are doctors apt to be materialists, as Mr. Moore avers? Mr. Moore attributes the materialism to the lack of thorough preliminary education, and says that we have found out that the slight taste of many kinds of knowledge, which is what we have endeavored to give American youth during the past hundred years, is the worst possible preparation for the struggle of life. We commend this essay to our friends, for it runs counter to many principles tacitly accepted by our imperfectly equipped schoolboards.



## Meetings of Local Medical Societies.

**MONDAY, December 8th.**—Society of Medical Jurisprudence, New York; New York Ophthalmological Society; Williamsburg Medical Society, Brooklyn; New Rochelle Medical Society; Corning Medical Association; Waterbury, Conn., Medical Association.

**TUESDAY, December 9th.**—New York Academy of Medicine (Section in Neurology and Psychiatry); New York Obstetrical Society; Medical Society of the County of Schenectady; Medical Society of the County of Rensselaer; Buffalo Academy of Medicine; Jamestown Medical Society; Rome Medical Society; Practitioners' Club of Jersey City, N. J.

**WEDNESDAY, December 10th.**—New York Pathological Society; New York Surgical Society; Medical Society of the Borough of the Bronx; Alumni Association of the City Hospital (annual); Brooklyn Medical and Pharmaceutical Association; Alumni Association of the Norwegian Hospital, Brooklyn; Medical Society of the County of Richmond, N. Y.; Dunkirk and Fredonia Medical Society (annual).

**THURSDAY, December 11th.**—New York Academy of Medicine (Section in Pediatrics); West Side Clinical Society, New York; Brooklyn Pathological Society; Blackwell Medical Society of Rochester, N. Y.; Jenkins Medical Association of Yonkers, N. Y.; Buffalo Ophthalmological Society; Jamestown Medical Society; Society of Physicians of the Village of Canandaigua; Gloversville and Johnstown Medical and Surgical Association; Physicians' Club of Middletown.

**FRIDAY, December 12th.**—New York Academy of Medicine (Section in Otolaryngology); New York Society of Dermatology and Genitourinary Surgery; Eastern Medical Society of the City of New York; Society of Clinical Serology, New York; Society of Alumni of St. Luke's Hospital; Society of Ex-Internes of the German Hospital in Brooklyn; Saratoga Springs Medical Society.

**SATURDAY, December 13th.**—Therapeutic Club, New York.

## Official News.

### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending November 29, 1913:*

**Gwyn, M. K.,** Surgeon. Granted thirty days' leave of absence from December 18, 1913. **Kearny, R. A.,** Assistant Surgeon. Directed to proceed to New York, N. Y., for the purpose of making preliminary arrangements and preparations relative to an exhibit by the Service at the International Exposition of Safety and Sanitation which is to be held in New York, December 11 to 19, 1913. **Lumsden, L. L.,** Surgeon. Detailed to represent the Service at the annual conference of county health officers, called by the State Board of Health, to meet in Louisville, Ky., December 8 to 10, 1913. **Phelps, E. B.,** Professor. Directed to proceed to Wilmington, via Raleigh, N. C., upon request of the State Board of Health, for the purpose of investigating the local water supply and making recommendations in respect thereto. **Vogelstin, Carl,** Professor. Directed to proceed to Savannah, Ga., for conference with the officers engaged in pellagra investigations.

### Boards Convened.

Board of medical officers convened to meet for the purpose of preparing questions for the mental examination of a candidate for examination for appointment as assistant surgeon in the Public Health Service, who will report at the Marine Hospital, St. Louis, Mo., December 1, 1913. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Assistant Surgeon General W. C. Rucker, member; Assistant Surgeon R. A. Kearny, recorder.

Board of medical officers convened to meet at the Marine Hospital, St. Louis, Mo., to conduct the medical and physical examination of a candidate for appointment as assistant surgeon in the Public Health Service. Detail

for the board: Surgeon Mark J. White, chairman; Acting Assistant Surgeon H. C. Wakefield, recorder.

Advisory board of the hygienic laboratory convened to meet at the bureau, Saturday, December 13, 1913.

Standing board for reexamination of alien immigrants at Honolulu, Hawaii, convened as follows: Surgeon F. E. Trotter, chairman; Passed Assistant Surgeon E. R. Marshall, member; Passed Assistant Surgeon C. M. Fauntleroy, recorder.

### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending November 29, 1913:*

**Eckels, Laurens S.,** First Lieutenant, Medical Corps. Will report in person on December 2, 1913, to Lieutenant Colonel Henry C. Fisher, Medical Corps, president of examining board at the Army Medical Museum Building, Washington, D. C., appointed in paragraph 10, Special Orders No. 224, September 25, 1913, War Department, for examination to determine his fitness for promotion; on completion to return to proper station. Lieutenant Eckels is relieved from duty at Fort McKinley, Me., to take effect at such time as will enable him to comply with this order, and will proceed at the proper time to Fort Du Pont, Del., and report in person on or about December 15, 1913, to the commanding officer of that post for assignment to duty to accompany the Eighty-first Company, Coast Artillery Corps, to Cristobal, C. Z., and on arrival will proceed with the organization named to Fort Grant, C. Z., for station. **Gilchrist, H. L.,** Major, Medical Corps. Will proceed to Asheville, Raleigh, and Kinston, N. C., on December 9, 11, and 12, 1913, respectively, for the purpose of making a special inspection of Ambulance Co. No. 1, Field Hospital, and Hospital Corps Detachment, Organized Militia of North Carolina, and upon the completion of this duty will return to his proper station. **Murtagh, John A.,** Major, Medical Corps. Granted leave of absence for three months on surgeon's certificate of disability; on expiration of this leave will proceed to Letterman General Hospital, Presidio of San Francisco, Cal., for observation and treatment.

## Births, Marriages, and Deaths.

### Married.

**Dundon—Gray.**—In Plainfield, N. J., on Saturday, November 15th, Dr. Arthur Hall Dundon and Miss Frieda Theodora Gray.

### Died.

**Ayres.**—In Fort Plain, N. Y., on Thursday, November 20th, Dr. Douglas Ayres, aged seventy-one years. **Bashore.**—In West Fairview, Pa., on Wednesday, November 19th, Dr. Daniel W. Bashore, aged seventy-eight years. **Bell.**—In Penosha, Wis., on Thursday, November 20th, Dr. William Roscoe Bell, of Marinette, Wis. **Brainard.**—In Little Falls, N. Y., on Tuesday, November 18th, Dr. Lucien La Brand Brainard, aged sixty years. **Edwards.**—In Richmond, Va., on Wednesday, November 12th, Dr. Robert Lide Edwards. **Gaston.**—In Montgomery, Ala., on Saturday, November 8th, Dr. John Brown Gaston, aged eighty years. **Goodwin.**—In Minneapolis, Minn., on Saturday, November 15th, Dr. Russell F. Goodwin, aged seventy-two years. **Helbig.**—In New York, on Wednesday, November 26th, Dr. Frederick Matthew Helbig, aged forty-six years. **Hendricks.**—In Philadelphia, Pa., on Wednesday, November 19th, Dr. Albert W. Hendricks, aged seventy-three years. **Hobson.**—In Hampton, Ia., on Saturday, November 15th, Dr. Carl Lyle Hobson, aged twenty-eight years. **Isham.**—In Chicago, Ill., on Sunday, November 16th, Dr. Ira D. Isham. **Jenkins.**—In Kibbourn, Wis., on Thursday, November 13th, Dr. George W. Jenkins, aged ninety years. **Morrison.**—In Richmond, Cal., on Sunday, November 16th, Dr. J. McIntyre Morrison. **Rawson.**—In Otley, Ia., on Wednesday, November 19th, Dr. Charles De Witt Rawson, Jr., aged thirty years. **Ray.**—In Sugar City, Colo., on Wednesday, November 12th, Dr. James Edwin Ray, aged seventy-seven years. **Winans.**—In Muncie, Ind., on Sunday, November 23d, Dr. Harry M. Winans.



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### Original Communications.

#### PUS IN THE URINE.

BY VICTOR COX PEDERSEN, A. M., M. D.,  
New York.

Pus in the urine or pyuria may be defined briefly as pus associated with the act of urination in quantities sufficient to discolor the urine or be a factor on microscopical examination. It may therefore be regarded as a symptom, but it is one of such grave importance and of such severe possibilities for the patient, that its source and cause must be searched for and settled without delay. In general its significance is regularly an inflammatory process of severe character resulting in pus formation after the usual pathological manner which needs no elucidation here.

Like hematuria pus may originate from any of the ordinary subdivisions of the urinary and genital tracts; for example, in the male from the foreskin, the anterior urethra, the posterior urethra, and the periurethral structures—notably the prostate; and in the female from the vulva, the vagina, the uterus, and the urethra corresponding with the posterior urethra in man; and in both sexes from the bladder, either or both ureters, ureteral pelves and kidneys. It therefore becomes the duty of every practitioner to know as far, and as early as possible, every detail of pus in the urine which has reached any important and persistent amount. The dictum that pyuria may mean pus as a factor in microscopical examination means, obviously, much more than the scattered cells invariably seen in urine.

If we classify pyuria from the standpoint of its anatomical sources as just described, we shall have in the male balanitic, anterior urethral, posterior urethral, periurethral; and in the female vulvar, vaginal, uterine, urethral; and in both sexes vesical, unilateral and bilateral ureteral, ureteropelvic and renal. The activity of the pus production determines acute, subacute, and chronic forms, scanty, moderate, or copious in amount, intermittent or remittent, and recurrent or persistent in course.

The essential cause is infection and the special organisms of the infection are so well known that they may here be omitted. Your president has asked for practical observations, and therefore without further discussion of the various didactic elements of pyuria, let us proceed to give one case in the male illustrating each of the important forms.

Balanitic pyuria may be very copious, highly irritating and painful, and deceive the unwary and casual observer into the diagnosis of acute gonococcal urethritis. From this condition in addition to the bacteriological findings it should be quite readily recognized by the fact that on close questioning there is no urethral ardor, tenderness, nor other signs of inflammation. Retraction of the foreskin instantly locates the disease and reveals its character as simple, chancroidal, or chancrous in middle life, and in age neoplastic, and in infancy as adhesive. When retraction cannot be performed attempt at dilatation of the mouth of the foreskin with a three blade nasal speculum and illumination of its cavity with a urethroscopic lamp should be tried. Palpation becomes an important factor, as any lesion such as new growth in its broadest sense, used to include the ulcerations and the neoplasms, may readily be outlined and its character suggested if not determined. The character of the pus to the naked eye is important in its variations from mucoid in simple, serous in syphilitic, and bloody in chancroidal and neoplastic cases.

In the total perhaps the most important cases for us in the male are those of syphilitic balanitic pyuria which, as in all other cases, shows only a little pus in the first glass of urine, even in a small specimen. The following is a case in point referred to me by Dr. J. Milton Mabbott, New York.

CASE I. C. J.; Ireland; white; twenty-eight years old; single; houseman (case 12567); first seen December 21, 1911; diagnosis, acquired syphilis in second stage. Former venereal history: Admitted having had gonorrhea once, two years ago, without complications. He was treated by a physician, for one visit, with internal measures. No sign of urethral damage in the urinary test glasses. This was undoubtedly not a gonococcal infection, but was probably only a balanitis whose pus deceived a careless examiner. Open lesions denied. The present venereal history stated that his sexual habit was weekly intercourse with any woman, infection acquired about seven weeks and symptoms about six weeks previous to his first visit. The very slight amount of pus, its serous character, the benign symptoms, all were counter to the diagnosis of gonorrhea which the man at first insisted that he had. The foreskin could not be retracted, contrary to his usual experience. Palpation revealed a hard spot which, on questioning, he said corresponded with a simple looking chafe, noted about three weeks after connection, which by extension had produced the phimosis. The diagnosis was clear: Syphilitic chancre, balanoposthitis and phimosis. A secondary rash and a ++++ Wassermann reaction settled the matter and made the institution of proper treatment prompt and unwavering.

Urethral pyuria in the male is our next topic. We pass gonococcal urethritis by as so specific as to be hardly germane to our subject, excepting that the germ must always be looked for in smear and

\*Read by invitation before the Lake Keuka Medical and Surgical Association, Lake Keuka, N. Y., July 17 and 18, 1913, and before the Yorkville Medical Society, New York, October 26, 1913.

culture. For the distinction of the point of the urethra from which the pus proceeds no test is better in the writer's opinion than the Wolbarst five glass test. This test is not without some danger of infecting the bladder which the writer meets by giving the patient urinary antiseptics before and after it for a few days and, at the time, washing out the bladder.

An example of what careful diagnosis in urethral pyuria may lead to is shown by the following case reported in a previous contribution.<sup>1</sup>

CASE II. H.; United States; white; thirty years old; married; draughtsman. Diagnosis, initial anteroposterior urethritis. (Case XIII); referred by Dr. T. K. Tuthill. Former venereal history denied. Acquired present infection five years ago, after six or seven days incubation. Had never been free from discharge. Wife apparently not infected. Numerous relapses, independently of any exposure, had occurred. Diurnal urination every three hours; nocturnal twice. Urgency, tenesmus, and chordee moderate; control fair. Both glasses of urine were rich in pus. Uranalysis negative; culture of pus negative for gonococci, but showed a large Gram positive diplococcus, both intracellular and extracellular. Gonococci not found by culture or smears. The local treatment of this case was along modern lines with ascending hand injections of zinc sulphate. The particular features of the pus, however, impressed me with the feeling that the patient had overdone the treatment. I, therefore, submitted him to a careful urethroscopy, and found the urethra, from end to end, presenting a peculiar shaggy exfoliation, as though there was largely a medicinal urethritis present. Moreover, a number of prostatic ducts were patulous and seemingly infected; the verumontanum was covered with unhealthy granulation tissue; the bulb was almost entirely excoriated, and in the anterior urethra were the usual enlarged follicles. Because of these findings, the patient was taken off all local treatment and submitted only to internal sedatives, with the result that in about a month all visible discharge had disappeared, with the sole exception of a few shreds. The source of these shreds would probably be corrected by giving, in due course, individual attention to the lesions named.

Periurethral pyuria in the male is well exemplified by the following history which shows the regard of careful examination:

CASE III. M. G.; Austria; white; aged thirty-nine years; married; tailor (case 12678); referred by Dr. Samuel Wechtler. Patient was first seen October 23, 1912. Diagnosis, chronic suppurative prostatitis. Former venereal history negative as to syphilis and other open lesions. Urethritis twice, last thirteen years previously, complicated by left epididymitis, funiculitis, and urethrocystitis, since which he had had relapses of chronic posterior urethritis. For this last attack he was treated privately for six weeks with internal and injection methods. Present venereal history through his physician stated that the relapses aforesaid were separated by periods of apparent absence of discharge. The five glass test of Wolbarst showed shreds in the anterior urethral washings confirmed by a second anterior glass, the third glass contained heavy shreds from the posterior urethra, the fourth or bladder glass was clear and the fifth or massage glass showed many shreds and much pus again. These findings strongly suggested posterior urethral disease which on urethroscopy was found to consist in multiple sinuses in each, but most marked in the right lobe of the prostate, which discharged clouds and slugs of pus into the field of the instrument. Smear and culture of the pus proved the absence of gonococci but the presence of Gram positive staphylococci and Gram positive diplobacilli. All uranalysis showed the absence of nephritis.

As distinguished from the foregoing case of chronic suppurative prostatitis with relapsing cystourethritis, is the following report of pyuria due

to follicular prostatitis. In this case the diagnosis of pyuria was based on the fact that the pus was a factor on microscopical examination and only very rarely a macroscopic factor:

CASE IV. H. S.; German; white; aged forty-six years; married; clerk (case No. 11757). Patient was first seen March 20, 1909. Diagnosis, third chronic anteroposterior gonococcal urethritis; sequel, chronic follicular prostatitis; intercurrent sexual excess. Family history: Father died of dropsy, mother living and well, two brothers dead as children, of diphtheria and meningitis, two sisters living and well, one dead of cancer. Wife without female disease or children, two miscarriages at about the fifth month of unknown causes. Past personal history: Good health, diphtheria and blood poisoning in youth without renal sequels. Weight, appetite, and bowels normal. Former venereal history: Patient denied syphilis, but had urethritis twice, the last attack in 1884, complicated with right epididymitis and probably prostatitis and urethrocystitis. He was treated by a physician in private for many months, during many relapses, with internal and injection methods, and finally discharged by the physician. Present venereal history: Had had intercourse with his wife every other day as a rule, more recently about once a week; no illicit intercourse. His third attack of gonorrhea began fifteen years ago, three days after intercourse, without ever complete recovery. For several months he has noticed a thin, moderate, purulent discharge, and scalding in the anterior and posterior urethra. No definite change in diurnal and nocturnal urination, control has been doubtful and tenesmus present, occasionally chordee. He had been treated during the acute stages by a physician in private, for a few months, with internal and injection methods, and had been discharged by the physician. Physical examination showed a man in good condition. Long mucous shreds in the first glass of urine, none in the second, third, or fourth glasses; sexual organs negative except for a decidedly soft prostate from which more shreds could be expressed. No residual urine except subjectively, when the scalding was most manifest. Uranalysis negative except nuclealbumin due to numerous pus cells, and flat and prostatic cells, and prostatic shreds. No gonococci in material from the urethra or from the prostate. The patient was treated by conservative and accepted means with little result so that a urethroscopy was done, which showed a very peculiar condition in the right prostatic sinus, namely, several very patulous follicles from which pus shreds could be seen extruding and in which a granulation was easily visible, which, when the irrigation was passing into the urethra, receded into one of the follicles and when it was sucked out reappeared much like a woodchuck at its hole. The man finally got well under conservative treatments, but would have been in these days of high frequency current applications an ideal subject for the removal of this little granuloma. Even the older methods of urethroscopic treatment, however, served to relieve him.

Vesical pyuria is the next topic if we follow the logical sequence of passing upward from the urethra to the kidneys. The following case exemplifies the wisdom of early cystoscopic investigation when any pronounced disturbance of the bladder occurs, although there may not be blood or pus in the urine except perhaps in microscopical examination. Obvious functional disturbance merits a cystoscopic examination and would, if done very early for this man, have revealed the papilloma which came to light only when pyuria and one attack of hematuria convinced his physician that something must be done.

Under fulguration the papilloma is rapidly disappearing and within a month the man will be able to return to work; but these diagnoses should be reached long before these little growths reach the diameter of a cystoscopic field and long before they begin, perhaps, to infiltrate the surrounding bladder wall. As this patient does not speak English

<sup>1</sup>Chronic Gonorrhea in the Male. The Difficulties of Cure by Oral Treatment. NEW YORK MEDICAL JOURNAL, October 20, 1912.

very well, the record is not as complete as desirable:

CASE V. M. C.; Russian; white; aged fifty years; male; married; furrier (case No. 12881); referred by Dr. Benjamin T. Tilton and Dr. I. Zippert of New York to my Clinic in Urology of Men, Women, and Children in St. Mark's Hospital O. P. D. Family history: Father died of age, mother of unknown causes many years ago, five brothers living and in good health, one dead of unknown cause. Wife had had no female disease, and had had four children. Personal history stated that he had always had reasonably good health and had maintained normal weight up to this winter during which he had lost about twenty-five pounds. Former venereal history stated that he had had urethritis once, about thirty years ago, without complications, and relieved by private medical treatment in one year. Syphilis and other lesions denied. Venereal history of present disease revealed no infections since youth and a rather active family sexual life. As far as the man knew he remained in good health until his urination seemed disturbed about three months previous to his first visits to the hospital in April, 1913. Massage of the prostate by his family physician appeared to have brought on the first attack of hemorrhage, which had persisted with remissions ever since. It might here be interjected that ordinarily prostatic massage is best done on a full and not an empty bladder for the precise reason that then lesions away from the prostate are not disturbed by collapse of the walls upon the surface of the prostate within reach of the massaging or examining finger. The disturbance of the bladder previously spoken of was marked by the passing of "threads and pieces of flesh." These were probably slugs of mucus and mucopus accompanying the cystitis which was then appearing. They could hardly have been pieces of the papilloma, otherwise hemorrhage would have been a much earlier and more prominent symptom. Cystoscopy was recommended, accepted, and revealed a papilloma of the bladder in the vault slightly to the right of the median line in both the retropubic and subperitoneal quadrants. Its size was that of one cystoscopic field. Its general appearance was benign, except for the fact that backward and toward the patient's right into the subperitoneal quadrant, an obvious nodulation, infiltration, thickening and inelasticity of the bladder wall were present. This, in the opinion of the writer and in agreement with other authorities, was strongly indicative of cancerous degeneration. A guardedly unfavorable prognosis had been given while treatment with the high frequency electrical current had been begun with very remarkable benefit so that after six applications the bleeding had largely disappeared, the tumor reduced, and the patient returned to work.

The involvement of the annexa will be thoroughly examined as soon as the extirpation of the papilloma is complete. It will therefore be noted that this is only a preliminary report of this case with the one object of showing how important may be the conditions behind early and seemingly unimportant bladder symptoms with pyuria as the first predominant symptom.

Ureteral pyuria is the next step and is well exemplified by a case which, although for several years in the hands of a well known general surgeon in New York city, was by him never submitted to cystoscopy after conservative measures had never relieved more than temporarily. It rests on one of the most peculiar abnormalities that the writer has ever seen in the living subject. In the nature of the case the history is not a very definite one, inasmuch as it doubtless passes back into childhood if it could be traced with sufficient detail.

CASE VI. H.; about forty years old (case 12727); referred by Dr. Edmund P. Shelby of New York city. For at least fifteen years he suffered relapses of pyuria, accompanied by great depression of mind and nervous system and very pronounced overstimulation of sexual passion, so that seemingly his wife left him on this account. All the instincts of this individual were away from sexual

laxity or excess, but his symptoms were obviously due to a pronounced organic condition of which he had no control and no knowledge. He was first seen February 27, 1913, in company with his physician who agreed that there was much about his urine to suggest widespread infection, with the choice resting on gonococcus, colon bacillus, or tubercle bacillus. Frequent and studious laboratory investigation ruled out the first and the last and established the colon bacillus alone, which agreed thoroughly with another element in his history, namely, that his pyuria attacks were usually associated with intestinal disturbance. This fact must be at the basis of his mental depression and the augmented infection of the upper urinary tract at the basis of his sexual disturbance. It was endeavored to control the pyuria with equal doses of benzoate of soda and a formaldehyde urinary antiseptic, with little or no real result. A cystoscopy was then undertaken, revealing a bladder obviously the seat of long continued moderate cystitis and lateral to each ureter what seemed to be the narrow mouths of diverticula of the bladder. These were proved, however, with the ureteral catheters to be double ureters with the following general features. The pair of openings nearer the middle line were normally placed for the ureters and admitted the catheters with reasonable success for the proper length, namely, twenty to twenty-five centimetres. The abnormal ureter on the right side could be penetrated for almost an equal distance while that on the left side accepted the catheter for five centimetres, then turned in on itself and passed it back into the bladder, which would have indicated this to be a diverticulum were it not for the fact that what seemed to be urine was seen to flow from each abnormal opening. Separation of the urine was now undertaken and showed from the right normal ureter practically normal urine except for pronounced colon bacillary bacteriuria with exfoliation of probably ureteral cells. The right accessory ureter showed a similar result. No change in the urine between the right and left normal ureters was made out, and the left accessory ureter was patulous but the penetration of the catheter was too slight to permit a specimen to be obtained. Dr. Lewis Gregory Cole, of New York, kindly performed the radiographic study of this case with the following conclusion: "March 17, 1913. From a study of these plates there is evidence of two clear cut, well defined shadows on the right side, near the lower end of the ureter, and one on the left side. These shadows are small and round, and have the appearance of phleboliths, rather than ureteral calculi. I do not believe that one is justified in stating with certainty whether these are in the ureter or outside of it."

This radiographic analysis also rules out stone in the kidney or upper ureter, floating kidney with kinking of the ureter, pyonephrosis, hydronephrosis, neoplasm, and tuberculosis of the kidney. The urinalysis established the fact that there is no active disease of the parenchyma or pelvis of the kidney. We are then thrown back to the diagnosis of colon bacillus infection of the normal and abnormal ureters and bladder, subject to relapses which in themselves rest on his intestinal condition. His family physician has maintained control of the case and has been adverse to further radiographic pictures with x ray catheters in the ureters in order to demonstrate the exact pathological anatomy of the parts. It is to be regretted that such a final showing cannot be given, as the case is extraordinary and suggests one of the limits one may reach by patiently continuing to examine until a valid ground of pyuria is reached.

We now ascend one step in the anatomy to the pelvis of the ureter and the kidney and have to speak of the pyuria due to such conditions as hydronephrosis which in early degrees is without material effect on the kidney. The diagnosis of hydronephrosis in the following case is strongly suggested by the facts in hand, but never fully proved because ureteral catheterization done in the writ-



er's office with the greatest possible precautions provoked profound renal disturbance lasting several weeks. Even when the kidneys are the seat of hydronephrosis it may take very little to induce untoward effects.

CASE VII. L. A. S.; American; white; about forty-five years old; female; widow; nurse (case No. 12882); referred by Dr. A. S. Holcomb, of New York; first seen in June, 1912, but record mislaid, hence entered in June, 1913. Diagnosis, moderate relapsing hydronephrosis of the left kidney. Family history negative. Present history concerned attacks of relapsing pain on the left side more or less accompanied by and associated with attacks of pyuria chiefly of the microscopic rather than of the macroscopic type. On physical examination no mass could be made out in either kidney region, only a little muscular rigidity on the left side and a sense of fullness. No mobility of the kidney determined. Ten urinalyses on this patient were made some of which were supplied for me by Doctor Holcomb. When twenty-four hour specimens were taken the range was from thirty-five to seventy-two ounces. Odor and color normal without turbidity. The reaction ranged from superacid to alkaline in two of the twenty-four specimens, which may have been due to early decomposition. The specific gravity ranged from 1.006 to 1.018, some of the lowest occurred in the twenty-four hour specimens. Chlorides normal. Urea ranged from nine tenths of one per cent. in one of the twenty-four hour specimens to two and two tenths per cent. Uric acid when reported excessive. Indian varied from normal to excess. Acetone was present once. Glucose, bile, and diazo reactions all negative. Albumin present three times, to the ordinary and to Esbach's tests, but always too little for quantitative determination. Serum globulin and albumose absent. Microscopical examination showed a tendency toward phosphaturia twice, and great excess of oxalates once. Hyaline and granular casts were present once; epithelial casts six times. Pus in distorted cells or slugs, usually in very large amounts, was absent only twice. Blood was present once; various bacteria four times without definite identification. Mucus followed the same general rule as the pus but in much smaller amounts.

A negative x ray was taken on this patient.

June 8, 1912, a phenolsulphonaphthalein test of the combined kidneys was performed in the following manner: At 10:10 a. m. she drank one pint of water. At 10:25 the bladder was catheterized and one ounce of urine withdrawn, whose general characters differed in no respect from the ten specimens previously analyzed and just discussed. At 10:30 a. m. 0.9 c. c. of the dye was intravenously injected. At 10:45 specimen No. 2 containing one and a half ounces was withdrawn by catheter from the bladder; it showed thirty per cent., and twenty-seven per cent. were found in specimen No. 3 containing five ounces withdrawn at 11 a. m.

June 19, 1912, catheterization of the ureters was performed with the following result, the bladder being itself negative to cystoscopy:

#### CATHETERIZED SPECIMEN, JUNE 10, 1912.

Catheter specimen	Right kidney.	Left kidney.	Leakage.
Physical analysis,			
Quantity .....	1½ ounces	1 ounce	1 ounce
Color .....	o	o	o
Odor .....	o	o	o
Reaction .....	alkaline	acid	alkaline
Specific gravity.....	1.001	1.004	1.006
Chemical analysis,			
Chlorides .....	n	n	n
Phosphates .....	o	o	o
Urea .....	2/10 of 1%	3/10 of 1%	7/10 of 1%
Uric acid .....	o	o	o
Indian .....	n	..	n
Acetone .....	..	..	..
Glucose .....	o	o	o
Bile .....	o	o	o
Diazo reaction .....	..	..	..
Albuminuria,			
Boiling acetic A. ....	trace	trace	o
K ferrocyanide .....	—	—	o

Catheter specimen	Right kidney.	Left kidney.	Leakage.
Serum albumen,			
NaO H <sub>2</sub> .....	trace	o	o
Serum globulin,			
Albumosuria,			
Urinary sediments,			
Urates .....	o	o	+
Phosphates .....	o	o	o
Turbidity .....	+	+	+
Chyle .....	..	..	..
Acid urine,			
Uric acid .....	o	o	o
Urates .....	o	o	o
Oxalates .....	o	o	o
Phosphates .....	..	+	+
Alkaline urine,			
Casts,			
Hyaline .....	+	o	o
Granular .....	+	o	..
Epithelial .....	vesical cells	vesical cells	o
Pus .....	o	o	o
Blood .....	o	o	o
Bacteriology,			
Mould .....	o	o	o
Mucus .....	—	normal	o

Subsequently it was decided to measure the capacity of the renal pelvis which was done in consultation with Doctor Holcomb and Dr. Ira B. Terry. The ureters were readily catheterized and the right kidney was first tested. After about fifteen c. c. of warm boric acid water 2 per cent. were run in with the greatest gentleness the patient complained of distress, and this quantity was accepted as the normal capacity of this pelvis. The left pelvis was now investigated, but the patulousness of the ureter allowed so much leakage that about 200 c. c. were injected without sensation to the patient except that of fluid in the bladder. The patient was then sent home with the purpose of repeating this test at a later date using a full size catheter on the left side. She underwent, however, a very severe renal disturbance with chills, fever, and oliguria and was confined to bed for three weeks. At times her condition was serious. At the time of the report the woman was doing extremely well under Doctor Holcomb's care with purely expectant treatment, chiefly urinary antiseptics and diet. The diagnosis in this case was by no means definite. That it was pelvic rather than renal was suggested by the urinalyses. That it was of the left side was insisted by the patient on account of the fixed pain there and indicated by the cystoscopic findings which showed that left more than the right ureter was abnormal. That both kidney pelvis might be involved was shown by the somewhat greater amount of pathological elements obtained by catheterization from the right than from the left side, and by the acute reaction after the capacity test of the pelvis which seemed focalized on the right side. The negative result of the x ray test was unfortunate. One might say that this woman had a hydronephrosis on the left side indicated by the absence of sensation when the fluid was being run into the pelvis of her kidney, and a lithiasis of the right side suggested by the irritability there. Only time will settle these questions with one or more investigations of the case.

The last example is that of renal pyuria exemplified by the following very interesting case which had a fatal issue after nephrectomy, due to universal infection of the wound with *Bacillus coli*. The error which the patient made was in considering his pyuria as a relapsed gonococcal urethritis so that he postponed all medical advice for several months for shame, and in postponing the operation, by reason of fear, for nearly six months during which the infection of the kidney, ureter, and bladder had extended.

CASE VIII. A. H.; German; white; aged twenty-seven years; male; married; printer. (Case No. 12684). First seen in the present illness November 12, 1912. Family history: Both parents, four brothers and three sisters living in good health, no deaths; wife well, one child well. Personal history: Good health; diphtheria in childhood, no renal disease known; weight 133 pounds constant, and

standard; appetite good; bowels irregular. Former venereal history denied. Present venereal history: Sexual habit irregular; last infection four and a half years ago; incubation two weeks; duration seemingly off and on since infection. No recent symptoms except scalding, which was occasional. Diurnal urination now every one to two hours, nocturnal four or five times. Control is slight and variable, likewise urgency and tenesmus. No blood before, after, or with the urine. Last intercourse with his wife three months ago, at the time when the present pyuria was beginning. Previous to this his urination was four or five times by day, and none at night. During the acute stage of his urethritis, four and a half years ago, he had treatment for eight weeks with internal injection and irrigation methods. Physical examination revealed a pale overworked Jew in good general condition; no urethral discharge, but much pus in the first and second glasses of urine, suggesting tuberculosis.

Further subjective history was as follows: Pain referred chiefly to the penis, across the base, seemingly of bladder origin. Had not had intercourse with wife or other woman for three months, through fear of infecting her. Could not state relation between pain and coitus, or defecation. Frequency of urination by day, at least every two hours, sometimes every hour; by night, several times. No change in this symptom. Stream, said to vary, at times small; no obstruction. Had not noticed pus in the urine subjectively. Specimens at first visit filled with it. Blood, not noticed subjectively. Urinalyses were made November 13 and 19, 1912, and March 26, 1913, and April 17, 1913, and again at St. Mark's Hospital on admission. Tubercle bacilli were found in all specimens except the third by different laboratories. Specimens from urethral catheterization on November 29th, did not show bacilli. The first cystoscopy was done on November 23d, as follows: Free irrigation removed pus. Instrument introduced with very little distress. General condition of the bladder showed no diffuse nor disseminated congestion, no tubercles nor ulcers. Right ureter seemingly normal though slightly patulous; no zone of redness about it. Left ureter seemingly elevated, restricted, and patulous in a prominent elevation of the bladder, corresponding with its course; a zone of redness slightly to the left and behind the opening and flakes of pus. Suggested diagnosis: Tuberculosis of the kidney.

Ureteral catheterization on the same date with phenol-sulphonaphthalein injection showed only 27.5 per cent. excreted by both kidneys combined in about one hour, but the right kidney output was double that of the left. The patient continued to collect the urine at home after this test for twenty-four hours, but could show only 2 per cent. additional, perhaps because the dye was destroyed in his body. December 28, 1912, cystoscopy was as follows: Cystoscope introduced with no spasm and little pain. Condition of the bladder as a whole much as it was at the previous cystoscopy. Around the left ureter were a number of whitish elevations, irregularly scattered, similar to tubercles. The mucous membrane itself was not greatly congested but the opening was patent (golf hole) and retracted so that ridges seemed to run from it. Strings of mucus were seen slightly gravitating out of it. On January 14, 1913, Dr. Lewis Gregory Cole made a radioscopic examination of the case, as follows: "Plates of both kidneys, left ureter and bladder, show the ribs, spine, transverse processes, spine of the ischium and coccyx distinctly. The left kidney shows distinctly and is normal in size, shape, and position, and shows no irregularity of density or contour. The right kidney is somewhat obscured by an accumulation of gas and feces, but the plates show sufficient detail to justify us in making a negative diagnosis of a calculus. The plates made after the argyrol injection, show the spine, pelvis, cystoscope, and catheter distinctly. I am unable to detect any evidence of the argyrol in either the kidney or ureter." The plates showed one feature, namely the refusal of the ureteral catheter to enter the left ureter which was found whenever catheterization was attempted. In April, 1913, a consultation was held with Dr. L. B. Bangs and Dr. James Pedersen, and his family physician, Dr. Marcus Goodman. The cystoscopy then showed extension of the tubercles and early ulceration of the bladder. Operation was recommended, but again postponed by the patient. During the long period of hesitation as to operation, the patient was given ascending injections of tubercle bacillus emulsion strictly after the method of Trudeau. Health and strength were kept up by the best

possible hygienic and dietetic measures. Urinary antiseptics were freely used. After awhile the patient disappeared, went to one of our large hospitals, underwent cystoscopy, and was admitted for operation, but became dissatisfied, and returned to the writer's hands. On June 12, 1913, nephrectomy was done in St. Mark's Hospital with the aid of Dr. Benjamin T. Tilton as consultant. The left kidney was rapidly and easily exposed along the dorsal surface and the ureter isolated and dissected out as far as the brim of the pelvis. It was found as thick as an adult middle finger, was divided between two clamps and used as a guide to the pedicle. This early division of the ureter proved to be a mistake, as it served to infect the wound from end to end in this very detail of using it as a retractor and guide. In enlarging the wound upward a puncture of the diaphragm occurred which opened the pleural cavity. This was carefully closed with banked sutures and, except for rapid respiration during the convalescence, the collapsed lung caused no trouble and began to expand again until the patient, by getting out of bed, reopened the wound. The pedicle was easily found, clamped, divided, and tied. The wound was very carefully dried and cleansed, a catheter passed to its deepest part and then firmly closed, first because the patient desired this done, as he had a relative who for an indefinite time had had a sinus after a nephrectomy and because it was desired to follow the recent teaching of the Mayos. Nearly a quart of normal salt solution was run into the wound, a copious dressing applied without drain, and the patient returned to bed. From the outset of the recovery the fear which the patient had of the operation redoubled itself and he tossed about the bed, got up once and wanted to go home, and otherwise wore out his strength so that when the infection appeared, due to the premature division of the ureter, he was a very poor subject to resist it. He died on the tenth day after the operation of bacillus coli infection which converted the wound into a foul fecaloid pocket. At the first sign of this, widespread drainage was instituted, but failed to save the patient.

This patient lost his best opportunity in passing from the period when his bladder showed no tubercles and his urine contained bacilli to the period when ulcers in the bladder had appeared and the kidney had been transformed into several large abscess cavities, so that it was only with dexterity, gentleness, and time that the organ was removed without rupture.

These several cases have been presented as types of pyuria proceeding from the various anatomical portions of the urogenital tract in males and females. Cases of some difficulty were chosen because it is precisely from these that one gains most in study. If the members of the society concur in this opinion, then the preparation and presentation of this paper has been both an honor and a reward.

45 WEST NINTH STREET.

## THE THEORY AND TREATMENT OF DIABETES.\*

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About one year ago I began a clinical investigation on the further study of diabetes mellitus, more particularly its control by dietotherapy. I inserted a card in more than one hundred medical journals requesting information from the profession as to the propriety or advisability of allowing a diet containing a liberal starch allowance. I received more than one thousand replies reporting experiences, with various remedies. Fifty-seven and one half

\*Read before the Medical Association of the Greater New York, October 2, 1913.

per cent. agreed with von Noorden that "the best treatment for the diabetic is the food containing the greatest amount of starch which the patient can take without harm; eighteen per cent. pinned their faith to gluten bread and gluten products; 7.5 per cent. used drugs and paid no attention to diet, while seventeen per cent. used both drugs and diet. The consensus from these correspondents was that the present methods of treatment were unsatisfactory to both physician and patient.

Laboratory work upon diabetes during recent years, and a more careful study of its metabolic disturbance, have taught us many new facts, particularly from the dietotherapeutic viewpoint which had been thought to be the true one, but in the light of later research has been materially modified. Therefore, what to many may pass as the newest standpoint is abandoned by others in favor of a still newer one. Von Noorden, one of the best known authors on this subject, has stated that opinions which have prevailed for two decades concerning the theory of diabetes can to-day be no longer maintained.

#### THEORY.

There is no subject in medicine upon which have been contributed so much thought, time, and energy, from an experimental standpoint, as diabetes, and yet no subject as to the true pathology and etiology of which we possess proportionately less accurate information. For the sake of convenience we will refer to three types of diabetes: 1. Cases due to lesions of the fourth ventricle; 2, cases due to metabolic disturbances of the liver and alimentary canal; 3, cases due to pancreatic disturbances (atrophy of the islands of Langerhans).

Cases under classification 1, while rare, are often puzzling to the physician, as all of the accompanying brain symptoms are frequently absent.

Cases under classification 2 are the most common forms of the disease met with. Here we have two broad types; (a) the patient is usually stout, very fond of food and usually termed a "high liver," and inclined to a sedentary life; (b) the second type of class 2 is found in a person of ordinary build, whose urine is free from uric acid sediment, but who suffers from skin complications, itching, boils, carbuncles and gangrene.

Cases coming under classification 3 are due to an acute process in the pancreas, where the pancreatic ferment does not exercise its normal function. This type of the disease is frequently observed in children and in adults of the working class. Patients of class 3 suffer from great thirst, marked emaciation, and voracious appetite; they excrete large quantities of urine, loaded with sugar.

While the foregoing classification, for the sake of convenience, is referred to as types of diabetes, we do not wish it inferred that we believe the diseased process is confined to any one organ, for no organ works for itself alone. It depends on processes taking place in other organs together with the products of its own activity, which influence the functions of other organs. These products may be *ferments* stimulating decomposition in the blood, or *hormones* regulating activity of the cells.

Recent researches by Weichselbaum and MacCallum (1) have tended to confirm the importance of

the part played by the internal secretion of the pancreas in carbohydrate metabolism. In an examination of the pancreas in 183 cases of diabetes, Weichselbaum found in every one distinct and characteristic lesions in the islands of Langerhans. Complementary to this, in an even larger number of control cases representing many different diseases, no corresponding changes were found.

I am not prepared at this time to discuss the question as to the extent to which lesions of the pancreas are responsible for the condition of diabetes; it cannot be gainsaid, however, from the phenomenon which follows extirpation of the pancreas, that disturbance of the function of the pancreas can lead to diabetes. The only question is: What is the manner of action of this organ whose absence leads to diabetes? Recently it has been suggested that the rôle of the pancreas should be otherwise regarded. The action of various organs having internal secretions has been exactly determined, and it has been found that many organs, such as the thyroids, parathyroids, adrenals and the glandular lobe of the hypophysis influence not only the metabolism of protein and fat, but also exert a special influence modifying the behavior of carbohydrates in the organism.

From the foregoing conception, Minkowski (2) believes the liver directly controls the metabolism of carbohydrate, for excess of carbohydrate is deposited in this organ in the form of glycogen, to be converted into sugar as required. This activity is regulated by the adrenal system and the pancreas. The secretion produced in the adrenal glands accelerates sugar production. The pancreas on the contrary inhibits the production of sugar in the liver. Injections of pancreatic ferment remove the inhibition over sugar production, allow unrestrained action on the part of the adrenals upon the liver resulting in the most aggravated types of diabetes. Minkowski (2) in discussing this point, says: "I certainly will not deny that other organisms may contribute to regulate carbohydrate metabolism and therefore may have an influence upon diabetes." It is believed that the adrenals contribute directly or indirectly to the mobilization of sugar, the thyroids help to increase protein metabolism, although they may also act in other ways to increase sugar formation.

Cambridge (3), discussing The Relation of the Ductless Glands to Glycosuria, says: "The glycosuria, seen after extirpation of the pancreas, may be looked upon as a *negative pancreatic* diabetes and a *positive adrenal* diabetes, for the normal inhibitory action of the internal secretion of the pancreas is removed while the mobilizing power of the adrenal secretion is increased by hyperfunction of the chromaffin tissue."

The influence of the nervous system on carbohydrate metabolism has been recognized since the days of Claude Bernard, and there can be no doubt that nervous disturbances enter into the pathology of many cases of diabetes.

A number of toxic influences possibly act in a similar manner, the glycosuria to which they give rise being partly a result of the action they exert on the diabetic centre in the medulla, and partly an effect of their stimulating action on the sympathetic



nerves, or on the suprarenals directly, thus, in case, causing hyperfunction of the chromaffin system, with consequent overproduction of sugar by the liver.

As to the application of the theories to diabetes, from what has already been said, it will have been noticed that there is a tendency at the present time to revert to the doctrine that overproduction of sugar is the main cause of diabetes, and to abandon the element. This view is now held by a number of eminent observers, including von Noorden (4), who consider that the hyperglycemia, and consequent glycosuria, is due to an excessive output of sugar by the liver, and that this may arise from excessive stimulation or impaired inhibition. The stimulus to the liver may come from an excess of carbohydrate food, as in alimentary glycosuria, from an increased call by the tissues, from hyperfunction of the suprarenals, etc., or from the central nervous system through the medium of the chromaffin system. Impaired inhibition may arise from suppression, or impairment, of the functions of the pancreas, or from interference with the controlling action of the thyroid or hypophysis on that organ. In some cases also there is probably a preliminary anomaly of the liver cells themselves.

The views that are at present held with regard to the interaction of the ductless glands and their part in the production of diabetes are to some extent theoretical. This is particularly so as regards the chromaffin system, but they correlate in a much more satisfactory manner than has previously been possible to the experimental data that have accumulated as to the effects of these organs on carbohydrate metabolism, and they bring into line the known facts in the etiology of diabetes. Whether subsequent observation confirms, or in part disproves these theories, there can be no doubt that they open up a wider conception of the interaction of the ductless glands. With a better understanding of the theory of the origin of diabetes and a more thorough study of the metabolism of a diabetic, there has come a reaction from the severe restriction in the use of starch foods, favoring a more normal balanced diet.

#### CARBOHYDRATE METABOLISM.

Metabolism is the all important factor in the maintenance of life and health. Heat and energy become absolutely necessary in order to convert the nitrogenous or protein elements into proteids and thence into tissue and fat. In order to get this heat and energy, the body burns carbon and thereby gets the heat, while the energy is supplied as the direct result of combustion by water contained in the starch elements. Pavy is right in his assertion that in healthy digestion the carbohydrates (starches) and sugars are converted, not into *glucose*, but into *maltose*  $C_{12}H_{22}O_{11}$  (dextrine being intermediate in composition). Maltose is absorbed and assimilated—converted into glycogen. For the proper production of maltose and its ready assimilation a healthy venous blood carrying a maltose favoring hormone ferment is necessary. In the process of digestion starches are converted first of all into alcohol before work on the rehabilitation of the organism can begin. We know that any food becomes an irritant when taken in excess above a

legitimate demand; therefore carbohydrates containing starch (untreated) given in great quantities to a diabetic will produce an irritating effect upon the sugar-producing organs; as a result the patient will suffer from glycosuria. It is regrettable that so little is known of the pathology of this malady. Textbooks and current medical literature contain little or nothing on the subject that is new.

Why does a diabetic void sugar in his urine? The answer is, because of faulty carbohydrate metabolism, the patient is not able to convert the sugar into alcohol in his system. The reason he cannot is at present unknown to physicians and pathologists. This much is certain, however: If carbohydrates are withdrawn from his dietary, the patient will feed on himself until all the fat stored in his system has been consumed, and then he will die. While we know that alcohol has its abuses, yet we cannot live and have our being without alcohol in our system. We understand that all starches are first converted into alcohol before they can yield their energy to the system, and a certain amount of alcohol is necessary for the conversion of nitrogenous food into tissue-building material to sustain the human economy.

#### TREATMENT.

The treatment of diabetes is far from ideal; being a malady subject to varied complications, it necessarily presents a difficult problem in treatment. We recognize that it is primarily a disturbance of nutrition in which the function of utilizing carbohydrate foods is more or less completely impaired. No disease with which I am conversant necessitates such a careful balancing of all the details of each individual case. The metabolic powers of the patient, the functional condition of the liver, the condition of the alimentary tract, the state of his nervous system and of his environment, and the functional capacity of his pancreas, must be severally and collectively considered in forming a conclusion as to the advice that should be given him for his daily conduct in the future. From the varied accumulation of theory, research, experiment, and observation which go to make up the medical history of this disease, we find when winnowing the chaff from the good grain that diabetes mellitus in man free from grave complications is amenable to satisfactory treatment, in fact is easily curable in proportion to the accuracy and persistency of the treatment, as well as the honest cooperation of the patient. Kolopinski (5), in discussing this phase of the subject, says: "Diabetes is a disease curable by diet, therefore diethotherapy is the remedy *par excellence* in the successful handling of this malady.

The newest researches have taught us that the manner in which carbohydrates are allowed is of the greatest importance. It is, therefore, the bounden duty of the physician carefully to study his patient in order to determine just the kind of carbohydrates his patient can tolerate and the method of preparation best suited to his condition in order that he may be allowed the greatest amount possible without increasing the output of sugar. The human body obtains its energy and nutrition from three types of foodstuffs, proteins, fats, and carbohydrates. For general purposes of

work, warmth, and nutrition, all three serve well; the muscular tissues are, however, most specific in their requirements. They have a predilection for sugar as their foodstuff and immediate source of energy. It is necessary, therefore, that sugar should always be available for this purpose. The liver with its sugar factories—the liver cells—fulfills this function.

It is a well known physiological fact that all of the carbohydrates of food are converted into sugar in the intestine and carried to the liver as such. A special protection, however, exists for the prevention of an excessive flow of sugar into the blood after a large meal of carbohydrates. The liver takes up the sugar as it arrives and stores it in the liver cells, where it is instantly changed into an insoluble form of sugar, known as "glycogen," to be used as a reserve material. This storage of carbohydrates as glycogen and the further change of glycogen into sugar is not all of the work the liver does. Human beings consume various kinds of foodstuffs other than carbohydrates; therefore the liver is compelled to make sugar from other materials—albumins, fats, and proteins, which under certain conditions are used by the liver for the manufacture of sugar.

**Carbohydrate treatment.** Various carbohydrate cures have been recommended in diabetes. The oatmeal cure by von Noorden, the rice cure by von Düring, the potato cure by Mosse and others; but experience teaches that none of them can be relied upon. The best perhaps is the oatmeal cure, which according to Blodgett (6), of Boston, can only be used at stated periods, "carbohydrate days," and then he recommends the oatmeal to be cooked for about seven hours. The long continued cooking no doubt produces changes in the starch atoms, which accounts for its virtue as a diabetic diet. Strauss (7), in discussing the various carbohydrate cures, says their beneficial effect can be attributed to the absence of animal protein and to their low caloric food value, and he believes that they are practically starvation cures. He says that when carbohydrates are given in small amounts distributed throughout the day, they do not produce as marked glycosuria as when taken in large quantities, consequently the essential feature of the carbohydrate cures is to give the carbohydrates in small repeated amounts. Strauss does not believe in giving a mixture of different starches, but adheres definitely to a simple form of carbohydrate, asserting that better results are obtained when the carbohydrate is given alone than when combined. He advocates carbohydrate days kept up for a short period of time, stating they furnish less than the required amount of protein. He disbelieves that when the required amount of protein is attempted to be made up by the substitution of various vegetable proteins for the loss of animal protein, the experiment has been successful.

As to the dangers of a starch free diet, the general experience of practitioners (8) is now that too strict a diet is not desirable, except in very severe cases, and in those only for limited periods at a time. Diet, like opium, may control the symptom glycosuria, but it does not remove the condition, and it may help to kill the patient by impairing the

general nutrition and by bringing on diabetic coma. In determining the proper diet for a patient suffering from diabetes, it is irrational to commence the treatment by cutting out from the daily dietary all carbohydrate foods. Each case must be carefully considered with regard to the possible cause of the sugar in the urine. Errors in diet, such as over eating, may result in a temporary glycosuria, and such cases do well on a carefully restricted diet. There are other cases of diabetes which certainly do not improve, but undeniably become considerably worse on a diet free from carbohydrate food.

Professor Osborne (9), of Yale Medical School, says: "I have no doubt that many a patient with diabetes mellitus has been hurried to his grave by a rigid starch free diet. I also believe that the fact that most so called starch free gluten foods contain starch has permitted many a diabetic to live months longer than a starch free diet would have allowed. An absolute withdrawal of carbohydrates from the foods of patients having true diabetes mellitus will always increase the acetone and diacetic acid and often the ammonia and betaoxybutyric acid and toxic acidemia and coma become imminent. Hence, it is unjustifiable, sugar having been discovered in the urine, to withdraw the starches absolutely or too rapidly from the diet."

Sajous (10), in discussing the diet of diabetes mellitus, states: "Hyperactivity of the test organ and its adrenothyroid centre is the direct factor in the overproduction of sugar; the prevailing method of depriving the patient of starches and sugars is unscientific. The morbid process being an excessive consumption of these substances in the body at large, including the hepatic glycogen, their withdrawal from the food can have but one effect, viz., to place at the mercy of the amylolytic triad of the blood what carbohydrates remain in the tissues. The body is thus depleted as far as possible of physiological components of the highest importance to its welfare. The sugar in the urine naturally diminishes, and may even disappear; but this does not prove in the least that the disease is counteracted; it only shows that the patient has been drained effectively of his main sources of muscular energy and heat. Nor does the meat diet to which the patient is relegated even protect him against the renal complications feared, since glycosuria is known frequently to persist under such a diet and to promote the appearance of acetonuria and acidosis. This abstention from starches, sugar, etc., is harmful under such conditions, as shown by the fact that the restoration of carbohydrates often causes both acetonuria and acidosis to disappear."

Doctor Stark says (11): "A rigid exclusion of sugars and starches in the treatment of diabetes is a thing of the past, nor do we often find it necessary to exclude them permanently from the menu of diabetes. On the contrary, we often substitute carbohydrates for fats in cases of marked acetonuria. . . . As a matter of fact, the organism actually requires for its maintenance carbohydrates for the repair and growth of its tissues and for the production of heat and muscular force. This necessity for carbohydrates is so emphatic that directly they are proscribed the system draws upon the nitrogenous element of food to supply the miss-



ing component." As to the influence of meat, Crofton (12) states "that in many cases it is well known that the sugar excretion stops only when the amount of meat is considerably reduced. Further, it can be shown that withdrawal or reduction of meat appreciably increases the tolerance of carbohydrates." He urges, moreover, that "the chief danger incident to withdrawal of carbohydrates is acidosis and coma and also that "it is surprising how often the administration of a little carbohydrate in cases that are on rigid diet, or of some more carbohydrate in cases that are receiving only small quantities of carbohydrate, will cause all these dangerous phenomena to disappear."

During the past twenty years I have had much experience in both private and institutional practice in the treatment of diabetes. I have used gluten foods and gluten flour, and have come to the conclusion that the only virtue in the gluten products depends upon the large percentage of starch they contain. Many of the gluten foods have been found to contain as much starch as ordinary bread taken from the corner bakery, and in some instances the percentage of starch was even higher. I have tried the rigid starch free diet, only to be disappointed. I have prescribed the various carbohydrate cures, the oatmeal cure, the potato cure, the rice cure, etc., in various types of the disease without satisfactory results either to myself or to my patient.

Unfortunately, pharmacology has not provided any drug which acts directly upon the sugar forming process of the liver. Therefore, properly selected diet is more efficient than any drug or combination of drugs offered for the treatment of this malady, and offers the greatest and most rational promise of relief or cure, and is undoubtedly the sheet anchor in the treatment of diabetes. Von Noorden (13) and other eminent authorities aver that the best food for the diabetic is the food containing the greatest amount of carbohydrates which they can tolerate, because in the carbohydrate is contained the greatest proportion of calories, or heat units, which go to make up the energy of life.

During the last two years I have treated a series of patients on a carbohydrate food manufactured from wheat and barley cereals. The grain is ground on the old fashioned buhr millstone, and the finished flour contains all of the starch and cereal salts that Nature grew into the grain in the field. After being ground, the whole wheat flour is subjected to a series of special processes brought about by the application of a certain degree of heat for a specified period of time, which causes certain changes in the starch atoms. It is estimated that a grain of wheat contains one hundred million starch atoms, only a small proportion of which is broken up in the process of grinding. This special treatment by the application of heat produces changes in the envelope of the starch atoms which facilitate digestion and assimilation. I personally believe in allowing diabetics carbohydrate, together with nitrogenous food, sufficient to build up and maintain the human economy; but starch and nitrogen *per se* mean nothing toward sustenance until the animal economy has converted these elements into tissue building material. Among the many advantages of

starch treated foods is the fact that they indirectly facilitate the absorption of other foods, especially carbohydrates of every kind, on account of the apparent inducement they seem to hold out to the enzymes of the intestinal tract, to assume their full amylolytic function with promptness and thoroughness. I have treated a great number of cases of various types of diabetes by prescribing these starch treated foods to the exclusion of all other starch foods, and have been very much gratified to see the percentage of sugar in the urine gradually decrease and finally disappear.

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## THE PHYSICAL, MENTAL, AND MORAL VIGOR OF OUR SCHOOL CHILDREN.\*

### *Fragmentary Notes on How to Preserve and Increase It.*

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(Concluded from page 1101.)

29. Vaccination against smallpox should be a requisite to admission to any school, public, parochial, or private, and periodical revaccination, particularly in times of epidemics, obligatory to continued attendance at school.

Parents objecting to vaccination should be obliged to maintain their own schools. It would prove the best propaganda for compulsory vaccination. An additional and effective means to educate antivaccinationists and to convince them of their folly is to send them the authentic records wherein it is shown that in epidemics the nonvaccinated individuals have died and the vaccinated ones survived. A good authoritative statement to give to the antivaccinationists is the following: In Germany, where vaccination has been compulsory for many years, there has only been an average of fifty-three deaths annually from smallpox, while in Russia, where there exists no compulsory vaccination law, for the same population there have been forty thousand deaths from smallpox annually. There is virtually not the slightest risk from a careful antiseptic vaccination against smallpox made with pure virus. Thus, for example, in the Philippines two million vaccinations were made without a single case of serious infection. But we need not go to the Philippines or foreign lands for a lesson. In a health

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bulletin,<sup>14</sup> we read the following: "Smallpox, in the first decade of which we possess records, killed sixty-six persons out of every 100,000 of the population of New York city. Until 1875, when 1,280 deaths were reported from this cause, practically no preventive measures had been undertaken by the authorities, but the high mortality of that year stirred the city officials to action and free vaccination by the Department of Health was then established and has been in constant operation ever since. In the decade 1874-1883, smallpox caused the deaths of 247 out of every 100,000 of the population. During the decade just elapsed, less than one person out of every 100,000 of the population died from this disease. Notwithstanding this eloquent lesson on the necessity of the thorough vaccination of communities, there still exist antivaccinationists who pass fiery resolutions in their society meetings and heap contumely upon the heads of officials who are charged with caring for the physical welfare of our citizens."

30. In case of epidemics of diphtheria preventive injections of antitoxine should be given to all children exposed. When parents object to this procedure their children should be excluded from school until the epidemic has ceased.

Here, too, special educational pamphlets setting forth the inestimable value of preventive and curative injections of antiphteritic toxins should be sent to the parents. These pamphlets should include statistics of the morbidity and mortality rate wherever antitoxin has been promptly used.

31. In cases of typhoid epidemics antityphoid vaccination should be urged.

No more convincing statistics of the value of antityphoid vaccination exist than those published by the United States Marine Hospital Service. They are of inestimable value in educating the public in this new and most efficacious means of decreasing the mortality rate from typhoid. Among 57,000 United States troops vaccinated against typhoid fever only twelve cases occurred. Before vaccination there were several hundred cases a year in the army. The armies in Germany, France, and Great Britain have adopted this method of preventing typhoid fever with equally satisfactory results. Of course, the necessity of taking particular care with milk and water, and food in general, must be inculcated in the child at school that it may take the lesson home.

32. Every large community should have a special outdoor or fresh air classroom for children afflicted with whooping cough.

In view of the long lasting contagiousness of this disease and the consequent loss of school time, such an institution, particularly when specially supervised by the school physician, would prove of inestimable value. If ever open air schools or open air classes are indicated for the treatment or for shortening the duration of a disease, it is in whooping cough. Science thus far has not found a specific

against this disease. It can be curtailed by symptomatic treatment and constant outdoor life for the patient. It should, however, be remembered that vaccination against smallpox has been beneficial as a means to cure whooping cough. It has long been a well known fact that children who were vaccinated about the time they were coming down with whooping cough soon stopped coughing and in a short time recovered completely.

33. All hindrances to the proper physical and mental development of the pupil should be remedied, such as adenoids, enlarged tonsils, polypi, or deviated septum, defective eyesight or hearing, defective teeth, and orthodontal treatment for the correction of irregular teeth should not be neglected. The same should hold good for the treatment of any remediable unesthetic appearance in the child.

In children, and particularly young girls, a deformed jaw or nose, or irregular teeth are distressing to both mother and child. Because orthodontal treatment is long, tedious, and expensive, few of the poor can avail themselves of this modern advance in dental therapeutics. Even boys like a straight jaw and straight teeth. Where municipalities hesitate, or for reason of economy cannot undertake to remedy the unesthetic appearance of the child of the poor, philanthropists, well to do men and women with or without children, should come to the rescue of these poor unhappy ones.

34. The home environments as well as bad school hygiene are often responsible for the pupil's physical or mental inferiority. Underfeeding, unsanitary sleeping quarters, child labor at home, or lack of sleep are often the cause of physical or mental deficiencies.

Upon the request of a teacher the superintendent should have a right to investigate the home environments of any pupil to determine what is at fault. The reason for the child's mental or physical inferiority may thus be discovered. Many parents feed their children badly, not always because of want, but very often because of ignorance and thoughtlessness. The same thoughtlessness and ignorance are often responsible for the lack of sleep. Children at the age of four ought to have at least twelve hours sleep; from five to seven, about eleven hours; from eight to nine, ten and one half hours; at eleven, ten hours; at twelve, about nine hours. The more regularly children retire, the more refreshing will be their sleep and the better their health.

35. All medical, surgical, and dental treatment should be provided for in such a way as not to pauperize the recipient.

Parents should have a right to choose their physician, surgeon, or dentist as long as they are willing and able to pay for their services. Such arrangements are essential. Too much paternalism is resented, and justly so. A tactful letter from the school physician will remove all friction.

36. Suitable luncheons should be served at cost in properly equipped lunch rooms at the school

<sup>14</sup>Bulletin of the Department of Health of the City of New York, May, 1913.

house. This will help the underfed, the carelessly fed, and the anemic child. Table manners should be taught and helpfulness and democracy inculcated by having the children alternately serve each other.

No one who has studied the effect of serving luncheons at school can possibly doubt the inestimable value of this innovation. In New York city a special examination of 2,051 children at the public schools was made by the board of health physicians. Over fifteen per cent. were found to be suffering from malnutrition. These were only the children in the lower grades of two of our public schools. In ten per cent. of the cases investigated the mother was a wage earner and not at home to prepare the noon meal. Of children taking luncheons last year, seventy-three per cent. were from families having an income below the living wage. Thirty-three per cent. were from families of five having an income of less than ten dollars a week. The results of serving luncheons at school for the first three months were as follows: The undernourished children were weighed at the beginning and again at the end of the period. It was found that the children taking the lunch had gained three times as much as those not taking it. The principal of one of the schools in which luncheons are being served says: "The work of the School Lunch Committee has demonstrated without a doubt that in many cases where the child has been unable to do his school work properly it has been due to insufficient nourishment; an immediate and marked improvement having been shown since the child has been provided with a hot noon meal." For the guidance of those desiring to imitate the school luncheons let me give here the menu for one week in the New York schools:

Monday.—Rice and tomato soup and bread.

Tuesday.—Mashed potatoes and meat gravy.

Wednesday.—Pea soup and bread.

Thursday.—Lentils and rice and bread.

Friday.—Potato soup, croutons, and bread.

In addition to this three cent meal, a child may buy for one cent either cocoa, sandwiches, four crackers, a salad, cooked fruit, or other nourishing food. In many of the schools each article of food is sold for one cent in preference to a three cent luncheon. Where investigation has shown that the parents of a child are unable to pay for luncheons, or that it would be a serious hardship, meal tickets should be given to the children, but in such a way that neither they themselves nor their fellow classmates should know that it was charity. In Miss Denison's book, already referred to, there is another chart (Fig. 4), which indicates that out of 100 undernourished school children, three per cent. only are provided with luncheons.

37. Sanitary fountains furnishing good, cool water should form part of the equipment of every school, and the drinking of plenty of such water should be encouraged.

Many of the discomforts of the children can be traced to the insufficient ingestion of liquids. It goes without saying that if there is no sanitary fountain, the individual drinking cup which the chil-

dren can make themselves from paper is the best means of avoiding infection which has been so frequent with the old fashioned common drinking cup.

38. No public school should be considered well equipped without its swimming tank of running water; no curriculum complete without swimming lessons.

Aside from the invigorating effect of a swim in clean running water, no boy or girl should be without the accomplishment of being an average good swimmer. The need of this was never more impressed upon me than when some years ago my duty as visiting physician to the Riverside Hospital called me to North Brother Island shortly after the *Slocum* disaster. There I saw the bodies of hundreds of school children laid out in rows who had started only a few hours before on a happy excursion. The steamer *Slocum* sank at a short distance from North Brother Island. Had these little ones known how to swim a large number, perhaps all of them, might have been saved.

39. Field games, gymnastics, calisthenics, esthetic and graceful dances, and rational athletics should be taught to the boys and girls at school. These exercises will benefit the child's physique and give it a healthy and happy frame of mind.

It is surprising how little some of our best educators think of the happiness of a pupil. The joy of living and learning, the joy of attending school, is something which must be created by alternating pleasure with work. I am firmly convinced that by a comprehensive curriculum which has the physical as well as the mental equipment of the children in view, and also their enjoyment, attendance at school will become a greater pleasure to the pupils than it has ever been before, and the additional sacrifice in taxes arising from the more complete equipment of the school will gladly be made by the parents.

40. No lesson in a public school should be longer than three quarters of an hour.

If in the opinion of Herbert Spencer the average adult cannot concentrate his attention on listening to a lecturing voice for more than three quarters of an hour, we should not expect from a child a longer concentration of his attention on any subject taught during school hours. The younger the child the shorter should be the lesson. It has always seemed to me cruel to force a young child to sit absolutely still even for the space of only half an hour.

41. After each lesson of three quarters of an hour there should be one quarter of an hour's recess for the tired pupil to rest and for the ones not tired to exercise if they please.

Even normal children are not all constituted alike; some tire more easily than others, some are in need of more physical exercise. In girls' schools, particularly in the higher grades and in high schools, there should be special rest rooms.

42. The younger the child, the fewer should be the

home lessons; the fewer the home lessons, the better will be the work at school.

Home lessons for young children should not be given at all, and for older children they should be reduced to a minimum.

43. On excessively hot days there should be no school.

Vacation time is usually arranged to avoid holding lessons during the hottest season of the year, but occasionally there are hot spells lasting one or several days prior to or after the usual vacation. The authority to dismiss the classes should rest with the school superintendent after consultation with the school physician.

44. To have small classes and enough teachers should be the aim of every school board.

It is well known that the best results in pedagogy are obtained in small classes, that there is better control and more devotion of teacher to pupil and pupil to teacher when they have an opportunity to know each other thoroughly than is possible in a larger class. In the lower grades twenty to twenty-five pupils should be the maximum for one teacher.

45. The school curriculum should be so arranged that the mental strain shall not react unfavorably on the physical and moral constitution of the child. Lessons requiring mental strain should alternate with manual training, or work in domestic science, play, and rest.

To facilitate the change from lessons requiring much mental energy to lessons in manual labor, it is desirable that the training school should be under the same roof as the regular school, or at least very near by.

The modern motion picture films which can be made to offer such invaluable help in the teaching of natural history, geography, historical events, and also hygiene, should be one of the most important equipments of the public school. It goes without saying that only the safest apparatus should be installed, and only in fireproof buildings to avoid all possible danger from that source.

46. Unnecessary and superfluous studies or work which has no bearing on the average career of the future man or woman should be avoided. More attention should be paid to the development of character and the imparting of such general knowledge as will be actually needed in taking up life's work.

Although the principal work of framing the child's character must necessarily be done at home and is dependent upon heredity and environment, the school curriculum can do a great deal toward ennobling the child's mind and freeing it from the atavistic fear which is the result of false education through innumerable generations. Fear of any kind which may manifest itself in inferiority or powerlessness, should be replaced by a feeling of strength and self reliance. It is particularly at the age of puberty that the sentiments of strength and fearless-

ness should be awakened. Chivalry should be inculcated in boys; lofty ideals in boys and girls alike.

47. The teacher should know the value of mental hygiene, should realize that there is as great a danger in teaching too much as there is in teaching too little, and that change of work is often equivalent to rest.

It is true that children's brains are elastic, but this elasticity has a limit and should never be tried to its fullest extent. The child should be taught to rest, that is to say, never to study when tired physically or mentally and not to study immediately after a heavy meal. Varying the mental occupation will help to keep the mind fresh. I am fully convinced that a careful mental school hygiene will act as a powerful prophylactic factor and greatly diminish the mental and nervous afflictions, including various forms of insanity, now so alarmingly prevalent in the adolescent and the adult.

48. The training of boys in handling tools should be encouraged, particularly for those who have a bent for mechanics, and girls should be induced to study scientific housekeeping. It will help the pupils physically and morally.

Many a boy's career may be lightened in this way and it may be made relatively easy for him to earn a livelihood at an early age. The girl by knowing all that is to be known of house work and house keeping will be assured of making an honest living and in due time reap the benefit of such training, be she her own mistress or in the service of others.

It is the tradition in the house of Hohenzollern that every prince must learn a trade with which he would be able to earn a living. Thus, all three emperors of modern Germany were skilled workmen. If this tradition could be imitated in every American family, every boy to learn a trade and every girl to be thoroughly familiar with domestic science, there would be more happiness and prosperity. Aside from this, I am convinced that teaching the boy a trade and familiarizing the girl with domestic science will help to keep them from the street and thus help to solve the problem of "the child in the street." If we had more supervised playgrounds and more training schools for boys and girls, we should have fewer hoodlums, rowdies, and other juvenile offenders.

49. The principles underlying the Montessori method are applicable to the higher grades as well as to kindergarten work. Initiative or self education should be encouraged, not repressed.

After the essentials of education have been attained, selective courses should be encouraged.

50. Individualizing in teaching pupils should be the specialty of the modern teacher. In the praiseworthy endeavors to care for the delinquent and backward child let us not forget the genius and brilliant pupils and not hold them in check so that the backward child can catch up.

Even normal children are not all alike either in their adaptability to work or their ability to com-



prehend. The genius should be encouraged but not pampered; the child who is slow should not be made to feel its seeming inferiority.

51. The trained psychologist should be one of the most important additions to any modern school. His help will be of inestimable value to teachers, parents, and pupils.

This psychologist, who should be an expert in education as well as in medicine, should be well paid so that he may be able to devote all his time to his difficult task. Many a young mind which has become unbalanced by unsuitable studies or overstudy might thus be saved. By a most careful examination of the child's mentality, in some cases even by a psychoanalysis, a serious latent mental trouble might be lastingly corrected, and above all the child's studies guided in the right direction. To the trained psychologist attached to the public school we have to look for help to decrease the diseases of the mind and nervous system so prevalent among the young a few years after school life. One of our most distinguished American authorities on nervous diseases, Dr. George W. Jacoby, of New York, in a recent paper on *The Montessori Method from a Physician's Viewpoint*,<sup>15</sup> urges the use of the most careful psychological methods of examination, methods which alone enable us to form an opinion of value in regard to the child's mentality. He considers the Simon and Binet tests as the most reliable for the evaluation of the child's intelligence. According to Jacoby's statement, a recent writer had stated that by means of these tests the psychologist, after forty minutes' examination, can obtain a more enlightening estimate of a child's intelligence than can be reached by most teachers in a year of contact in the school room.

52. Instead of final examinations the record of the entire year should determine the promotion into higher grades. Cramming for examination is unhealthy, bad for the mind and body, and immoral.

The frequent mental breakdowns among girls and boys at examination time would be avoided by this method and in the individual pupil such characteristics as bitterness toward school authorities, jealousy, discouragement, etc., would not be developed; but efficiency, regular attendance, good behavior, and devotion to work throughout the year would be increased.

53. Boys above the age of ten would be better taught by male teachers.

I agree in this respect with my distinguished friend and colleague, Dr. J. George Adami, of Montreal. In an address delivered before the State Medical Society of New York on *Certain Elementary Concepts in Education Applied to Medicine* he quotes a ministerial friend who, in addressing a group of lady workers of the University Settlement, said: "And don't you get it into your heads that you are going to run this settlement, that you are going to reform these street urchins and potential hooligans by 'love'—'Love,' Bah! If you try that they will fool you every time. No! It must be by manly

guidance and by many methods, even including an unhesitating knockdown blow when need arises. It's the manly man they will look up to, and by whom they will most surely be influenced. They will not 'love' him, they will worship him." We all know the hardships the women teachers have to undergo when they have to deal with boys between the ages of ten and fourteen, and very pertinently Doctor Adami says: "I freely admit—we all admit—that in those qualities which are the common property of both sexes the woman is demonstrably man's superior; but in the matter of enforcing authority on the growing youth of the male denomination she is hopelessly and helplessly behind."

54. Lessons in embryology and biology leading to the explanation of sex relation and eugenics should be taught according to the age and understanding of the pupils, and in the higher grades preferably by teachers of the same sex as the pupils.

Concerning this topic I should like to quote again from the ministerial friend of Doctor Adami. Regarding the education of the boys in this respect he says: "I hold it to be the supreme argument for design in this universe that the boy is so constituted that the greatest number of nerve endings of the greatest number of nerves find themselves in that portion of his anatomy where knowledge can most neatly and effectually be instilled and that with absolutely no harm to the rest of the economy." To this I should wish to add that it is at the time of adolescence, when the boy develops into manhood and the girl into womanhood, that hereditary or acquired abnormal mental tendencies are strongest. Fortunately, it is also at this period of life that any abnormal tendencies can be most easily corrected.

55. Respect for parents, teachers, and elders, and kindness to the sick and unfortunate, to fellow pupils, and also to the animal world, should be inculcated in the minds and hearts of the young at school.

It is a well known fact that many foreign educators who visit the United States comment on the disrespect of our children for parents, teachers, and elders in general. Unfortunately, this is true in many instances and it will require the combined efforts of teachers and parents to counteract this unfortunate tendency.

56. True democracy should be taught and practised in our schools. No secret societies should be tolerated nor snobbishness toward the less fortunate, less brilliant, or socially inferior pupil.

Recent events have shown the detrimental effects of so called secret societies in schools. They tend to create class distinction and snobbishness. They make the poor pupil feel unhappy and inculcate in him a hatred for those seemingly better situated socially. The recent decision of some superintendents to suppress absolutely all secret societies is most laudable. The principles of liberty, equality, and fraternity should always govern the class spirit.

The wearing of appropriate uniforms for boys and girls, all made of the same material and suited to the age of the child, should be encouraged as a democratic measure, the girls to be taught to make

<sup>15</sup>*Medical Record*, April 10, 1913.

their own dresses. The practice in some girls' schools to have the graduation gown not exceed the price of one dollar is a good example of what can be done in this respect. One must have experienced the pangs caused to a child's heart by the difference in dress of poor and of well to do pupils in order to appreciate them.

57. History should be taught backward. This method will lead to a better understanding of the principles upon which our republic has been founded.

In a recent conversation with that distinguished pedagogue, Dr. Thomas M. Balliet, of the University of New York, I was shown the inestimable moral and intellectual value of teaching history in this way, and I am indebted to him for the inspiration to add this paragraph to my fragmentary notes. Thus, for example, the recent war with Spain, undertaken for purely humanitarian reasons, shows the highest national altruism of the age. The civil war typifies the love and compassion for an inferior race. The war of the rebellion and the French revolution, the love for freedom, etc. Thus, from each historic event can be drawn a moral lesson for the pupil and an inspiration for his future conduct as a citizen of the republic. To use Doctor Balliet's own words: "This is not really teaching history backward in the strictest sense of the word, it is, rather, reaching back one step at the time and tracing that forward as the immediate cause of a later period. The study of history in this way becomes a constant process of finding causes and explanations from conditions already known by the pupil.

"History taught forward in the usual way, beginning with ancient history, is a process of inferring probable consequences which may or may not result and which are not known by the pupil at the time but become known only as the later period is taken up. Tracing causes is more interesting as a mental process than guessing at possible or probable consequences, especially in a field as complicated as history. Then, too, if a pupil, as in the high school, must leave school before completing the course, if he has had only ancient or medieval history, he breaks off his history course at the point where he has as yet very little light on the historical problems of the present. History has been said to be 'philosophy teaching by example.' This is true only when history makes close connection with the present."

58. Civic rights and civic righteousness, political purity, and political duties, the meaning of political equality, and the obligations of the citizen toward his family, community, State, and Country should be taught in our schools, particularly in the higher grades.

The formation of clubs among boys and girls to discuss the political issues of the day should be encouraged. That it is important to make these future citizens realize the value of being familiar with all that appertains to good local and general government should be impressed upon the teachers. The boys should be induced to take antialcoholic and anticigarette smoking pledges, and the girls,

under guidance of expert teachers, should form clubs for the study and discussion of the duties of woman and motherhood. In New York city the Division of Child Hygiene of the Department of Health has inaugurated "little mothers' leagues" in the girls' classes situated in the most crowded districts. The object of these leagues is to teach young girls the proper method of baby care. These lessons are of great help in reducing the morbidity and mortality among infants. The girls take better care of the little brothers and sisters entrusted to their charge, or take home the information they have received and there in turn teach their parents valuable lessons.

59. The underlying ethics of all religions, worship of God and service to man, should also be taught, but doctrinal and sectarian differences strictly avoided.

By observing this rule, many of the manifestations of hatred and prejudice among the children of different races and religions will be avoided and the moral training of the pupils strengthened. I am sure there can be no objection from parents or ministers of any religious denomination to a ten minutes' morning exercise devoted to the singing of nondenominational hymns, the exaltation of duty, and a prayer in which all children (Catholics, Protestants, and Jews) could join. To meet all possible opposition, it would be desirable to have such a service a uniform one and approved by the ministers of all denominations.

60. To attain the best intellectual, physical, and moral development of our children, we must have the best intellectually, physically, and morally trained teachers.

To this end, the teaching profession should be made attractive. Teachers should be well paid and pensions in the event of infirmity or old age should be assured to them. It is impossible to attract the best elements of a cultured class to a profession which requires so much physical strength, patience, and character; so much enthusiasm, love, and devotion, if we do not hold out to the prospective teacher the best inducements and a just reward. We must entrust to the teachers the preservation and increase of the physical welfare of the child, its mental development and general education; also the moulding of its character and the laying of the foundation of usefulness, earning capacity, and all of the moral obligations of parents of future generations. Hence the physical, intellectual, and moral make up of our teachers cannot be too high.

61. The teacher should no more be overworked than the pupil.

Too long a session or too large a class, particularly in the lower grades, is very apt ere long to make the teacher a physical wreck, anemic and neurasthenic. The toxins of fatigue which we are so anxious to avoid in the pupil we should also be eager to avoid in the teacher. Just as there should be retiring rooms for school girls, so should there be retiring rooms for teachers. They should have their study room in the school building; these

studies should have at least the comfort that is found in the private office of the average business man. Here, in the quiet of the study, the teacher could rest, and when rested do the extrasessional work of preparation and the inspection of the pupils' work. Dr. Grace N. Kimball, of Poughkeepsie, said very pertinently before the recent Congress on Hygiene and Demography in Washington, that "it is the exceptional teacher who has in her home a proper and comfortable study. Her dignity of office demands at the hands of the community a suitable place in which to work. The bedroom or the family sitting room are unsuitable; neither is the common school room suitable. After the pupils are dismissed the remaining work of the day should be completed in the environment of privacy and comfort, conducive to physical rest and mental satisfaction. This work is in the vast majority of cases at present carried home to be done in the confusion of domestic surroundings or in a cold and cheerless bedroom."<sup>16</sup> In our enthusiasm for the hygiene of the pupil and the sanitation of the school room let us not forget that there is a teacher too upon whose physical and mental efficiency depends in turn the welfare of the pupil.

62. The relationship of the teacher to the principals and superintendents should be helpful.

Dr. Wm. H. Allen, of the Bureau of Municipal Research, very pertinently says in one of his recent reports that teachers should be helped, not policed, by their supervisors, and the \$6,500 and \$10,000 supervisors should give their time to supervision that helps children instead of devoting fifty per cent. of it to clerical work.

63. Becoming a mother should not permanently disqualify the woman teacher any more than a male teacher is disqualified by becoming a father.

To my mind it is unworthy of a civilized community to deprive a woman teacher of her position because she has to fulfil her highest obligations as a female citizen of a republic. Her ability to teach children and deal with them intelligently can only be enhanced by having become a mother. If the finances of the community do not permit paying the salary to a woman teacher during her absence, let her salary be withheld during that time and be given to her substitute. There are always enough unmarried teachers waiting for the opportunity to fill vacancies. What a fearful example do we give our children, the future fathers and mothers of our country, by permitting teachers to marry, but virtually punishing them for bringing children into the world. Obviously, in the interest of both the mother and child, the leave of absence which should be granted to her should not be less than a year to fifteen months, including a number of weeks prior to the confinement.

64. The teachers should be given a voice in the government of our schools.

Whether the school is a small or a large one,

there should be an advisory council composed of teachers, and they in turn should have a right to elect a delegate or delegates to represent them at the board of education. President Churchill, of the New York Board of Education, put this matter in a clear light when he said: "No problem of the board of education is more definite than that of putting and keeping a teacher in the best condition to give the best service. It is suicidal to the system to harass and irritate her with rules and requirements, to bind her with red tape. The teacher's knowledge of the school situation is first hand. In a school reduced to its simplest terms a teacher makes all the plans, adjusts all the difficulties. In a completely organized system she makes no plans, adjusts nothing. Thereby the system deprives itself of the most valuable knowledge and advice. There is no more necessary single advantage needed by a board of education than the usage of teacher cooperation, by which information and suggestion bearing on the needs of the school can be obtained."

#### CONCLUSIONS.

Professor R. W. Corwin, of the University of Colorado, is reported to have made the statement recently that out of twenty million school children attending the public schools, fifteen million are in bad health. Professor Thomas D. Wood, of Columbia University, his coworker on the report made at the Sixth Congress of the American School Hygiene Association,<sup>17</sup> is more specific in his estimate, asserting that a careful study of statistics and the consideration of all conditions leads him to the following personal conclusions. Agreeing with Doctor Corwin on the approximate number of twenty million pupils, he says:

"From (1.5 to two per cent.) 300,000 to 400,000 of these have organic heart disease. Probably (five per cent.) 1,000,000 at least have now, or have had, tuberculous disease of the lungs. About (five per cent.) 1,000,000 have spinal curvature, flatfoot, or some other moderate deformity serious enough to interfere to some degree with health. Over (five per cent.) 1,000,000 have defective hearing. About (twenty-five per cent.) 5,000,000 have defective vision. About (twenty-five per cent.) 5,000,000 are suffering from malnutrition, in many cases due in part at least to one or more of the other defects enumerated. Over (thirty per cent.) 6,000,000 have enlarged tonsils, adenoids, or enlarged cervical glands which need attention. Over (fifty per cent.) 10,000,000 (in some schools as high as 98 per cent.) have defective teeth which are potentially if not actually detrimental to health. Several millions of the children possess each two or more of the handicapping defects."

Perhaps this estimate is too high and it would seem to me difficult to prove the exact figures. What we know is that a very high percentage of the children attending the public schools are below par either physically or mentally. But this need not discourage us. The prognosis of disease in childhood is, as a rule, more favorable than in adult

<sup>16</sup>Kimball: *Some Fundamentals of the Hygiene of the Teacher*, *Transactions of the Fifteenth International Congress on Hygiene and Demography*, iii, 1912, Washington.

<sup>17</sup>Health Problems in Education, *Proceedings of the Sixth Congress of the American School Hygiene Association*.



life. The child's mind as well as the child's character can often be moulded and what seemed abnormal be made normal. I agree perfectly with Professor Wood when he says that the defects in the fifteen million school children are partially or completely remediable. It is my firm belief, however, that it will require not only an entirely different method from the one now in vogue in the majority of schools to deal with physical defects, but also a revolutionizing of our present educational system in general. We must have the best buildings, the best sanitation, the best hygienic supervision, school clinics—medical, surgical, and dental—wherever a large number of pupils warrants or demands the installation of such institutions, the best teachers, the smallest possible number of pupils for each class, and last but not least, the best preventive and curative measures to diminish the number of physically, mentally, and morally inferior children.

I do not stand alone in advocating the need of a thorough revolutionizing of our educational method, nor in my view on the need of rebuilding or remodeling most of our schools. Dr. George W. Jacoby, from whose paper, *The Montessori Method* from a Physician's Viewpoint, I have quoted before, says: "I lay stress upon the fact that apparent inadequacy and inferiority with the consequent incompetency are frequently due, not as is so often believed to stupidity and obstinacy but to the fact that the pedagogy which to-day is sovereign in our schools has been unable to find the key to the mental life of these children."

One of the most brilliant women whom it has ever been my privilege to meet, a school teacher of many years' experience and still acting as a superintendent, also an admirer of Dottore Montessori's views regarding the encouraging of the initiative of the child in kindergarten and school, recently wrote me as follows: "It is hoped that the people in charge of the department of education may be familiarized with your motto, 'The open air school must become the rule, the indoor school the exception.' In a few generations, if not sooner, we shall be looked upon as barbarians because of the unnatural conditions, physical and mental, under which we conduct the system of repression which we dignify with the name of education." I do not take quite so pessimistic a view as to think that it should take generations to bring about this betterment of conditions. I hope and pray, nay, I feel sure that it will be done and will be done soon.

The task is not so difficult as it seems, but for its accomplishment we need the united efforts of a wise government, school boards loyal to the highest ideals, well trained teachers, intelligent parents, a medical profession ever ready to cooperate with the teacher in the interest of the child, and philanthropists with and without means who are willing to devote some of their fortune to this cause, or give their personal service to the betterment of the conditions which now surround the pupils in our public schools. In his remarkable address at the opening of the Fourth International Congress on School Hygiene, Professor John Huston Finley, the former president of the College of the City of New York, now the commissioner of education of the State, has very aptly characterized this work as "the con-

servation of human power." Is there anything in this world of ours more important than that? The child of to-day is the man of to-morrow; the better the physical, mental, and moral status of the child, the nearer will we approach the ideal, and men and women will become indeed the images of their Creator.

16 WEST NINETY-FIFTH STREET.

## SPINA BIFIDA.\*

*With Report of Cases.*

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Although this condition has been known for a long time, there is comparatively little literature on the subject. The first case reported is that by H. H. Sherwood, an American surgeon, in 1813, and from then until 1890 we find very few of them. After that, however, there has been a fairly large number, but mostly reported separately, as no one operator has had a very large number of them, on account of the comparative rarity of this condition.

The etiology of spina bifida, like that of many other congenital deformities, is not known. It has been suggested that it may be due to an intrauterine hydrocephalus, which increases the pressure within the cord, but this theory does not seem to be a tenable one. According to some biologists, spina bifida and encephalocoele can be produced in some animals by feeding an excessive amount of sodium chloride to the mother during pregnancy.

In order fully to understand the pathology of spina bifida, the development of the vertebral column and the cord must be considered. The spinal cord, during fetal life, is formed by an involution of the epiblast, which makes a groove, the edges of which gradually grow together and finally unite so as to include a passage lined with epithelium. The cord is separated from the overlying skin by a gradual intrusion of mesoblastic elements, from which the vertebrae with their ligaments and muscles are formed. Each vertebra is developed from three centres of ossification, one for the body and one for each half of the neural arch. It is from a deficiency in one or both of the latter that spina bifida results.

There are four varieties to be considered: Meningocele, spina bifida occulta, syringomyelocele or myelocystocele, and myelocele.

1. Meningocele. Here there is a defect in the posterior osseous wall of the spinal column. The skin, cord coverings, and the cord itself are unchanged, with the exception of the first named which is either very much thinned out or very much thickened. Through the cleft in the column there may be a protrusion of the dura alone, with a collection of fluid in the subdural space, or the arachnoid may be forced out with the dura, so that the fluid is in the subarachnoid space. Sometimes there may even be a deficiency of the dura, so that the hernial sac is lined with the arachnoid alone.

\*Read before the Section on Surgery, New York Academy of Medicine, October 3, 1911.

the collection of fluid being in the subarachnoid space.

2. *Spina bifida occulta*. This is really a variety of meningocele. Here there is always a cleft in the neural arch, which may be closed with a dense fibrous tissue membrane or may give passage to a distinct meningocele which, on account of its small size, may not cause any bulging of the skin. In some cases there is a mass of fat and connective tissue overlying the cleft and possibly pressing on the cord. The only external evidence of *spina bifida occulta* may be a hypertrichosis.

3. *Syringomyelocoele* or *myelocystocoele*. In this variety there is a defect in the neural arch and in the overlying dura. The arachnoid and pia are intact, but the central canal of the cord is distended with fluid to such an extent that the posterior portion of the cord is herniated through the cleft. By reason of the distention, the posterior portion of the cord becomes very much thinned out, so that in many cases it is not recognizable.

4. *Myelocoele*. Here there is a deficiency in the neural arch, the coverings of the cord, the posterior portion of the cord itself, and the skin. The central canal of the cord opens directly externally and is generally represented by a raw granulating area. This condition is obviously incompatible with life, and these children are almost always stillborn.

It will be seen from this that we have, practically, but three varieties to deal with, meningocele, *syringomyelocoele*, and *spina bifida occulta*.

As far as symptoms and physical signs are concerned, those of the first two varieties can be given together. In both cases the baby is born with a soft rounded tumor in the midline of the back, generally in the lumbar or lumbosacral region. The tumor may have a broad base or may be pedunculated, and pressure upon it generally causes a bulging of the fontanelles. It has been said that the skin over a true meningocele is more translucent than that over a *syringomyelocoele*, and that in the latter variety the presence of nerve tissue always causes an umbilication in the centre of the tumor. A correct differential diagnosis cannot, however, always be made from these signs. In *spina bifida occulta* there is no tumor, in fact, the condition may not be discovered until adolescence. Here, according to Brinckner, one of the commonest signs is the associated hypertrichosis over the cleft. There may be a scoliosis or a depression covered by scarred or wrinkled skin, or a real lipoma may be present. The x ray in all these varieties generally shows the cleft very distinctly. Associated with these signs are the various complications, caused by an implication of nerve elements. The most frequent of these are rectal and vesical incontinence. We may even find a prolapse of the rectum from a paralysis of the sphincter ani. Motor and sensory paralyses of the lower extremities, sometimes with deformities of the feet, are not uncommon, while trophic disturbances, such as perforating ulcers of the extremities are sometimes seen. One of the most distressing complications, which, when present, comes on early in life, is hydrocephalus, and generally means the existence of a *syringomyelocoele*.

The defect in the vertebral column is generally

in the lumbar or lumbosacral region. Moore, in 1905, collected 385 cases from the literature, and gives the following table: Thirty-four per cent were lumbar; twenty-nine per cent. lumbosacral; twenty-three per cent. sacral; nine and one half per cent. cervical; four and one half per cent. dorsal; two per cent. occipital.

Dubreuil quotes Bellanger, who gives the following statistics out of 297 cases: Lumbar, 125; sacral, 66; lumbosacral, 49; dorsal, 25; cervical, 22; dorso-lumbar, 6; cervicodorsal, 2; and coccygeal, 2.

Both sexes are said to be equally affected. Moore, in his collected cases, found ninety-eight in males and 102 in females, but among the writer's seven cases there was only one in a female.

By far the greater majority of infants born with *spina bifida* die in early life. The sac may be so thin that slight pressure upon it causes ulceration of the skin, which gradually gives way, a meningitis being then set up which is speedily fatal. Some babies die shortly after birth from a rapidly progressing hydrocephalus. That there are isolated instances of spontaneous cure, is an undeniable fact, but they are very few. Here the sac slowly cicatrizes, or the skin becomes thicker, so that it forms an ample protection for the underlying cord. But if this does happen in *syringomyelocoeles* or in meningoceles, where the sac contains nerve elements, there is an increasing destruction of this nerve tissue in the sac, with resulting permanent disabilities. In *spina bifida occulta*, the cord is amply protected, so that these children do not show any of the complications until adolescence. Why they occur then, is hard to say. The best reason that has been given, is that there is an unequal growth of the bones and the cord, so that tension is produced at the site of the lesion.

It would seem from this that early interference is indicated in all these cases and at present there are but two methods of treatment, injection and open resection. The former method may be very briefly mentioned, as it has been generally discarded. It consists of the injection of a small quantity of a weak solution of iodine or some other irritating substance, directly into the sac. Obviously this is working in the dark, and this is especially so in the case of *syringomyelocoele*, where the cord tissue itself has to be punctured and the injected fluid thrown directly into the spinal canal. In any case, if adhesions are formed in the sac, there is an ensuing destruction of the nerve elements within it, with resulting disabilities. Some fairly good results have been reported, such as those of Guibbard, who had thirteen cures out of thirty-one patients injected, and of Bellinger, who had twenty-seven cures and nine deaths. Morton, the originator of this method, announced seventy per cent. of cures, but the committee of the London Clinical Society, in their report of cases which they had traced gave the following: Thirty-five cured, twenty-seven died, four improved, and five unimproved. The method has, however, become more and more unpopular, so that now, nearly all of these cases are treated by open operation.

The operative mortality has been variously given. Moore from his series of 385 cases, put it at twenty-seven per cent., but modifies this by say-

ing that it is thirty-five per cent. in cases operated in within the first few months of life and only five and seven tenths per cent. in cases operated in when more than five years of age. There can be no doubt that infants with spina bifida stand the operation badly, as in fact they do most surgical procedures, but there have been a number of successful cases reported. For instance, Walther successfully operated on a baby four hours old; Monod, a baby five days old; Villemain, a baby one day old; and Boyer, a baby fifteen days old. On the other hand, these same surgeons have had unsuccessful cases. Villemain operated upon a baby thirteen days old, that died. Boyer operated on three babies, all under fifteen days that died. The personal statistics of some operators have been published. They show considerable variance. Bellinger reported forty-seven cases of excision by which thirty-one patients were cured and sixteen died. Dubreuil reported thirteen cases, of which five patients died. Sachlabin in 1902 reported thirty cases from Mikulic's clinic, of which eighteen patients were operated upon. Of these, six died, twelve were locally cured, and only five completely cured. Villemain reported twenty-two patients operated upon, of whom ten died. Mayo Robson, in 1895, reported twenty operations, with a mortality of thirty per cent. Moore, in his personal cases had only one death out of seven. Broca, in 1895, after reporting several unsuccessful cases, concluded that operation was not advisable.

And yet, even though the mortality is high, an open operation is the only method of treatment we now have at our command, as without it most of the children die before adolescence. Complications which before operation seemed perfectly hopeless have been relieved by resection of the tumor and freeing of the nerve elements, as is illustrated by some of the cases of Moore, Lebrun, and the writer. Boyer, after reporting some cases, said he would operate only under the following conditions: 1. When there is no hydrocephalus. 2. When there are no paralyses. 3. When, clinically, no complications are to be expected in the sac. To the writer's mind, cases with paralyses and those where complications are expected in the sac are exactly those that should be operated in early, before the disabilities become permanent and before nerve tissue is destroyed. As for the cases complicated with hydrocephalus, the best treatment for them is still under consideration. Boyer operated upon a patient whom he cured locally, but who died two months later from hydrocephalus, and a few similar cases are mentioned in the literature. It is a question whether simultaneous tapping of the ventricles and ablation of the sac would not be the proper method of treatment in these cases.

The surgical proceeding in spina bifida is a simple one. Various methods have been devised to close the cleft. Roboff made a bone flap from the iliac crest. Zenenko filled the defect with bone from the remains of the sacral arches and the tuberosities of the sacrum, while bone transplants from the patient and from animals have been tried. The simplest proceeding is that employed by the writer in his cases with very satisfactory results.

The tumor is incised longitudinally down to the sac which generally is dissected from the overlying skin with considerable difficulty. The dissection is continued above and below and to both sides of the sac for about an inch over the healthy tissue surrounding the cleft. The sac is then opened in the midline, in the case of a meningocele, and to the side in the case of a syringomyelocele. The spinal fluid can be allowed to escape freely as it does not seem to have any untoward effect on the patient. Careful search is then made for nerve elements in the sac. A nerve that is found to end directly in the sac wall may be cut away, as it can be taken for granted that it is functionless. The redundant portions of the sac are then excised and the edges sutured with fine catgut. The simplest method of closing the osseous defect, and that used by the writer with satisfactory results, is to make a semilunar incision, through the fascia covering the muscles on each side of the spine, about one and a half inch from the midline. The fascia is then dissected free from the muscle, leaving the broad base of the flap still adherent, turned over the cleft and sutured to the fascia of the other side with mattress sutures of chromic gut or kangaroo tendon. The subcutaneous tissue is sutured over thus, the redundant portion of the skin is cut away and the edges are united. It will be found best to put a few silkworm retention sutures in the skin as, on account of its cicatrization, it generally heals badly.

The following is a brief account of the writer's cases:

CASE I. G. S., aged eleven years; strong and well nourished boy; presented in the midline of the back in the lumbar region, a tumor, the size of a goose egg, covered with thickened skin, which his mother said had existed since birth (see Figs. 1 and 2). Pressure on the tumor caused no decrease in its size. The boy was active and mentally bright and showed no symptoms except a complete loss of control of the rectum and bladder. No motor or sensory paralyses of the lower extremities. Operation, May 9, 1913, at the Ruptured and Crippled Hospital, on the service of Dr. J. B. Walker, to whom the writer was indebted for the privilege of operating in the first three cases. By a longitudinal incision the skin was dissected from the sac, with considerable difficulty. The latter was opened and two filaments of the cauda equina were found adherent to its inner surface. These were dissected free and replaced within the vertebral canal. The redundant portions of the sac were excised and the edges sutured. A flap of fascia was liberated from the right side, turned over the cleft and sutured to the fascia on the left side with mattress sutures of kangaroo tendon. The skin was sutured and a collodion dressing applied. Uneventful postoperative recovery, discharged from the hospital in two weeks (see Fig. 3). He was seen July 5, 1913, when the scar was found to be strong and firm, no bulging, spine perfectly flexible. He had no control of the bladder, the urine constantly dripping from the meatus. The control of the rectum was very much improved, no involuntary discharge of fecal matter. September 25, 1913, local condition found to be as before. The control of the rectum was absolutely perfect. The control of the bladder very much improved. Urine escaped involuntarily, but only when the bladder was very full. The stream could be started and stopped at will.

CASE II. J. S., aged fourteen years; strong and well developed boy. Showed a small tumor, covered with thickened skin, with a very narrow pedicle, in the midline, low down in the lumbar region, which had existed since birth (see Fig. 4). The boy was mentally active and had no motor or sensory paralyses of the lower extremities; the control of the rectum and bladder was perfect. Opera-



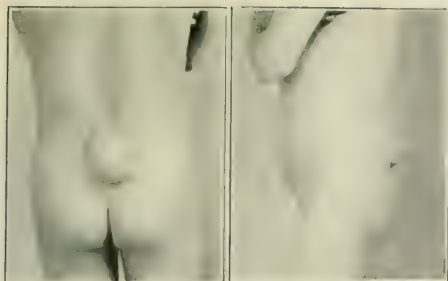


FIG. 1.—G. S., before operation. FIG. 2.—G. S., after operation, lateral view.

tion at the Ruptured and Crippled Hospital, June 20, 1913. A longitudinal incision was made through the skin over the tumor. The sac was dissected from the skin with considerable difficulty and opened. It was found to contain no nerve elements. The redundant portion was excised, the edges were sutured, and the cleft was closed with a fascial flap from the left side, which was turned over and sutured in place on the right. The skin was closed without drainage; collodion dressing applied. Except for a temperature of 103° F. on the second day after operation, his recovery was uneventful and he left the hospital July 3d (see Fig. 5). He has been seen since and was found to be perfectly well.

CASE III. M. B., aged three years. Had two brothers who were normal. Was born after an uncomplicated labor. Presented in the midline of the spine, in the lower lumbar region, a rounded irreducible tumor with a broad base covered with thickened skin (see Fig. 6). The child was not mentally bright, seemed dull and stupid, and said only the simplest words. No hydrocephalus. Loss of control of the bladder and rectum was found to be complete. Had a motor paralysis of both legs below the knees, with a double drop foot. Sensation was absent below both knees, and impaired to the middle of the thighs. Operation at the Ruptured and Crippled Hospital, July 25, 1913. The skin was opened by a longitudinal incision and the

sac dissected free. On opening the latter, its walls were found to be very thick and vascular. The cauda equina could not be distinctly made out, there being no nerve elements in the sac itself, but the whole vertebral canal seemed to be filled with a mass of material which resembled granulation tissue. The operation secured that the cleft was closed with a fascial flap and the skin edges were united with interrupted sutures. Collodion dressing was applied. Recovery was uneventful and he was discharged from the hospital September 6th, at which time his wound was perfectly healed, but he had shown no improvement in the paralysis. He was seen September 26th, at which time his general condition was found to be very much improved. His mentality was better and he talked considerably more. His vesical incontinence was practically unchanged, but there was a distinct improvement in the rectal control. The sphincter ani could be seen to contract tightly, when irritated, and his mother stated that he usually had but two bowel movements a day, and at other times did not soil his clothing.

CASE IV. W. W., aged sixteen days. Admitted to the pediatric service at Bellevue Hospital and transferred to the second surgical division. The writer was indebted to Dr. B. J. Lee for the privilege of operating in this case and the succeeding one. This baby was born after a normal labor and presented a round compressible tumor in the midline of the back over the lumbar region. The mother stated that this was noted at birth and that three days afterward it burst, with a discharge of "pus," since when the child had had some fever. On admission he was found to be rather small and poorly nourished. The skin over the tumor was so thin that it was translucent. The mass was soft but not reducible, and pressure over it caused no bulging of the fontanelles. No paralyses were apparent. Operation September 5, 1913, at Bellevue Hospital. The sac was very easily separated from the skin in this case as no scar tissue had, as yet, been formed. On opening the sac, a very small quantity of spinal fluid escaped and no communication with the vertebral canal could be found, as the walls of the sac were coated with what was apparently lymph. On scraping some of this off, the communication was reestablished and the cauda equina could be very distinctly seen through the cleft. The redundant portions of the sac were excised and the edges were sutured. The cleft was closed with the fascial flap and the skin with a few interrupted sutures of silk-worm gut. The temperature which had been in the neighborhood of 104° F. before operation remained sta-



FIG. 3.—M. B., before operation.



FIG. 4.—C. R., Case VI.



FIG. 4.—J. S., before operation. FIG. 5.—J. S., after operation.

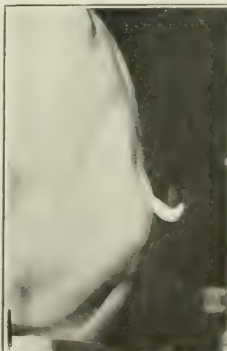


FIG. 6.—L. B., Case VII.

tionary for a few days, and then fell to normal. The baby did very well up to the ninth day after operation, when he began to take his nourishment badly and started to lose weight rapidly. He finally died fourteen days after operation, presenting the typical picture of a marasmic baby.

CASE V. P. G., aged forty-three years. Presented a congenital tumor, the size of a walnut, over the junction of sacrum and coccyx. The skin over it was not very much thickened and the tumor was irreducible. He had no symptoms referable to it. Operation, September 24, 1913, at Bellevue Hospital. Longitudinal incision through skin which was easily separated from the sac. On opening the sac a perfect meningocele cyst was seen, containing a small amount of fluid. A minute communication existed through the posterior spinal ligament. The sac was excised, the posterior spinal ligament sutured and the skin closed over it. Uneventful recovery. (Although the dura normally, extends only to the third sacral segment, coccygeal spina bifida does exist and is due to the nonclosure of the canal in the dural process, which is always present, running from the third sacral segment to the sacrococcygeal joint.)

CASE VI. C. R., aged eleven years. Admitted to the second surgical division of Bellevue Hospital, wearing a right plaster of Paris hip spica, which had been applied in another hospital, on account of tuberculosis of the right hip. On removing the spica a mane of soft hair was found over the lumbar spine in the midline. There was no tumor but the x ray showed a typical cleft in the fourth lumbar vertebra (see Fig. 7). She had a complete loss of control of the bladder, but control of the rectum was perfect, no motor or sensory disturbances of the lower extremities. Unfortunately, operation, which was urged on account of the vesical paralysis, was refused in this case.

CASE VII. L. B., aged six years. The writer's thanks are due to Dr. V. P. Gibney, for the privilege of operating in this case. This patient was a small frail looking child, with a tumor, the size of half an orange, in the midline of the back, over the last lumbar vertebra. The tumor was soft and reducible and a distinct cleft in the vertebra could be felt through it. At its summit was a soft, flexible appendage about three inches long, covered with skin. The child had a complete motor paralysis of the entire right leg which was atrophied and one half inch shorter than the left. There was an indolent ulcer on the heel of the right foot, which was not at all sensitive and which had been present for several months. Control of the rectum was good, but there was a moderate degree of vesical incontinence. Operation November 11, 1913, at the Ruptured and Crippled Hospital. As the skin of the back was rather loose, an elliptical incision was made over the tumor, so that the appendage might be preserved as a specimen. The edges of the cleft were uncovered and the last lumbar and first sacral vertebrae found to be involved. The dural sac was covered with a mass of fatty tissue, which was dissected off and the sac opened longitudinally. A much larger amount of spinal fluid than usual escaped, but the patient's condition remained unchanged. Two small nerve fibres were seen traversing the sac, one of which was cut away, as it was found to end directly in the sac wall. The redundant portions of the sac were cut away and the edges sutured with fine catgut. The cleft was closed in the usual way, a flap of fascia being cut from the right side, turned over the cleft and sutured to the fascia of the left side with mattress sutures of kangaroo tendon. The subcutaneous tissue and skin were sutured with interrupted sutures of fine catgut and a collodion dressing applied. The boy's temperature never went above 101° F., but he was troubled with considerable vomiting for the first two days after operation. While he had had a moderate dribbling of urine before operation, he had had to be catheterized since, as a complete retention of urine developed and had persisted up to the date of this report (November 18th).

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## THE KINETIC NEUROSES AND PSYCHOSES.

### A New Method of Treatment for Their Cure—2d Second Paper.

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#### INTRODUCTION.

Under the name of the kinetic neuroses and psychoses may be grouped for convenience neurasthenia, psychasthenia, hysteria and, probably, some of the types of dementia præcox and migraine.

In a paper read before the neurological section in the American Medical Association, June, 1911 (*Journal of the American Medical Association*, lvi, pp. 86 to 88), the writer advanced for the first time a method of treating them which included the exhibition of rest, massage, and overfeeding, in suitable and selected cases; but which supplemented the rest cure by employing the training camp method as being a rational therapeutic measure for the treatment of neurasthenia and other kinetic neuroses. At that time the tabulated end results in thirty cases were cited. The present seems a fit and appropriate time to emphasize the necessity for concerted effort on the part of physicians everywhere to wage a campaign that will aid in stemming the tide of neuroses and psychoneuroses that bids fair to reach appalling proportions in every part of the civilized world—for they are waste products of ultracivilization. Since the writer's first paper on this subject, a fairly large number of new cases may be included. The results have been uniformly good, especially so in neurasthenia vera. The greatest satisfaction, however, came from the results of the method as applied in dementia præcox because of the difficulties to be overcome. Of the number so treated five have been cured and one very much improved, with, at times, a period of relapse. In three cases of paranoia the results have not been satisfactory.

Judging from his own experience in the training camp method, the writer looks upon it as well nigh a specific in neurasthenia vera. These difficult cases have by its use been made very much easier to cure. Not the least satisfaction in their treatment is the feeling of confidence one has in the outcome and that it will not be indefinitely delayed. This is enhanced by the knowledge that the inept individuals will be in an excellent mental and physical condition at the end of their course of treatment, compared with their present miserable state. The name "training camp method" is applied to it because its salient features are those to be found in the training camps of professional pugilists and the like; e. g., such paraphernalia as the medicine ball, punching bag, boxing gloves; such training routine as road work, rope skipping, boxing and wrestling, swimming, steam baths and rub downs, the training camp itself being a more or less isolated cottage near the seashore or foothills, the camp and patient being in charge of a trainer. But, on the other hand, the training camp method includes the application of intensive psychotherapy, prescribed rest, diet, and suitable hydrotherapy. In short, it is a simple, common sense method of applying mental, moral, and physical hygiene. As was said, it is specific when applied to neurasthenia vera and in allied kinetic neuroses it is scarcely less so. It cannot do other than supply the normal tone to the impoverished centres—both higher and lower. It does this by relieving the patients of all responsibility or necessity for initiative at the time when they are unable to accept the former or assume the latter, thus stopping many of the leaks in their nervous mechanism. It increases their resistance and their physical and mental vigor and thereby gives them the feeling of wellbeing which they lack and want. In time, their feeling of awareness, as it has to do with healthfulness, becomes acute; and they lose the feelings of inadequacy and aloofness which are so characteristic of the neurasthenic and psychasthenic. The associations of the psychasthenic and hysteric become normal and any abnormal dissociations lessen progressively. Many or all of the phobias of the psychasthenic disappear entirely. The hypochondriacal symptoms are replaced by normal somatic sensations. When once they have attained a condition of normal health—if that is possible for them—relapses are uncommon.

It is not the purpose of this communication to give detailed histories of all the cases treated by the training camp method. Four hitherto unpublished cases will be cited: one dementia præcox, one neurasthenia vera, one neurasthenia and psychasthenia combined, and one combined migraine and psychasthenia. All of them belong to the severer forms of their respective diseases.

CASE I. Miss B. A., aged twenty-five years; seen first April 7, 1910; cured in fourteen months.

Diagnosis: Dementia præcox. Subdivision: Catatonia with excitement and negativism.

Family history: A sister of her mother began to have mental disturbance at twenty-one years of age. She exhibited symptoms of melancholia with delusions; e. g., she put on mourning because of her sins, etc. This lasted a comparatively short time. She seemed to be cured and was married at twenty-five years of age. At fifty years of age she again developed manic depressive insanity, mania

for a month followed by melancholia lasting ten years and until her death. The father and his family were not at all of a neuropathic habit.

Previous history: As a child she was fat and healthy. After a severe attack of measles at fourteen years of age she lost weight rapidly. At nineteen years of age psychic symptoms first developed. The next year she was much shocked by seeing a friend almost meet death by drowning. Just after that she became hypersensitive and had fits of crying. In 1907 she had a well marked mental disturbance characterized by catatonia with repression; she would draw herself up rigidly and would not talk except in a repressed and stilted manner. This attack lasted nine months. After it she became very much better but has never been quite normal. In fact, she has not been normal since her first attack; she has had to be handled with great consideration by the rest of her family because of her hypersensitiveness.

Present illness: For several weeks she had shown decided mental disturbance characterized by self blame and repressed mental excitement. She was placed in a sanitarium, and, unfortunately, under the care of an attendant who was a religious fanatic and possessed of very unstable emotional control. She was first seen by me at that place April 7, 1910, and was removed at once and placed in a training camp with competent attendants or trainers. The camp was a bungalow near the foothills of the Sierras where they close in toward the Pacific Ocean. It was sufficiently removed from any neighbor and was ideally situated for its purpose. The routine was as follows: Out of bed, 7 a. m. Salt rub (cold). Breakfast, 7:45. Walk, 8:45 to 10. Rub down. Rest, one hour. Lunch, 12:30 p. m. Out of doors, 2:30. Medicine ball, gardening, walk, etc. Rub down, 4:30. Rest, one hour. Dinner, 6:30. Alcohol rub. Go to bed, 9. The medicinal treatment was as follows: Thyroid extract, two grains with meals. Bland's (arsenated) pills, five grains after meals. Pill of three valerianates, four times daily. For sleep, veronal, seven and one half grains at night. For excitement, fifteen grains of strontium bromide, with five grains of chloral hydrate.

A daily history was kept in diary form for the sake of having an accurate record. This routine was rigidly adhered to with or without her cooperation. She was forced to eat plenty of good food and drank a quart of milk daily. At times she would rebel advances or rebel against the food. Much of the time during the first few weeks she could hardly be inveigled into conversation. She would spend hours upbraiding herself because of imaginary sins, because of what every one must suffer at her hands, and because of the terrible things she had done. She made several attempts to run away from the camp. She was of course watched carefully; and in May a hatpin was found secreted in her bedding. A little later she nearly succeeded in a suicidal attack when she pierced her own heart with a needle she had found. Only prompt surgical intervention saved her. During July she began to have better nights and more cheerful days. Up to October she would run at the sight of a stranger. In November she made a decided change for the better. During December and January it was possible to carry out more intensive psychotherapy, because she could be approached more freely. From February her progress was rapid. In May she was almost normal, and by the end of June was well. Since that time she has been more natural and has shown greater mental balance and stability than at any time since adolescence. The training was dispensed with and she was entrusted with various responsibilities connected with an out of doors life, until she showed a remarkable ability in managing a large tract of land. This last has been gradually increased and her business education carefully carried out. She has been perfectly well for nearly two years.

CASE II. Mrs. C., aged thirty-five years. Seen first March 18, 1912. Cured in three months.

Diagnosis: Neurasthenia.

Family history: Her parents were normal and apparently healthy at the time she was first seen; but since then her father died suddenly while abroad (heart or arterial disease) and her mother has had an attack of left sided hemiparesis that was temporary and due to arterial disease. A curious repetition of jaundice appeared in the family history—the patient, her sister, her daughter, and others all being jaundiced at birth.



Previous history: She was jaundiced at birth and was delicate as a child. At twelve years of age she was brought to California. A year later her menstrual history began. She suffered with dysmenorrhea from the first period until she was operated upon for relief. At twenty-



FIG. 1.—Phlying medicine ball (Case II).

three years of age she was married and has borne two children, the youngest being six and one half years old. During her last pregnancy she was very nervous and depressed. The child's speech had been delayed, and she was under the tutelage of an instructor. This arrest of development had meant, to one of her temperament, ceaseless anxiety and nerve rack for the mother.

Condition on admission: For the last three months she had been growing progressively more nervous and less able to respond to or assume her responsibilities. Her dominant symptoms were mental and physical fatigue, insomnia, gastric and cephalic parasthesias, mental depression. Her household matters worried her intensely, as did many things which did not do so formerly.

Physical examination: Circulation: A systolic murmur was heard over the apex. Blood pressure was 96 mm. Hg. (Tycos). Pulse lacked tone. Lungs normal. Abdominal organs were normal except that the liver dullness was slightly larger than usual. Her weight was below normal and the muscles lacked tone. The skin over the hands and arms was harsh and rough (the same condition was noted in her daughter). Reflexes exaggerated. She flushed and paled irregularly, and her hands and feet were cold most of the time.

Treatment: It was deemed wise to begin her treatment with a suitable period of absolute rest. After four weeks of rest she was ready for a modified rest treatment. This consisted of the following routine. Salt glow, 7 a. m.; breakfast in bed, 7:45; resisting exercises in bed, 10; sweat and rub down, 11; rest (complete), one hour. Lunch in bed, 12:30 p. m.; sitting in chair one half hour, 2:30; resisting exercises in bed, 3; rub down; rest (complete), one hour; occupation in bed; supper, 6; alcohol rub and retire to sleep, 8:30.

Medicinal treatment: Blaud (arsenated) pill five grains three times daily. A combination of zinc valerianate, pulverized camphor, and extract hyoscyamus and sumbul, three times daily. Thyroid extract one grain three times daily. After this was in force a few days there were indoor exercises added to it, and, a little later, outdoor exercises. Within two weeks her routine was full training camp work, beginning with setting up exercises out of doors in gymnasium suit. This was followed at once by a salt glow and breakfast. At 9:30, road work of an hour to an hour and a half, consisting of brisk walking and running. This was varied by tennis at times. Then a rub down and rest in bed until time to prepare for lunch. In the afternoon would come a stiff round of medicine ball (see Fig. 1), rope skipping and dancing steps, games requiring speed and accuracy, a brisk walk and then a rub down and rest. On Sunday no routine work was done and the family could visit the camp or she could go on motor trips with them. Her training camp

treatment lasted three months including the rest period. At its end she weighed 120½ pounds (the most she had ever weighed), her muscles were hard and supple, her endurance considerably above normal. The systolic murmur was no longer noted, and her blood pressure was 125 mm. Hg. (Tycos). Her ability to sleep soundly had returned to her, her constipation was gone and she was no longer under the constant tension and feeling of foreboding. She remained in splendid health, and has been perfectly able to lead a strenuous civic and society life.

CASE III. Mr. J., aged thirty-six years. Real estate. Seen first October 17, 1907; cured in less than three months.

Diagnosis: Neurasthenia and psychasthenia.

Family history: One grandfather was insane for some years before he died. Father and mother were exceptionally healthy.

Previous history: He was never robust. At eighteen years of age he had a severe attack of grippe lasting three weeks. Following this came an extended period of nervous breakdown. He came to California in order to live an all year round open air life, and in time he became quite well, for him. During later years he has engaged in a growing business requiring a constant mental strain. In addition to it, he assumed many responsibilities. The panic of 1907 determined his present condition.

Present illness: For the last few months he had become excessively nervous and irritable. This condition became progressively worse. At this time he was unable to concentrate his mind sufficiently to write a simple business communication. Any attempt to force himself to do so would cause an excess of mental distress with confusion of ideas. This naturally aroused a fear that insanity was impending. He was subject to fits of intense depression and crying. As is usual in such cases he had been told to "cheer up," "occupy the mind with other things," "don't worry," and the like futile advice. His initiative was gone, and he was possessed by fear in consequence. He suffered with insomnia. He worried about everything imaginable. He even worried because his appetite was good and his bowels were regular.

Physical examination: His muscles were flabby and his reflexes were overactive. Otherwise his physical condition was good. The urine was normal.

Treatment: A suitable routine was laid down for him to try at his home. He adhered to it faithfully and with fairly good results for a time. He was then prevailed upon to try the training camp method. A suitable cottage on the edge of the ocean was chosen and fitted up for the purpose in view (see Fig. 2). The patient and camp were placed in charge of a professional trainer of pugilists and athletes (the latter, of course, took all orders from the



FIG. 2.—The training camp (Case III).

writer). The routine in this case was a fairly strenuous one from the beginning: Setting up exercises, 7 a. m.; ocean plunge; breakfast; road work, 9:30 to 11:30; shower and rub down; rest one hour; lunch, 12:30 p. m.; indoor work consisting of rope skipping, apparatus, medi-

cine ball, boxing, and wrestling, 2:30 to 3:30; rub down; rest in bed one hour; supper, 6; go to bed, 9. At first there was a good deal of muscular soreness and disagreeable paresthesias of various kinds. But he stuck to it faithfully. After six weeks he was in good condition. The monotony became irksome and he wanted to go home. But he was prevailed upon to stay for two weeks longer. The results more than compensated him. His general muscular condition was better than it had ever been in his life and his mental condition was good. He was intensely aware of his good health. There was no more fear. He felt adequate to meet normal responsibilities. He was advised to round out his treatment by a trip to his parents' home in the East. When he returned he took up his business life with vigor and satisfaction. In the last four and a half years he has been in perfect health.

CASE IV. Mrs. T., aged forty-four years. Seen first July 21, 1911. Treatment lasted to September 30, 1911.

Diagnosis: Migraine and psychasthenia. Result: Cure of the psychasthenia with only occasional headache.

Family history: Her father died at seventy-nine years of age. He had migraine headaches for many years. Her mother died at seventy-six years. At fifty years of age a paraplegia developed—both legs. One brother and one sister were only fairly healthy.

Previous history: As a child she was as healthy and normal as other children. Her menstrual history began at twelve years of age and headaches began about the same time and had been intimately associated with menstruation ever since. The headache was onesided and typical migraine, except there were no scintillating or fluttering scotomata. At eleven years of age she fainted while in church and was carried out. This made but little impression upon her at the time, but it seems to have determined the character of her psychasthenic phobias later in life. Her psychasthenic symptoms began insidiously about ten years ago. At first she feared large crowds; later it bothered her to sit in church or theatre surrounded by the people unless she was where she could get out readily. Once while shopping in New York city she became overwhelmed by fear. This lasted two hours, during which time she sat in a store in abject fear. After a time the picture of psychasthenia became more and more complete. Three years ago she came to California.

Condition on admission: She feared to walk away from the house alone. Even with other members of her family she could not summon sufficient courage to take a drive, get into a car, or even take a walk of more than a block. She was ashamed of her fearfulness and could argue against it but without avail. She had the usual feelings of inadequacy, self blame and excessive reaction to even normal stimuli that are exhibited by every psychasthenic. In addition to the psychasthenia, she suffered with headache almost every week instead of every month as at first. Her bowels were constipated.

Physical examination: Her skin was very dark, sallow, and muddy looking. The conjunctivæ were icteric. Heart and lungs normal. Liver dullness was too extended. Urine: the twenty-four hour amount was only one third the normal. Indican was present in large amount. Otherwise it was normal.

Treatment: She was removed from her home to a "training camp" and placed under the care of a trained nurse who carried out the training camp method under the personal direction of the writer. Her treatment began with a modified rest routine. This was for purposes of applying psychotherapy, hydrotherapy, and massage, and to correct the autointoxication that was manifest. The indicanuria was combated with cascara. The liver engorgement and its sluggish functioning were corrected by exhibiting calomel, ipecac, extract of hyosyamus and aromatic powder in combination in small doses, and repeated when necessary. Aperient water was freely used. In the next five weeks she had only one headache, and from that time they became less severe and less frequent. The psychasthenic phobias were the hardest to overcome; but, after the full training camp treatment had been in force six weeks, she was able to take long walks with comfort, and had begun to take rides on the trolley cars and in the automobile. Physically, she was as fit in many ways as her athletic daughter. The sallow skin was replaced by that of a healthy color. Her urine became normal and the bowels were regulated. At times she

would have a headache, but this was infrequent and less severe; she was thus saved the prostration consequent upon frequent recurrences. In time she lost all of her phobias and was able to do as she wished and go where she pleased.

#### CONCLUSIONS.

Inasmuch as we believe that the functional or kinetic neuroses are characterized by pathological exhibitions of the functions, therefore the rational treatment of them must be a problem of kinetics, anthropology, and psychology.

The training camp method of treatment makes use of the well known rest treatment of Mitchell in suitable cases. It invariably makes use of intensive psychotherapy. It systematizes and prescribes the amount of rest, diet, and exercises. During the period of treatment—at times from the very beginning—the training consists of the more or less strenuous régime that has been used by athletic trainers for the purpose of enhancing mental and physical vigor, but in such amounts as shall be suitable to the individual in hand.

The training camp method is not put forward as a cureall; it is only a rational adaptation of well known curative measures. The method is based upon a series of thirty cases of neurasthenia and psychasthenia, eight cases of dementia præcox, two cases of hysteria, and two cases of alcoholism.

AUDITORIUM BUILDING.

## INTESTINAL OBSTRUCTION DUE TO A BENIGN PELVIC TUMOR.\*

### Report of a Case.

By ROBERT M. ALEXANDER, M.D.,  
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First Assistant Physician, State Asylum for Chronic Insane

CASE. F. H., female, aged fifty years, had been in institutional care since 1889. Was admitted to Wernersville State Asylum for Chronic Insane in 1899. Patient at that time was in good physical condition and abdominal viscera were reported normal. There had been no record of

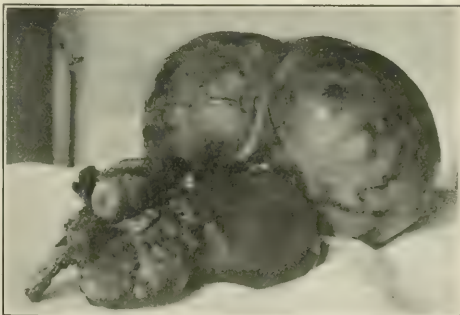


FIG. 1.—Showing left ovary hypertrophied, following torsion, while the right appeared normal. The uterus was enlarged and congested.

physical ailment during her residence here. She frequently complained of her clothing being too tight about the waist, but this was considered a delusion.

Physical examination showed patient to be a fairly well nourished adult female. Pupils were equal and reacted to light and accommodation; the tongue was clear, slightly

\*Read before Berks County Medical Society, November 11, 1913.

tremulous, protruded in the median line; teeth were fairly good, a few missing; pharynx and tonsils appeared normal; thyroid gland was slightly enlarged; the chest appeared normal, expansion was equal on the two sides and no areas showing pathological change were demonstrable; heart sounds were rapid but of good quality; no murmurs heard.

Abdomen. A bulging mass occupied the lower, left hand quadrant. Tenderness was marked, slight rigidity present. Pelvic examination showed it to be connected with the uterus. It was hard, nodular, and movable. The patient's bowels at this time had not moved for two days. She was seized at that time with severe abdominal pains and persistent vomiting, but no fecal vomiting occurred. On the third day of attack a very small amount of feces was expelled, at the same time the tumor was seen to have increased greatly in size and the symptoms had increased in severity.

The abdomen was opened, and the parietal peritoneum was injected. Upon incising this, a large congested tumor came into view. This, it was found, had caused the uterus to be twisted upon itself and upon its appendages twice. It was untwisted, when it was found that a coil of the transverse colon adhered to the fundus of the uterus at its posterosuperior aspect. This was pushed off with gauze. A quantity of serosanguineous fluid was found in the pelvis. Panhysterectomy was performed. There was no drainage following operation. Patient presented an intermittent temperature for several days. Recovery was otherwise uneventful.

#### PATHOLOGICAL FINDINGS.

The urine report was negative.

The right ovary appeared normal.

The left ovary was enlarged and congested; microscopically it showed hemorrhage.

The uterus was greatly enlarged and congested and microscopically showed the presence of hemorrhage.

The dimensions of the tumor were, breadth 17.5 cm., length 10 cm., thickness 10 cm. Microscopical examination showed it to be a fibroma. The pedicle of the tumor was 5 cm. long. It weighed 120 grammes.

## MEDICAL SOCIOLOGY IN THE PUBLIC SCHOOLS.

BY MARY SUTTON MACY, M. D.,

New York,

Assistant Neurologist, Demilt Dispensary

The school child presents a number of medical problems, some of which are entirely understood, some are in the experimental stage, and some are absolutely unappreciated as such by physicians or teachers.

In the brief space at my disposal I shall touch but lightly on a number of aspects of one of these problems, i. e., the laggard. From the physician's point of view the laggard is a problem either in faulty hygiene or in pathology. From the teacher's point of view the laggard is a drag on a class, a blot on the fair reputation of the teacher, or a problem in discipline, or all three. From the social point of view the laggard is an increased expense, a social menace, or a problem in social adjustment.

From all these points of view the laggard is a

desirable thing to eliminate or to mitigate as far as possible. Prevention is obviously the ideal, but unfortunately, for this condition, prevention necessitates removal of cause, and the causes for laggards in the schools are legion. To summarize them briefly we recognize: 1. Retardation from prolonged or frequent absences, whether due to frequent illness, frequent change of home locality or school, or both; parental negligence or indifference; truancy *per se*; or other causes of irregularity in school attendance; 2, retardation from physical inefficiencies or deficiencies, which may cover not only such conditions as blindness, partial or complete; deafness, partial or complete; adenoid vegetations and similar much discussed physical defects; but also tuberculosis, anemia, infantile paralysis, and cerebrospinal meningitis, with their sequelæ, etc.; 3, retardation from mental inefficiency or deficiency, under which heading must be grouped not only the imbeciles, idiots, cretins, and morons who are outside State or municipal institutions for the segregation and care of such cases, but also that much larger and more important group of so called "borderline cases," which, from malnutrition or physical inefficiencies, or both, have been so far retarded as to make differentiation on first or even second examination almost impossible. Elsewhere<sup>1</sup> I have presented this later case rather more in detail.

With these problems of retardation—veritable medicosociological problems—confronting the school authorities, what is to be done? What has been done?

Medical inspection, as conducted here in New York city schools, under the Child Hygiene Bureau of the Department of Health, has done most excellent work in controlling contagious diseases and in promoting various phases of child hygiene. Numerically speaking, the problem is tremendous and the department of health force admittedly too small to accomplish even the routine inspection, once a year, of every child in the public schools.

It depends largely upon the personality of the inspector, however, as to the relative amounts of pure inspection and of medical inspection plus medical sociology that is done in this work. I know the old defense "lack of cooperation," but I have noticed, too, that where the medical inspector takes a personal interest in doing more than merely inspect, cooperation is never lacking. The principals and teachers who face the same problems with a given child day after day, until they are literally "worn to a frazzle," are all too eager to grasp any opportunity of relief suggested, but they cannot reasonably be expected to think out all avenues of medical relief for themselves.

There are a number of fields, however, which the routine medical inspection does not cover—though occasionally and semioccasionally it may touch them. One of these, the hygiene of the teacher, is of considerable importance to the child. For example, a sick teacher—man or woman, struggling against disability, because financial pressure and economic questions of the home or family demand

<sup>1</sup>The Borderline Case: A Vital Problem. New York Medical Journal, November 30, 1912; The Borderline Case, Woman's Medical Journal, February, 1913.



the sacrifice and the struggle—can demoralize not only a class of forty to sixty children, but the whole school, through the reflex influence exerted on the personnel of the staff. Another of these uncovered

though not untouched—fields is the hygienic construction and care of the school buildings, and of the annexes to schools in congested quarters of the city. Still others are such old time familiar slogans as the partially deaf, the partially blind, the undernourished, the faults of posture, the overcrowded curriculum, etc., etc., with the solution and mitigation of which the medical fraternity has had too little to do directly. Some, if not all, of these fields offer vast opportunity for good work under the new administration of Doctor Crampton's department of educational hygiene, though I am not presuming to suggest that these few by any means cover the opportunities at the command of this new department, and perhaps all of these do not fall within its province.

The psychomedical problems of the laggard are tremendous. We cannot have physical deficiencies without some corresponding mental inefficiency, except under most unusual circumstances, such as Helen Keller for instance. Therefore we need—and we have—in our school system classes for the blind, for the deaf, for the crippled, for the anemic, for those suffering from trachoma, from tuberculosis, and for the mentally defective. We have no classes as such for the epileptic, and into the so called ungraded classes for the mentally defective we are forced to put morons and idiots, cretins and imbeciles, some epileptics, and a very, very large number of borderline cases. There are coaching classes for foreigners who speak no English, for laggarads because of unavoidable and brief absences, that they may regain their grades, and for coaching children who appear capable of jumping a grade, and classes exist for truants, temporary or habitual, but all of these special classes are too large, or in other ways unsuitable for the borderline case. The psychomedical work of differentiating these children falls on the Department of Ungraded Classes, and primarily upon Doctor Smart, who for seven years has been the only physician attached to that department, and Doctor Krause, who has recently been appointed as an additional physician. This gigantic problem needs and deserves the active cooperation of the medical profession and some solution to the present difficulty arising from grouping real institutional types of feeble-mindedness with the borderline group. Most unusual and most telling for good has been Doctor Smart's work in sending children to special dispensaries, to convalescent homes, to hospitals, and to private physicians for innumerable necessary treatments, or for prolonged care in the country, with nourishing food, etc., etc., to rebuild an undernourished laggard not always in need of the specialized pedagogy of the ungraded class. Arrangements should be made for more physicians in clinics, or out of them, to cooperate actively with this department, by receiving the cases and reporting back to Doctor Smart or Doctor Krause the necessary treatments which have been instituted, the condition found by the clinical examination, and by bacteriological and other examinations made in cooperation and so

offering a reciprocal field for cooperation for "the good of the child." Most physicians fail to appreciate or understand that active cooperation may be obtained from the children's teachers, if a few pertinent suggestions can be made to them. It is not always necessary for the clinician to take time to see the teacher, if he or she will take pains to report back the cases, as I have suggested. Doctor Smart and Doctor Krause are in touch with the teachers and can make the necessary suggestions, with the added force of "official position" in the schools.

No sketch of the medical sociological work of the schools would be even semicomplete which failed to mention the school lunches. These are experimental only in certain of the public schools, though the Children's Aid Schools (the so called Soup Schools) have had them for some time past. One interesting phase of the experimentation is the attempt to provide nourishing noonday meals which shall not conflict with the religious or the racial prejudices of Jewish, Italian, Irish, German, or other nationalities represented in our polyglot school population. This phase of the work is entitled to the active interest and cooperation of the medical profession and is fully as important in its field as the milk stations in theirs.

All physicians, and especially all pediatricists, should be familiar with the pioneer work for the blind children of the late Miss Bingham, Inspector of Classes for the Blind, and the Influence of the Elementary and Trade School for the Deaf on East Twenty-third Street. The motive ideal in both cases being to take children who are physically handicapped, and by a special degree of specialized training, combined with the general training of the normal child, to produce a citizen capable of competition with normal people on an equal footing. I cannot give the exact figures of the blind children at present in the regular classes of our public high schools who, having been trained under Miss Bingham's early supervision, are progressing as normal students and "making good," but the number is large. The work for the deaf, inaugurated in the city by the late Miss Margaret Regan and now carried forward in the school she organized by the present principal, Miss Carrie Kearns, turns out children who, because of their lip reading and their speaking ability, are essentially normal. This work deserves the active and intelligent cooperation of the medical profession. In fact, these ungraded classes, these blind classes, these deaf classes, these cripple classes, and the like in the public schools organized, systematized, and brought up to a high level by *lay workers*, with the advice and cooperation of only the occasional and exceptional physicians, put rather a black mark against our highly esteemed professional dignity. Why are we, especially the pediatricists, so busy with private interests and hospital problems, that we have neglected—and, more shame to us, continue to neglect—the opportunity of being pioneers and active promoters of this genuinely medical sociological work of the public schools.

Classes exist, as I have stated, for blind, deaf, crippled, anemic, tuberculous, mentally defective, and children suffering from trachoma; medical co-

operation which shall consist in *constructive* not destructive criticism, enlarged clinical facilities with return reports to the school people—can help to untangle the present difficulties of congestion in the ungraded classes; medical cooperation can assist in demonstrating the need for epileptic classes and in educating the public to accept and to value them; medical cooperation can assist in demonstrating the value of vocational work for normal children according to physiological age laws rather than chronological age laws; and medical cooperation can make much more effective and much easier the excellent work already being done by some of the physicians of the board of health, by Doctor Cramp-ton's Department of Educational Hygiene, and by Doctor Smart and Doctor Krause, of the Department of Ungraded Classes. "Where there's a will there's a way!" I ask, "Have you the will?"

101 WEST EIGHTIETH STREET.

## AN EPIDEMIC OF TRICHINOSIS IN PENNSYLVANIA.\*

BY JOHN BALLAGI, M. D.,

Homestead, Pa.,

Pathologist to Homestead Hospital.

Ch. Simon, of Baltimore, in the introduction to the second edition of his *Infection and Immunity*, just published, says: "Cholera, plague, typhus fever, typhoid fever, yellow fever, smallpox, malaria, and diphtheria are diseases which, if they still exist among civilized people, do so with the consent of the people in the face of a full knowledge of the manner of their prevention."

Simon is right without doubt. Still, if we are taken sick with typhoid, or malaria, or yellow fever and so on, we might be excused: individual and public too. One has to drink a glass of water or milk once in a while and has no means to sterilize it first. Or, one may get bitten by a mosquito or bedbug, not knowing it to be a carrier. And as to general, public prevention, to guard a whole population against typhoid, malaria, diphtheria, etc., costs a great deal of money, time, work, and brains.

But that is not the case with trichinosis; it is very easily preventable. Therefore no public authority which permits trichina infected meat to be sold deserves pardon; neither does the individual who has the bad taste to eat raw pork.

We have two easy, inexpensive ways to prevent trichinosis. The first, as I pointed out above, belongs to the sphere of public hygiene; systematic meat inspection, as practised in Germany. Since Germany introduced compulsory meat inspection for trichinae, neither epidemics have occurred there nor single cases. They solved the question with real German thoroughness: no hog may be killed, or meat imported or sold without first being inspected for trichinae.

The second method is a matter of personal hygiene and very simple too; do not eat any pork raw or which is not roasted or well cooked. Keep away from smoked ham and sausages, potted ham or canned food, when they contain hog's meat and

are not cooked. The only exception is bacon, which never contains trichinae.

The diagnosis of trichinosis is difficult in single cases, easy in epidemics. At all events we may expect some help from considering the religious rules and racial habits of the patients. We know that trichinosis is almost impossible among orthodox Jews, Turks and Hindus since they never eat pork. On the other hand, Germans are more exposed than other nations, because they consume a great deal of pork uncooked, in form of raw ham, raw or smoked sausages and so on. Osler lays particular stress on this point in his *Practice of Medicine*, fifth edition, p. 354, saying: "Trichinosis should always be suspected when a large birthday party or *Fest* among Germans is followed by cases of apparent typhoid fever." All the great epidemics have occurred in Germany. There is only one greater epidemic recorded outside of Germany; it took place in Hungary, in the year 1891, and was reported by me in the *Hungarian Medical Weekly*, the same year. Hungarians eat only well cooked or roasted meat, so this epidemic was somewhat of a surprise until more particular data could be obtained. That is to say, out of nearly 100 persons who ate of the same shipment of sausages, fifty-one—all Germans or Bohemians—became infected, the rest—Hungarians—escaped.

Since hogs raised in this country are not free from trichinae (on an average fifteen per cent. of the killed swine showed trichinae, according to Reddig's and Marke's investigations in Boston), it is not to be wondered at when cases of trichinosis occur in the United States, not with alarming frequency, true, but often enough. Doctor Blackburn of Philadelphia, in the July, 1913, number of the *Pennsylvania Medical Journal* estimates the number of all cases reported from the United States at about one thousand. Owing to the difficulty of recognizing isolated, mild cases, there cannot be any doubt that the cases not reported are far in excess of the number given. The mortality is fluctuating and depends on many circumstances, but it averages about twenty per cent.

In Pennsylvania, last year only, Doctor Merkur, of Pittsburgh, reported one case observed by him in the South Side Hospital, finding the trichinae in the circulating blood. As he privately informed me, several cases occurred among Italian laborers in Beaver Falls, Pa., the same year. Doctor Blackburn, as mentioned above, reported one case from Philadelphia. Reading his paper, one can hardly have any doubt that his patient really had trichinae; the clinical symptoms are convincing enough. Still it is to be regretted he did not demonstrate the trichinae, but made the diagnosis solely from the clinical symptoms and from the eosinophilia.

The *Journal of the American Medical Association* cites four reports of trichinosis cases observed in 1912, two from California, one from Ohio, and one from New York.

The epidemic I am reporting here occurred in Daisytown, Washington county, Pennsylvania, in August and September, 1912. Daisytown is a small mining settlement inhabited by foreign miners, mostly by Slovaks, Poles, Italians, and Hungarians. There were six cases I saw and about twenty more attended to by the coal company's local physician.

\*Read before the Allegheny County Society, Pittsburgh, October 27, 1913.

or other doctors in the neighboring towns, or by nobody at all, some of the patients exhibiting very mild symptoms only.

I did not see the six patients all the same time; they came to my office in Homestead separately, with a few days interval between. So it happened that the first two cases were dismissed with a wrong diagnosis; one as gastrointestinal catarrh, the other, there being facial edema, as a probable nephritis. However, when a third patient came from the same place, with a slight rise in temperature, muscular soreness, etc., I became suspicious, sent him to the hospital, and made a blood count. Finding sixty per cent. eosinophiles, I examined the blood of the first two and the subsequent four patients who came two days later from the same place. Result as follows:

Patient.	Leucocytes.	Eosinophiles.
1. J. L. ....	12,000	70 per cent.
2. J. H. ....	12,000	58 per cent.
3. L. M. ....	10,000	55 per cent.
4. B. V. J. ....	10,000	45 per cent.
5. R. L. ....	11,000	40 per cent.
6. R. S. ....	9,000	30 per cent.

The high proportion of eosinophilia is remarkable—between thirty and seventy per cent. or eighty in one hundred, being the highest ever found.

There was nothing else but to find the trichinae. I am sorry that at that time I had no knowledge of the fact that trichinae can be demonstrated in the circulating blood as Herrick and Janeway had shown in 1909 (*Archives for Internal Medicine*). Doctor Merkur was so kind as to make me acquainted with that simple method of finding trichinae in the human body. The Herrick-Janeway procedure has the advantage over the excision of pieces of muscle, that it can be performed very easily; people usually object to excision. Luckily one of my patients gave his consent to the operation and Doctor Campbell excised a small piece of the left biceps, near the lower tendon. Lacerated or cut and stained preparations showed many trichinae, partly rolled up already or still straight, all without a capsule, but surrounded by a mass of leucocytes.

Regarding the source of infection I learned the following: All the patients were adults, males, miners, of Hungarian nationality. Pork is a staple food with Hungarians, and as mentioned above they do not eat it raw. These patients denied eating raw meat too. Close questioning, however, elicited a simple explanation, namely, that the epidemic was caused by consuming *insufficiently roasted meat*. All the patients lived in two boarding houses, the meat was furnished by the company store in big "chunks" of twelve to fifteen pounds or larger, roasted in an open pan on the top of the cooking stove, and cut up afterward. Sufficient, thorough cooking in such a way is hardly possible. Considering the fact that trichinosis meat needs a temperature of 75° to 80°C. for six to seven hours to kill encapsulated trichinae, infection by only apparently roasted meat may easily take place.

The patients all recovered after an illness of varying from three to six weeks. Two of them, whom I had the opportunity to see four months afterward, were still complaining of muscular soreness and general weakness.

I have to thank Doctor MacLachlan, Doctor Frodey, and Doctor Campbell for their help.

## Abstracts and Reviews.

### THE NERVOUS SYSTEM; ITS ORIGIN AND EVOLUTION.\*

BY PROFESSOR C. H. PARKER,

Boston,

LONGMANS.

Personality, or rather those several attributes which go to make up personality, such as love, hatred, fear, and the like, were believed by the ancients to reside in the several different viscera—liver, spleen, heart, etc. The nervous system and brain were thought to have little function. Although some of these ancient beliefs persist in many of our common forms of speech, we now recognize the nervous system as the seat of all of the attributes of personality, in addition to being the general controlling mechanism for nearly every known act or function. It was, however, only about twenty years ago that Waldeyer first enunciated the belief that each nerve cell, together with its processes, was a unit anatomically and, to a certain extent, functionally. The neuron became the ultimate unit in the central nervous system, which was then recognized as an intricate collection of these anatomically and functionally different cells.

Following the recognition of the unity of the neuron came the segregation of these units into functional groups. Of the three groups, two lie partly within and partly without the central nervous system—the sensory and the motor neurons. The third group lies wholly within the central system—the association neurons—the cell processes running up and down between different regions within the central structure. These latter neurons are vastly the most abundant of all in the higher animals, and are found to diminish in abundance as we descend the scale of animal life, until they finally disappear.

The functional division of these three neurons differs materially from their exact anatomical division. The sensory and other specially differentiated endings make up the receptor mechanism. Muscle, gland, and other cells not strictly nervous form the effector mechanism. All the nervous structures lying between these two constitute the adjustor mechanism. This latter includes the entire sensory neuron except its ending, the whole association neuron, and the motor neuron, or its counterpart for gland and other structures.

The nervous system of the higher animals consists, therefore, of a most intricate mechanism for the reception of impulses, their conduction and distribution, and the production of a response to stimulus. It is a reflex mechanism in the broader sense of the word.

The reflexes may be divided into conscious and unconscious. The former are typified by the reaction of the iris to light; the latter by the muscular response to a painful stimulus. The question of personality in the lower animals resolves itself into the determination of the proportion of the conscious reflexes to the unconscious. The origin and

\*Abstract of a lecture delivered before the Harvey Society, Academy of Medicine, New York, November 29, 1913.



evolution of the nervous system are to be sought by a study of the nervous structures and mechanisms in the lower forms of animal life.

Descending the scale to the earthworm, we find that this animal contains a relatively small number of association neurons and is essentially a creature responding to stimuli through the mechanism of the unconscious reflex. In spite of its extremely rudimentary brain analogue, and its great lack of association neurons, experiments seem to show that this animal can profit by experience—can learn. Such an ability to profit by experience, though extremely slight and sluggish in response, is somewhat comparable to intelligence. It must not be concluded, however, that the lower animals actually perform many acts consciously, for even the bee in the building of its comb is acting by virtue of an innate mechanism, purely of an unconscious reflex nature, and not as a result of having learned by experience of contact with its fellows in the hive.

We must conclude that the lower animals are mainly machinelike, acting almost exclusively in response to unconscious reflexes, and that they have very little which is comparable to consciousness.

Lower in the animal scale stands the coelenterate, which is little more than a digestive sac. In these animals we find no trace of a centralized nervous system, and association fibres are wholly wanting. There are merely sensory and motor neurons in direct relation to one another. Their actions are purely unconscious reflexes, and each portion of the animal contains its own neuromuscular system, which is capable of coordinate response after complete separation from the rest of the body. The adjustor mechanism is absent, and, as this is the essential feature of the central nervous system, we are led to the conclusion that the central nervous system is the last to develop in the animal kingdom.

Two hypotheses have been advanced to account for the development of the sensory and motor neurons. The first is that both arose originally from a single ectodermal cell, in which developed sensory functions on its surface portion and contractile powers in its deeper parts. This cell ultimately became divided into two cells, each retaining but one of the functions. The second view postulates the simultaneous differentiation of two ectodermal cells, the one into a sensory cell, the other into a contractile structure. As the result of work on certain sponges, I am led to take issue against both of these views.

About the pores of these sponges muscle cells are found, which are capable of closing the pores. These cells contract in response to stimulation, but do so very slowly. Transmission of impulse does not exceed half a cm., and is extremely slow, taking place directly through the protoplasm, like the transmission between the cells of ciliated epithelium. In these animals there is no trace of nervous structure, and I am led from these observations to the belief that the effector system preceded the nervous system in the course of evolution, instead of there having been a simultaneous development. Certain confirmation of this hypothesis is found in the fact that even in higher animals

muscle is known to react in the absence of nerve influence. Thus the iris will contract to light when it contains no living nerve structure, the embryonic heart contracts before nerve cells have developed, and Carrel has seen recently developed, isolated cells of the artificially cultivated chick's heart contracting rhythmically.

My belief is that muscle is the primitive tissue, and that the receptor nerve mechanism is a later development around this effector mechanism. "We have brains because we have receptors, and we have receptors because we have effectors."

These explanations have dealt with the sensory and muscular neurons exclusively. How are they to be applied to the control of other effector organs such as the glands, chromatophores, electric and luminous organs? These structures are controlled by nerves in some cases and to a certain extent, and in others by chemical agents. For example, the major functions of the human pancreas are not under direct nervous control, but are stimulated and inhibited by the intervention of hormones. Where nerve control is present, however, it seems plausible to believe that the nerve structures have gradually appropriated the control, the analogues of motor fibres gaining ascendancy over glandular and other effector structures. Similarly, there has also been considerable appropriation in the course of development on the part of the sensory nerves.

There are three types of sensory neuron structure. The primitive one is that in which the sensory neuron cell body lies in the surface epithelium; exemplified in higher animals by the olfactory nerve. A further development occurs with the migration of the cell body inward from the surface, leaving the nerve ending as the receptor mechanism; represented by the simple nerve endings which are stimulated in response to common chemicals, as acids, alkalies, etc. Last, there is the development of specialized epithelial cells as receptors for the nerve cells; typified in the taste buds.

The acuity of response of these three types of sensory endings corresponds, to a certain extent, to their development. The first form is the most acute, the second is the most obtuse, and the last developed is intermediate in sensitiveness. The truth of these statements may be demonstrated in man by the testing of the three functions with a single substance which possesses taste, odor, and the power of evoking common chemical sensation. This is ethyl alcohol. The acuity of the olfactory type of endings is such that the odor of alcohol can be detected in a one eight thousandth molecular dilution of the substance in air. The simple nerve ending is so obtuse that a five molecular dilution is required to give the common chemical response—that is, a solution forty thousand times as strong. Taste is evoked by a three molecular solution, or one twenty-four thousand times as concentrated as is required for the stimulation of the olfactory nerve cells.

Such are the facts and hypotheses which we have been able to deduce regarding the origin and evolution of the nervous system, and I may conclude by saying that the nervous system has grown up as a set of triggers to set off the effector mech-

anisms; that there has been a gradual appropriation by both the sensory and motor neurons; and that last, there has been the development of association neurons with a welding of the whole into a complex and intricate system which constitutes the central nervous system of the higher animals. The higher we rise, the more complex is the system, and the more abundant are the association neurons.

## Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXL.—How do you treat the symptoms of senility, without organic disease, but showing approaching dissolution? (Answers due not later than November 15th.)

CXLI.—How do you treat frostbite? (Answers due not later than December 15th.)

CXLII.—How do you treat chronic constipation? (Answers due not later than January 15, 1914.)

CXLIII.—How do you treat gallstone colic? (Answers due not later than February 16, 1914.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best essay submitted in answer to Question CXXXIX was awarded to Dr. J. Walker Moore, of Philadelphia, Pa., whose article appeared on page 1117.

## PRIZE QUESTION NO. CXXXIX.

### TREATMENT OF CHANCROIDS.

(Continued from page 1121.)

Dr. R. W. Reynolds, of Lincoln, Nebraska, finds:

In conducting the treatment of chancroid, several things must be taken into consideration, for example, the site and number of ulcers, age of lesions, and the habits and general surroundings of the patient. To explain more fully and exemplify we will take up the points in the order named. First, site of lesions: If the ulcers were located at the urinary meatus or within the urethra, the cauterization treatment would be contraindicated, on account of the great danger of stricture or other deformity. Second, the age of the lesions: The cauterization treatment, so frequently and effectively used, does not promise so much for speedy and sure results, if the ulcers are more than four or five days' standing. Third, the habits and general surroundings of the patient: Every physician has some patients who are uncleanly and careless about their own care as well as the possibility of spreading infection to others, and others, yet, who, no matter how much they are disposed to be cleanly, are so situated that it is next

to impossible for them to give themselves proper care and treatment. In cases of the latter type, it is obvious that the shortest and quickest treatment is the best treatment.

The treatment itself may be divided for sake of description as follows: Abortive treatment, palliative treatment, and treatment of the complications.

*The abortive treatment.* The object of this treatment is to convert virulent chancroidal ulcers into healthy granulating sores. This treatment, if used at all, should be used early, as it does not promise so much if used later than three to five days. In order to transform a chancroid into healthy granulations, powerful agents are required, such as the actual cautery, fuming nitric acid and carbolic acid. These are the favorite and best known in this connection. The lesions should be prepared for cauterization in the following manner: Cleanse each ulcer with hydrogen dioxide and make as dry as possible with sterile gauze. When this has been accomplished, powdered cocaine or beta eucaine is sprinkled directly on the raw surface. This is left in contact for a minute or two and is then removed with plain sterile water. The parts are now dried and the actual cautery, which has previously been heated to a white heat, is applied to the entire surface for a short time, care being taken to cover every nook and crevice. A wet dressing should now be applied, of gauze saturated with either bichloride of mercury solution one in 3,000 or lotio nigra, which may be protected from evaporation by the use of oil silk or rubber tissue.

If the actual cautery is not at hand or for any reason is not used, then the following procedure, which is the one I most frequently use, may be carried out. Cleanse and anesthetize as above and around each lesion to be treated, apply with a wooden applicator, a thin coating of petrolatum, dry the ulcers with small pieces of absorbent paper and apply with a glass rod having a sharp point fuming nitric acid thoroughly, and allow this to remain until cauterization is complete, which usually requires two or three minutes. Moisture is now removed with absorbent paper and a dusting powder or a wet dressing of bichloride of mercury (one in 3,000) or lotio nigra is applied. I think wet dressing is preferable on account of the well known tendency of powders to crust and thus form a protection for the infection. This treatment will prove effective if applied early and most patients will be well in from ten to fourteen days. If applied later than three or four days after the beginning of the trouble, it may be necessary to repeat the cauterization treatment a second or third time, and each time follow with the antiseptic treatment as in the first instance.

*Palliative or expectant treatment.* This treatment will prove successful in most cases in private practice, where the conditions are more favorable and where the patients can and will give themselves the attention needed or when the more speedy cauterization treatment is refused. It is carried out about as follows: Cleanse the parts as well as possible with hydrogen dioxide solution twice each day and apply a wet dressing on gauze of bichloride of mercury (one in 2,000 or one in 4,000) or lotio nigra. If the ulcers are situated beneath the foreskin the

dressings may be applied by cutting out a piece of gauze about four inches square and folding the same once on itself and cutting a notch with shears at a point which will be near the centre of the square when unfolded. The hole should be cut rather small, as it can be stretched to the required size, which is just large enough to slip comfortably over the glans penis and into the corona sulci. The gauze square is gathered into a wad to facilitate wetting with the solution to be used, the excess is squeezed out and the square straightened and slipped into place after the prepuce has been retracted, the four tails are pulled down over the glans and the prepuce is replaced in its normal position. With a dressing applied in this way, the prepuce serves as a retainer for the dressing. A dressing of this kind serves a double purpose, that of a vehicle for the antiseptic solution as well as keeping the infected tissues separated from the healthy ones. Occasionally the cure is facilitated by the use of silver nitrate solution or pure lunar caustic in a stick. This should only be applied around the edges of the ulcers for the purpose of stimulating granulations and should not be used until the infection has been conquered. This remedy is used by some as a caustic, but it is not effective, as it simply coagulates albumen and does not penetrate deep enough into the tissue. Powders will at times prove efficient as stimulants to the healing process and thymol oxide, bismuth formic iodide, eucrophen, and last but not least iodoform, have all served in this capacity. Iodoform is most effective, but there is always the objection to its odor. Ointments as a broad rule should not be used in the treatment of chancroids. I have found, however, the following ointment recommended by Lydston of use in some cases, for the purpose of stimulating granulations.

R Iodoformi, .....	3ii;
Balsami peruviani, .....	3iv;
Adipis lane hydroxi, .....	3iv.

M. Sig.: Apply on lint or gauze.

I have used the following also suggested by Lydston for the same purpose:

R Iodoformi, .....	3ii;
Etheris sulphurici, .....	3i.

M. Sig.: Apply with camel's hair brush.

*Treatment of complications.* The most frequent complications are bubo, phimosis and paraphimosis. Bubo occurs in about one case in three. The treatment is as follows: Instruct the patient to avoid exercise and to keep off the feet as much as possible. When the gland or glands begin to enlarge, put the patient to bed and apply the ice bag, keep the bowels open with some simple cathartic, and give a light diet. In addition, have him rub into the skin covering the gland, with gentle friction, for fifteen minutes, three times each day. The use of pressure by means of a bandage or the painting over the gland with collodion often prove effective. If the inflammation goes on to the point of suppuration, the treatment becomes surgical and one of two procedures may be followed. The gland may be punctured at one or more points with a sharp pointed bistoury and allowed to drain, which at times is a slow process, or the skin may be incised longitudinally, directly over the gland and the

entire gland enucleated, and the resultant cavity filled with boric acid and sutured.

Phimosis is often an irritating condition to deal with, in that if the ulcers are situated beneath, they cause the prepuce to swell to an enormous size and thus render the treatment difficult and the drainage poor, on account of being unable to get at the lesions. This condition is best treated by the use of the flat or so called duck billed syringe, which may be introduced under the foreskin into the preputial cavity. Antiseptic solutions are thus introduced and any of the following will do good work: Hydrogen dioxide water, bichloride of mercury (one in 4,000), or argyrol solution, ten per cent. I like to use any of the first three mentioned or a saturated solution of boric acid, and follow up with the argyrol solution. This process of irrigation should be carried out at least two or three times each day. In addition to the use of irrigation, the use of very hot water should be made to reduce the swelling. The penis should be immersed every few hours for a period of fifteen minutes. When the above outlined treatment does not accomplish the desired results and it is seen that the inflammation is not decreasing or is increasing, then the case should be treated surgically. A dorsal incision may be made, but as a rule two lateral incisions should be made, thus giving access to the entire preputial cavity and exposing all lesions which may be contained within it. The dorsal incision does not expose the lesions if they happen to be in the region of the frenum. After making the two lateral incisions, the lesions may be treated as has been previously outlined and the two flaps turned back upon the glans and dressed with gauze in such a manner as to protect the cut surfaces. The operation of circumcision should not be attempted at this time, as there is too much edema of the tissues to get a result to be proud of. This operation may be performed later.

*Treatment of paraphimosis.* Treatment of paraphimosis should, in the first place, be prophylactic, in that when the prepuce is in a swollen condition, it should be retracted with care or better not at all. When this condition is a reality the treatment is as follows: Irrigate the parts frequently with a hot solution of carbolic acid (two per cent.) or a hot sublimate solution (one in 2000). In addition, immerse the penis two or three times each day in either of the above mentioned solutions, made as hot as can be borne. The constricting bands may be cut, but this should be avoided if possible. In most cases the irrigation and immersion treatment will prove effective. In conclusion, it might be well to suggest a few "don'ts" in connection with the treatment of this trouble.

1. Don't give mercury and treat as syphilis. Wait until you know syphilis to be present.

2. Don't use ointments in the treatment of this trouble (as a broad rule).

3. Don't let fear of infection to cut surfaces prevent you from cutting a phimosis, when you need drainage from the preputial cavity and can get it in no other way.

4. Don't let moisture accumulate about lesions. Keep them dry as possible, as the drier they are, keep the more quickly they heal.



*Dr. Enoch S. Fulton, of New Therin, La., states*

That the treatment of chancroids may be divided into the prophylactic, abortive, and palliative, and the treatment of the complications. Of the prophylactic treatment, little chance can be had to employ it as the practitioner does not see the victim until the infection has already begun; he may then, in his role of educator, however, advise the patient as to his actions in the future. The bathing of the parts, after intercourse, with any alcoholic solution—whiskey, bay rum, or any of the many antiseptic solutions on the market containing thymol, menthol, etc., while not germicides, will stop the growth of any infection which may be present. The use of bichloride of mercury tablets for the preparation of an antiseptic wash, although one of the best, is to be condemned for the laity for the reason that the inexperienced, in their anxiety to prevent infection, will make the solution too strong and thus cause inflammation of the glands and the prepuce, which, while not as serious a condition as the chancroid, is more painful. Another reason for condemning the use of the tablet, is that the taking of them for suicidal purposes is becoming too popular to justify their common use when there are so many other things which will serve the purpose as well.

*Abortive treatment.* The abortive treatment is to be employed should the chancroid be seen in the first seven days. My procedure in the abortive treatment is as follows: Cleanse the sore of its exudates by the use of hydrogen dioxide and a hot antiseptic solution of any nature; apply a piece of absorbent cotton saturated with a four per cent. solution of cocaine to the sore for five or ten minutes; or apply phenol until the surface of the sore turns white. The latter is as good an anesthetic as any, but is more painful than the cocaine. Having the surface of the sore thoroughly anesthetized, apply nitric acid in sufficient quantity to cauterize the whole surface of the sore, being careful not to burn any tissue but the ulcer. Guard against the latter by coating the tissue around the sore with sterilized petrolatum. Having finished the cauterization, dress antiseptically with any antiseptic powder, my preference being for thymol iodide. Leave this dressing intact for five days; then if the ulcer was thoroughly cleansed it will be practically cured when you dress it the second time.

*Palliative treatment.* After seven days the abortive treatment does no good and in reality makes a bad matter worse. Where there was only one sore a few days ago, there are now probably several of different sizes and in different stages of development. The tissue around the first sore is probably undermined and there may be connections with it and the smaller surrounding ones. The Ducrey bacillus is now found (demonstrated by culture) all over the area surrounding the ulcers. It is obvious then, that the use of the cautery would simply enlarge the ulcers to have them reinfected by the surrounding tissue. Then, given a chancroid passed the stage where it can be aborted, the treatment becomes one of cleanliness and protection. As to the cleanliness, nothing surpasses plain hot water. Hot water properly applied is not only antiseptic, inhibiting the growth

of the organisms, but it creates an hyperemic condition in the parts, thus increasing the number of the white corpuscles and aiding materially in effecting a cure. If your patient is an intelligent one (and the vast number are not), this method of treatment can be explained to him in such a way that he will be impressed enough by it to carry out your instructions carefully. The soaking of the parts in hot water, as hot as can be borne, for fifteen minutes out of every two hours, will effect a cure in every case very promptly without further medication. The average patient, however, with this trouble does not take kindly to anything he has to do for himself, so it becomes necessary to prescribe something that will be less trouble for him to use. For this purpose there is no drug better than mercury in the form of calomel or gray powder. After having cleansed the sore with hydrogen dioxide or some antiseptic solution, dry it thoroughly and fill it with the powder, covering with absorbent cotton secured in position by strips of adhesive plaster.

*Treatment of the complications.* Under the treatment of the complications comes the treatment of those conditions arising from phimosis and paraphimosis; cellulitis, bubo, and suppuration. In phimosis where the sore is behind the corona or on the inner surface of the prepuce, in fact, in any position in which the prepuce will interfere with the treatment, the authorities recommend the making of a dorsal incision through this structure and pulling the flaps back out of the way. Taylor recommends the making of two lateral incisions for this purpose. I have had better results by completing the circumcision at once. This procedure followed by rest in bed and the applications to the parts of hot bichloride of mercury packs will effect a cure very promptly and will save the trouble of a secondary operation. I have never used the dorsal or lateral incision without having a cellulitis following in the flaps.

Conditions of sloughing or phagedena call for the use of the cautery, and if you would be successful, do not be afraid of cauterizing too much. Some authorities advise that when the sores on each side of the frenum have sloughed through, to cut the frenum, but my practice is to leave it entirely alone, and the results I have obtained in the past justify my action in this regard.

The glands in the groin must be closely watched and the patient advised against any violent exercise. Should adenitis occur, place the patient in bed and put an ice bag over the inflamed glands. Do not paint with iodine in hopes of "scattering" the inflammation, for it does no good and roughens the skin, so that, if abscess should occur, the surrounding skin will be sure to become infected. In the event of abscess formation in the glands, incise them and drain. Should the whole chain become infected, give a general anesthetic and dissect them out, removing the entire chain. Dress antiseptically as an open wound, and provide abundant drainage.

The chancroid in the female is to be treated along the same general lines as in the male. Extreme care should be given to the making of a diagnosis of chancroid of the cervix. Microscopi-

cal examination of a section of the tissue should be made to make sure you are not dealing with a carcinoma.

(To be continued.)

## Therapeutic Notes.

**Treatment of Anal Fissure.**—Roux, in *Lyon médical* for July 13, 1913, is stated, on the basis of eight cases treated by him, to approve strongly of a method first recommended by Lewis, of Brooklyn, which consists in applying to the fissure, held open for the purpose, a saturated solution of potassium permanganate. Sharp pain is induced, but this may be avoided or at least greatly lessened by previous application for a few minutes of a small tampon dipped in a two or three per cent. solution of cocaine hydrochloride. The application of permanganate solution is made daily. Cure results frequently in two or three days.

**Treatment of Breast Lymphangitis in Nursing Women.**—L. Dubrisay, in *Journal de médecine de Paris* for April 19, 1913, strongly recommends the repeated use of a Bier cup in cases of breast lymphangitis. This measure may be substituted with advantage for manual expression in cases where there is accompanying inflammation of the milk ducts. The cup not only favors the outflow of milk without causing any local irritation, but by inducing venous hyperemia, relieves pain. Hot, moist compresses should be applied to the breast in the intervals between successive cuppings.

**Treatment of Burns.**—Vargas, in *Journal de médecine de Paris* for September 27, 1913, recommends the following application in burns:

℞ Finely powdered neutral dextrin,  $\frac{3}{4}$ iv (125 grammes);  
Tincture of aloe, .....  $\frac{3}{4}$ iss (65 grammes);  
Diluted alcohol, .....  $\frac{3}{4}$ i (30 grammes);  
Lead nitrate (C. P.), ..... gr. xlv (3 grammes);  
Phenol, ..... gtt. xxv;  
Tannic acid, ..... gr. xv (1 gramme);  
Cherry laurel water, .....  $\frac{3}{4}$ v (150 grammes).

M. Sig.: To be painted over the burned area.

Another useful combination is:

℞ Lead carbonate, .....  $\frac{3}{4}$ iii (91 grammes);  
Powdered gum arabic, .....  $\frac{3}{4}$ iss (6 grammes);  
Sodium bicarbonate, .....  $\frac{3}{4}$ ss (2 grammes);  
Linseed oil, ..... q. s.

Make a cream.

Sig.: To be applied after opening the blisters.

This preparation should not be used repeatedly at short intervals, unless there is suppuration. No signs of lead poisoning have ever been observed after its use, probably owing to the gum arabic it contains.

**Hexamethylenamine Used to Prevent Post-operative Tympany.**—G. P. LaRoque, in the *Therapeutic Gazette* for July, 1913, states that he has employed hexamethylenamine for the purpose referred to in over 300 operative cases, including many with adherent pelvic disease, large uterine and ovarian tumors, all types of hernia, appendicular abscess, and bile tract infection—all prone to postoperative tympanites—with the result that the symptom appeared in sufficiently marked form to

require other measures only in four cases of the total number. In two of these four cases, moreover, only small amounts of the drug had been used.

The procedure advocated is to administer ten grains (0.6 gramme) of hexamethylenamine in a glassful of water every two hours, between meals and while the patient is awake, for two days previous to operation. The evening before, or the morning of the operation, the usual bowel cleansing with castor oil and enemata is effected. Immediately after the operation, the nurse dissolves 120 grains (8 grammes) of hexamethylenamine in a quart (litre) of drinking water, usually without ice, and as soon as the patient is thirsty small quantities of this, at a time, are given, the amount being, however, cautiously increased as the stomach becomes retentive. In this way the patient usually takes and retains at least a quart of water with the 120 grains of the tasteless drug during the first twelve to twenty-four hours. By this time he can commonly retain a glassful of water at a time, and ten grains of hexamethylenamine in a tumblerful of water are administered every two hours until between sixty and 120 grains have been given a day, for three days after the operation. At the end of this time the drug is discontinued and the customary postoperative bowel cleansing performed. If excessive vomiting is present or if for any purpose water is given by bowel instead of by mouth, the drug is dissolved in the hot water or saline and thus administered.

**Pipe Clay as a Gastric Remedy.**—Léon Meunier, in *Gazette médicale de Paris* for July 23, 1913, states that kaolin (pipe clay, official as kaolinum) bears comparison well with bismuth subnitrate as a reliever of gastric pain. Mixed with water, the clay forms a paste which adheres to the stomach wall even more strongly than the bismuth salt. If kaolin is given to a normal individual, and a few days later bismuth, washing out the stomach twenty-four hours after their ingestion will show that the bismuth is entirely gone while traces of kaolin are still present. Examination of the stomach contents demonstrates that gastric acidity is much lower after kaolin than after bismuth. The stools are not blackened by kaolin as they are by bismuth; intestinal hemorrhage is therefore not masked by it.

**Use of Suprarenal Extract in Hiccough.**—J. Ségal, in *Journal des Praticiens* for August 23, 1913, reports a case of obstinate hiccough in a patient suffering from renal colic, in which, after large doses of bromide, chloral hydrate, chloroform, and cocaine, injections of morphine, gastric lavage with silver nitrate solution, spraying ethyl chloride on the epigastrium, and even general chloroform anesthesia failed to bring relief in the course of eleven days, administration of suprarenal extract proved promptly effective. The patient took ten drops of the one in 1,000 solution; at once the hiccough became milder and less frequent, and upon repeating the dose half an hour later, the symptom completely and permanently disappeared. The action of the drug in relieving hiccough is compared by the author with the "antispasmodic" action it is well known to exert in bronchial asthma.

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NEW YORK, SATURDAY, DECEMBER 13, 1913.

DR. HERMANN M. BIGGS RETIRES FROM  
THE DEPARTMENT OF HEALTH.

In the retirement of Dr. Hermann M. Biggs as chief medical officer of its department of health, the city of New York sustains an incalculable loss, for to him, more than to any other individual, are due the extraordinary achievements of its public health work. Thanks mainly to Doctor Biggs's initiative, the discoveries in bacteriology in the eighties were used to work a revolution in the methods of public health administration in this city, thus placing this important work on a scientific foundation; and since then, through his tireless efforts, the medical work of the health department of the city of New York has constantly been kept abreast of the advances in scientific medicine. In fact, so keen an observer as Koch, on the occasion of his visit here in 1908, remarked that though so many important discoveries in medicine emanated from Germany, their practical application to public health work was more prompt and further advanced in this country. In particular, he mentioned the work done by the New York city health department in providing for the microscopical examination of sputum for tubercle bacilli, in examining cultures for diphtheria, in manufacturing and distributing free to the poor, diphtheria and tetanus antitoxin, and in examining

blood for the Widal reaction. Since that time the department of health has begun the manufacture and distribution of bacterial vaccines, and, still more recently, aids physicians in the diagnosis of venereal infections by making, free of charge, Wassermann reactions for suspected syphilis and complement deviation tests for gonococcus infection.

Not only with respect to laboratory work, moreover, has public health administration undergone a revolution. Following the intensive studies made as part of the tuberculosis campaign inaugurated in this city in 1892, attention was directed more and more to the social environment as a factor in public health, and in this feature of the work Doctor Biggs took an active and leading part.

Curiously, much of the work here mentioned has been accomplished in the face of active opposition on the part of the medical profession, and it is only now that we fully realize how fundamentally sound are the policies logically developed by Doctor Biggs and his associates. Those who know how extensively the example set by the Department of Health of the City of New York has been followed, not only in this country but also abroad, will perhaps have some idea of the enormous influence exercised on the public health by our friend and colleague, Dr. Hermann M. Biggs.

POISONED NEEDLES IN MEDICAL JURIS-  
PRUDENCE.

A bold attempt on the person of a woman by a man with a poisoned needle, however fictional it sounds, is not entirely incredible. Such a thing is possible, though not probable, and that it has occurred some eminent authorities have not had difficulty in believing. Eulenburg, for instance, says: "Nobody will utterly deny the possibility of criminal poisoning by means of the hypodermic injection." The only case recorded, however, was discussed many years ago in the *Allgemeine medicinische Central-Zeitung* (1864, p. 170) by Beer, but his report has been left to slumber in the files of that periodical. We shall not attempt to bring it to light, for the duty of reticence in such matters is clear, as Beer himself pointed out. "Crime," he says, "is always engaged in studying every new discovery in order to use it for its own purposes." He is speaking of the hypodermic method. Again, Eulenburg, writing in 1875, says that in Bengal needles poisoned with *Abrus precatorius* have been employed by assassins. This hideous device is the nearest approach which is described in serious literature to the events that are supposed to have happened here.

The incompatibility between our knowledge and these alleged occurrences is worth a careful exposi-



tion. It is on the negative side chiefly, in which so much remains to be done, that the possibility of poisoning with a solid needle is most likely to be established. The problem has been treated in the abstract by many writers, though concerning cases and concrete instances there is utter silence. A hypodermic needle is obviously a practical agency for criminal purposes, but to be effective it requires both a syringe and a drug in solution. On the other hand, do we grant too much when we admit the possibility of poisoning with a solid substance on a solid needle? The greatest thinkers of former and modern times seem to have left this question or complexity of questions *in statu quo ante*, and to have left the answer to be made by every human being for himself. Zachias does not mention it, neither does Casper, nor Maschka, nor Taylor. Arrows poisoned with curare or ouabaine are no precedent for the advanced times in which we live. As regards a needle, can enough poison be placed on its surface, and if so, could it dissolve quickly enough to enter the circulation? A valuable object will be gained if we are enabled to have precise ideas on this point. Science itself is wisely reticent. To furnish scientific proof, as Von Franque observed, it is requisite to find poison in the blood, urine, and alimentary tract, and he and others prudently add that it is most difficult to detect an alkaloid or an organic poison when introduced with a needle. The possibility is clear, yet careful investigation shows that there is not a shred of evidence to sustain the accusations of needle stabbing and poisoning recently exploited in this city by sensation mongering newspapers in their choicest "sob sister" style and based on nothing more tangible than the alleged experiences of a few excited young women.

The characteristic noise and hysteria which have attended the investigation are a matter of regret, and probably years will pass before skepticism is general concerning the supposed poisonings. Recent magazine fiction is responsible for the basis of the belief, but it is not possible to ask that writers refrain from enlarging on the possibilities of the implements and materials of modern science and constructing lucrative stories therefrom. It is safe to say that at present medical science knows of no poison that has the exact effect necessary to facilitate abduction by causing immediate and sufficiently profound narcosis.

#### SALVARSAN IN PERNICIOUS ANEMIA.

Although arsenic in organic form is regarded as a specific in the treatment of pernicious anemia, clinicians who have had a large number of these cases, know full well that "recovery" means, in most instances, but a more or less prolonged period

of marked improvement, unless the cause of the disease is discovered and removed. Byrom Bramwell, after trying the Ehrlich-Hata organic arsenical, salvarsan, in seven cases, six of which showed marked improvement, held that this agent would probably be found a more efficient remedy than inorganic arsenic given by the mouth, and indeed than any other form of treatment. An "uninterrupted recovery" in a severe case was reported by Hobhouse, and another by Friedländer. It was expressly stated that the latter case had proved refractory to Fowler's solution; the recovery was sustained, however, by the use of sodium cacodylate. Conversely, Charteris found, in two of his three cases, that salvarsan produced such a degree of anemia as to bring about death within three weeks, while the third was neither improved nor harmed. In Maynard's case, there was a definite increase in the number of red corpuscles for a fortnight, at the end of which period a second dose was given; but examination a week later revealed a diminution in these blood cells. Other reports are available in literature, but they are, as a rule, conflicting and unsatisfactory. There appears to be good ground, however, for the belief of some observers that the use of salvarsan in pernicious anemia is by no means free from danger.

To test the question, Doctor Thomas R. Boggs (*Johns Hopkins Hospital Bulletin*, October, 1913) tried salvarsan in four cases at the Baltimore City Hospital. All showed a favorable reaction to the drug as to the regeneration of the blood and relief of the symptoms. One was a most remarkable apparent cure of a patient in his fifth relapse, who had been quite unresponsive to Fowler's solution and had shown only a very slight regeneration after four months of sodium cacodylate injections. Under intravenous administration of salvarsan in doses of 0.3 gramme every four weeks, he showed a steady rise in the blood count.

Another patient, whose nervous symptoms preceded the change in the blood picture by some months, proved very responsive to salvarsan, his blood count rising from 1,100,000 to 3,400,000 red cells in twenty days after the first dose of 0.3 gramme intravenously, and eventually reaching 4,800,000, with eighty-five per cent. of hemoglobin. This patient gave no history of syphilis, and Wassermann reactions in the serum and cerebrospinal fluid were negative. The other two patients, both negative to tests for syphilis, received but one injection each, and were greatly improved, with an average rise of 2,000,000 red cells when they left the hospital.

There was, as a rule, a sharp febrile reaction, lasting from six to twelve hours after each injection, in contrast to the very mild or absent reac-

tion in syphilitics. All precautions were taken with regard to technic and size of dose.

On the whole, it would seem that some cases, at least, of pernicious anemia can be decidedly benefited by the use of salvarsan, especially those in which a luetic history can be traced. Full trial should, however, be made of Fowler's solution or the cacodylates before exposing the patient to the dangers which the use of this new remedy undoubtedly entails when true pernicious anemia is present.

## THE TRUTH ABOUT NUCLEOPROTEINS.

Medical literature is rich in references to nucleoproteins and their use as antigens. One result of efforts made to obtain the active antigenic principle of cells has been the selection of substances dissolved in weak alkaline solutions and precipitated by weak acid. These substances have been called nucleoproteins in the belief that they were protein substances derived from the nuclei of the cells and assumed to be the most specific of the cell constituents. The well known work of Beebe is a case in point. He has prepared a serum alleged to have therapeutic value in goitre, by the injection of animals with extracts of the thyroid assumed to be the specific nucleoproteins. An attempt has also been made to treat cancer with homologous tissue extracts prepared by similar methods.

In the realm of bacteriology, Lustig and Galeotti have been for several years working with bacterial extracts which they have called nucleoproteins. These have been employed for the injection of animals to produce specific therapeutic serums for a great variety of diseases. The contribution of Galeotti in *Report of the International Plague Conference*, Mukden, April, 1911, is noteworthy.

At the present time many workers in the field of immunology are trying to find a vaccine representing as nearly as possible a pure antigen. In these researches the nucleoproteins appear attractive, especially to those who, lacking a profound knowledge of protein chemistry, take at their face value statements found in the literature dealing with these substances. To such persons the value of the recent critical review by Gideon Wells in the *Zeitschrift für Immunität*, xix, 5, 1913, cannot be overestimated; he points out that while the nucleus is undoubtedly a vital part of the cell, it does not necessarily follow that the proteins of the nucleus are more differentiated than those of the protoplasm. We do not know what proportion of a nucleus may be nucleoprotein, and we do not know how much of the cell outside the nucleus is nucleoprotein; furthermore, we do not know whether or not the nucleoprotein is more important or more characteristic

chemically than other constituents of the nucleus. Hammarsten holds that there is a considerable proportion of nucleoprotein in the extranuclear structure of the cells.

Wells believes that the assumption that a precipitate obtained by the extraction of cells with an alkaline solution and precipitation with a weak acid yields pure nucleoprotein, may well be questioned. Not only would nucleoproteins and nucleins be dissolved in the alkali, but also mucin, nuclealalbumins, probably various glycoproteins, besides the mucins, simple globulins and albumins, and alkali albuminate formed by the action of the alkali upon the native proteins. Upon acidification all these, with the exception of simple albumin, might be precipitated and the mixture, together with many other undetermined cell constituents, would constitute the material commonly called nucleoprotein. For the purification of the precipitate, it is recommended that it be redissolved in alkali and reprecipitated by dilute acid; this may be repeated several times.

As such purifications are continued, the action of the acid and alkali will alter the character of the original nucleoprotein, so that the proteins become insoluble and leave the nuclein and nucleic acid in increasingly large proportions. It is obvious that the percentage of protein in the final precipitate will vary according to the conditions existing at the time.

From a consideration of the nature of the substances commonly called nucleoproteins we learn that there are evidently three different substances in question with regard to immunity reactions. The first, nucleic acid, is nonprotein, practically a glucoside; second, the nucleins which are compounds of a doubtful character, but which seem to consist of nucleic acid bound firmly to proteins; third, the nucleoproteins which seem to be very indefinite and loose compounds of any or all the proteins of the cell with either nucleic acid itself or with the nucleins. Obviously, the nucleoproteins are artificial substances of uncertain and doubtful character, owing their antigenic properties chiefly if not entirely to the loosely bound proteins. Wells continues: "To ascribe to these mixtures any particular cell or organ specificity would seem to be preposterous, for they must react as do the proteins they contain in so far as these proteins have not been denatured by manipulation. That any particular protein is specifically combined with nucleic acid to form nucleoproteins there is no evidence whatever. But, on the contrary, there is evidence that many sorts of proteins may thus be united; undoubtedly this is the case with the living cell."

Studies of preparations made after Woolridge's method, but reprecipitated several times, show that

they consist practically of nucleins, and such preparations are incapable of causing an animal to produce antibodies; but the original first precipitates, which are rich in proteins, do have antigenic properties. It therefore seems that the antigenic properties of nucleoprotein preparations depend simply upon the proteins present in these preparations, and are not in any sense a characteristic integral part of a definite substance, nucleoprotein, but rather an adventitious impurity, the character and amount depending entirely upon the method of preparation.

## REGULATING THE SALE OF BICHLORIDE TABLETS.

During the year 1910, out of 825 suicides reported in New York, 274 were committed by means of illuminating gas, and 228 by gunshot; in 1911, illuminating gas was the agent used in 256, and the pistol in 201 cases. The deaths from these two agents alone, therefore, amounted to fifty-nine per cent. of the total deaths by suicides in the two years named. During those two years the number of suicides committed by means of poisons amounted to fourteen per cent. of the whole number. The poison most used in 1910 was carbolic acid, forty-four suicides having been committed with this drug in 1910 and thirty-four in 1911. The increase in the use of mercury bichloride as a disinfectant probably accounts for an increase in the number of suicides in which this agent was used, from two in 1910 to fifteen in 1911. Between January 1st and November 15th of the current year, fifteen cases of suicide by means of mercury bichloride were reported and six deaths by accidental poisoning.

In order to prevent these deaths by accident as far as possible the Department of Health of the City of New York, on December 6th, adopted an ordinance amending the penal code under which it is made illegal to sell corrosive sublimate at retail in dry form, except in colored tablets individually wrapped, the wrapper to have the word "poison" in plain letters conspicuously placed, and dispensed in sealed containers of glass labeled with the word "poison" in red letters. Tablets containing one tenth of a grain or less are exempt from this provision. It seems desirable that some additional restriction should be thrown around the sale of this poisonous substance, and the wrapping of the tablet seems admirably calculated to protect the public from poisoning by inadvertence. It seems, however, that some provision should be made by which the pharmacist could keep in stock the uncolored dry powder to dispense in prescriptions, in which this substance is called for either in solution or in ointment.

## News Items.

**Philadelphia Medical Examiners' Association.**—Dr. Paul Fitzgerald, of Newark, N. J., addressed the members of this association, at their annual meeting on Tuesday, December 2d. Dr. F. K. Collins was elected president, Dr. Max Goepf, vice-president, Dr. Ernest W. Kelsey, treasurer, and Dr. J. C. Eisenbrey, secretary.

**Pellagra in Pennsylvania.**—The second death from pellagra in Pennsylvania is reported to have occurred in Lancaster on Sunday, December 7th. The victim was a druggist, of Quarryville, twenty-six years of age, whose illness of several months' duration puzzled the physicians a long time before a correct diagnosis was made.

**Campaign to Raise Funds for the Washington Heights Hospital.**—A ten day campaign to raise \$50,000 for the Washington Heights Hospital, New York, was started on Monday, December 8th, with two hundred workers, twenty committees, and as many subcommittees. The money is to be used for the erection and equipment of an up to date building for this hospital which serves an ambulance district of 150,000 population. It is a nonsectarian institution.

**Somerville, Mass., Medical Society.**—Dr. Frederic J. Cotton, of Boston, was the guest of honor at the annual meeting of this society, held on the evening of December 4th. He delivered an address on Flat Foot and Its Cure, which was illustrated by lantern slides. The following officers for the ensuing year were elected: Dr. Ralph F. Hodgdon, president; Dr. Frederick N. Stephens, vice-president, and Dr. Allen H. Blake, secretary-treasurer. Dr. E. D. Pillsbury presided.

**Society of American Bacteriologists.**—The annual meeting of this society will be held in Montreal, Canada, on December 31st and January 1st and 2d, under the presidency of Professor C. E. A. Winslow, of New York. The address of the president, on The Characterization and Classification of Bacterial Types, will be delivered at the annual dinner, which will be held on the evening of January 1st. The programme has been divided into the following topics, each of which will occupy one session: Soil bacteriology, sanitary bacteriology, systematic bacteriology, technic, immunity, and pathology. Dr. A. Parker Hitchens, of Glenolden, Pa., is secretary of the society.

**American Society for the Study of Alcohol and Other Narcotics.**—At the forty-third annual meeting of this society, held last week in Philadelphia, the following officers were elected to serve for the ensuing year: President, Dr. John J. Kindred, of New York; vice-presidents, Dr. D. F. Grasse, of Chicago, Dr. T. A. MacNicholl, of New York, Dr. Tom A. Williams, of Washington, and Colonel L. M. Maus, United States Army; secretary, Dr. C. H. Denton, of Miami, Fla.; assistant secretary, Dr. De Lancey Carter, of New York; corresponding secretary, Dr. Thomas D. Crothers, of Hartford, Conn., and treasurer, Dr. Pitts E. Howes, of Boston.

**Medical Association of the Greater City of New York.**—At a stated meeting of this association, to be held on Monday evening, December 15th, in Hosack Hall, New York Academy of Medicine, the programme will consist of a symposium on intestinal stasis. The subject will be considered from the medical point of view by Dr. William Van Alstyne; from the radiological, by Dr. A. Judson Quimby, and from the surgical by Dr. William Seaman Bainbridge. Doctor Bainbridge's article will be illustrated with lantern slide demonstrations. The subject will be discussed by Dr. Edward L. Kellogg, Dr. Walter A. Bastedo, Dr. James T. Case, of Battle Creek, Mich., Dr. Arthur F. Holding, Dr. J. Dion Bogart, Dr. Harold D. Meeker, and others.

**Changes in the Constitution of the Rush Society.**—In order that the Rush Society of Philadelphia might be more truly representative in its activity, a revision of its constitution and by-laws was voted at a special meeting called recently for that purpose. The changes made were as follows: First, the name of the society has been lengthened to read The Rush Society for the Correlation and Support of Medical and Biological Lectures in Philadelphia; second, the distinction between active and associate members has been abolished and it is now provided that any person interested in the objects of the society may become a member upon the payment of the annual dues of \$2. It is believed that by these changes the effectiveness of the lectures in Philadelphia will be increased.



**Middle Tennessee Medical Association.**—At the annual meeting of this association, held on Thursday and Friday, November 20th and 21st, in Columbia, Tenn., the following officers were elected: President, Dr. G. E. Hatcher, of Nashville; vice-president, Dr. O. J. Porter, of Columbia; secretary and treasurer, Dr. R. W. Billington, of Nashville. The next meeting of the association will be held in Bellbuckle on the third Thursday of May next.

**The Medicine of the Babylonians and Assyrians.**—This is the subject of a lecture to be given by Professor Morris Jastrow, of the University of Pennsylvania, on Tuesday evening, December 16th, at a meeting of the Section in Medical History of the College of Physicians of Philadelphia. His address will include a translation of the ancient tablet lately presented to the college by Dr. S. Weir Mitchell and Dr. Richard H. Harte, the Assyrian medical code being for the first time revealed. The meeting is open to the general public.

**The New York Physicians' Association.**—The next meeting of this association will be held on the evening of December 17th at the private branch of the New York Public Library, 121 East Fifty-eighth Street, at nine o'clock sharp. The meeting will be devoted to a consideration of the sociological aspects of defects of hearing and sight, and will be open to nonmembers. All who are interested in the subject will be welcome. The programme will include addresses by the following gentlemen, on invitation: The Supervision of Sight and Hearing in the Industries, by Dr. C. T. Graham Rogers, Department of Labor, State of New York; the School Campaign Against Eyestrain, by Dr. C. Ward Crampton, superintendent of physical training, department of education, city of New York; Economic Significance of Deafness, by Dr. John D. Wright, superintendent of the Wright Oral School for Deaf Mutes. A general discussion will follow, which will be opened by Miss Winifred Holt, of the New York Association for the Blind.

**Reception in Honor of Emeritus Professors of Jefferson Medical College.**—A reception, preceded by a dinner, was given at the home of Mr. Daniel Baugh, of Philadelphia, on the evening of December 2d, in honor of Dr. William W. Keen, Dr. James C. Wilson, Dr. W. Joseph Hearn, and Dr. James W. Holland, all of whom are emeritus professors at Jefferson Medical College. About three hundred physicians attended the reception, among the guests being Dr. Abraham Jacobi, Dr. Robert Abbe, Dr. Egbert Lefevre, and Dr. Joseph D. Bryant, of New York; Dr. E. C. Conklin, of Princeton University; Dr. Edward Rice, president of the New England Association of Jefferson graduates; Dr. William T. Matlack, of Wilkes-Barre, Pa.; Surgeon General Charles F. Stokes, United States Army; Surgeon General George H. Torney, United States Navy; Surgeon General Rupert Blue, United States Public Health Service; Dr. Llewellys F. Barker, of Johns Hopkins University; Dr. J. Ewing Mears, of Philadelphia; Dr. James Tyson and Professor Richard Pearce, of the University of Pennsylvania; Dr. James M. Anders, of the Medico-Chirurgical College, and the Rev. Dr. Russell H. Conwell, president of Temple University.

**Legislation Relating to Industrial Diseases and Accidents.**—According to a bulletin issued by the American Association for Labor Legislation, describing the labor laws passed by congress during the year 1913, twelve States have passed new or strengthened old laws requiring the reporting of accidents on railways and in mines and factories. Four new States have required physicians to report the most common occupational diseases, and New York and Connecticut have extended their laws to include brass and wood alcohol poisoning. Laws requiring sanitation, dust and fume removal, and washing facilities in factories were widely adopted, and three great lead using States, Missouri, Ohio, and Pennsylvania, have enacted scientific provisions for protection against trade diseases, particularly lead poisoning. Safety requirements for mines were made more stringent in fifteen States, while twenty-six States demanded greater safety for railroad employees. During the year Ohio, Massachusetts, California, New York, and Pennsylvania, have reorganized their labor departments, and in over a dozen additional States factory inspection departments have been reorganized and enlarged.

**Georgia Surgeons' Club.**—At the first annual meeting of this organization of Georgia surgeons, held in Atlanta on November 5th and 6th, the following officers were elected: President, Dr. E. C. Davis, of Atlanta; vice-president, Dr. Thomas J. McArthur, of Cordele; secretary and treasurer, Dr. R. M. Harbin, of Rome. The executive committee is composed of Dr. William S. Goldsmith, of Atlanta, chairman, Dr. G. R. White, of Savannah, and Dr. W. W. Battey, Jr., of Rome.

**Personal.**—Dr. Maria Montessori, founder of the educational system which bears her name, arrived in New York from Rome on Wednesday, December 3d. During her stay in the United States she will deliver a series of lectures on her method of education, under the auspices of the Montessori Educational Association. On Monday evening, December 8th, she lectured in New York, and on the evening of December 9th, in Philadelphia. Her lectures are illustrated with motion pictures.

Dr. William Sydney Thayer, professor of clinical medicine at Johns Hopkins Medical School, has been appointed visiting lecturer in medicine at the Harvard Medical School. During his stay in Boston he will also be visiting physician to the Peter Bent Brigham Memorial Hospital.

**Medical Society of the County of Clinton, N. Y.**—The annual meeting of this society was held in Plattsburg on Tuesday, November 18th. There was a large attendance and the meeting was in every respect very successful. Papers were read by Major Weston P. Chamberlain, Medical Corps of the United States Army, Dr. J. B. Ransom, head physician at Dannemora State Prison, and Dr. Leo Schiff, of Plattsburg. Six members withdrew from the society in order to join the newly organized Essex County Society, and eight new members were admitted. Officers for the ensuing year were elected as follows: President, Dr. H. S. McCasland, of Saranac; vice-president, Dr. R. S. MacDonald, of Plattsburg; treasurer, Dr. J. C. McKinney, of Plattsburg; secretary, Dr. T. A. Rogers, of Plattsburg.

**Annual Banquet of Phi Epsilon Rho.**—Dr. A. C. Tenny, of Chicago, presided at the annual banquet of Phi Epsilon Rho, the national medical fraternity, which was held in Chicago on the evening of November 30th. Among the speakers were: Dr. C. G. Fellows, Dr. Leroy Thompson, Dr. C. D. Collins, Dr. Peter S. Clark, and Dr. H. V. Halbert, of Chicago; Dr. A. C. Buckley, of Philadelphia; Dr. S. G. Schoemaker, of Ann Arbor; Dr. C. B. Conrad, of Cleveland; Dr. A. E. Steinfeld, of Cleveland, and Dr. F. A. Loomis, of Ann Arbor. At the business meeting which preceded the dinner the following officers were elected: President, Dr. G. M. Cushing, of Chicago; vice-president, Dr. E. P. Collier, of Chicago; secretary, Dr. Leroy Thompson, of Chicago; treasurer, Dr. L. Manning, of Chicago; directors, Dr. Ralph Bernstein, of Philadelphia, Dr. L. S. Seamore, of Cleveland, Dr. C. A. Burrett, of Ann Arbor, and Dr. A. H. Gordon, of Chicago.

**Examination for Assistant Surgeons in the Public Health Service.**—Boards of commissioned medical officers will be convened to meet at the bureau of the Public Health Service, Washington, D. C., and at the marine hospitals of Boston, Chicago, St. Louis, New Orleans, and San Francisco, on Monday, January 12, 1914, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the United States Public Health Service, when applications for examination at these stations are received in the bureau. Candidates must be between twenty-three and thirty-two years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work. The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists of examination in the various branches of medicine, surgery, and hygiene. The oral examination includes subjects of preliminary education, history, literature, and natural sciences. For invitation to appear before the board of examiners, and for further information regarding the scope of the examination, address the Surgeon General, Public Health Service, Washington, D. C.

## Pith of Progressive Literature.

WIENER KLINISCHE WOCHENSCHRIFT.

October 2, 1913.

**Hypersplenic Destruction of the Blood Corpuscles and Congestion of the Spleen.**—Bruno Oskar Pribram reports, from extensive experiments on dogs, that by causing a congestion of the spleen urobilinuria can be produced, an indication of an abnormal destruction of red blood corpuscles. He was unable to excite urobilinuria in other ways, even by the intravenous injection of substances known to be directly destructive to the blood cells. He found in all the dogs that the spleen was enlarged, the splenic vein engorged and varicose, its branches very tortuous, and varicose swellings present in the hilus, together with an abnormally small number of red blood cells, anemia, and urobilinuria. He concludes that the pulp of the spleen is the place where the erythrocytes are destroyed, or are so greatly injured that their further conversion into bile in the liver is accomplished with ease. A factor favoring such a destruction of erythrocytes is the congestion of the spleen. He thinks that we have to deal here with a disease *sui generis*, which is perhaps caused by the suppurative of the cord during the first weeks of life, through a congestion of the blood in the spleen productive of varicosities, tortuosities, and scleroses of the splenic veins, and an increased destruction of the red blood corpuscles.

**Experiences with Weleminsky's Tuberculo-mucin.**—Alfred Goetzl says that this preparation has a specific action upon the tuberculous organism which may perhaps be ascribed to the content of mucin. Whether it is able to produce more permanent effects than other preparations remains to be seen.

**Critical and Experimental Contribution to the Differential Diagnosis of Diphtheria and Pseudodiphtheria Bacilli.**—Markl and Felix Pollak are unable to find any reliable means of distinguishing the true from the false diphtheria bacilli. A fact of more importance concerning the epidemiology of diphtheria is that they found very virulent bacilli in the nasopharyngeal secretions of four out of ninety-one healthy persons who were not known to have been in contact with patients suffering from the disease. Similar bacilli which were not virulent were found in six other persons. The tellurium plate gave the best service for the finding and isolation of the germs.

**Bradycardia, Hypotony, Lowered Temperature, Peculiar Muscular Weakness, Tendency to Fainting, Due to Functional Adrenal Insufficiency.**—Edmund Hoke reports the case of a woman thirty-two years old who had tired easily, and had suffered from palpitation, dizziness, and sudden perspiration on slight efforts since she had an attack of diphtheria at the age of fourteen. When seen her skin was pale and clammy, pulse scarcely perceptible, rhythmic, fifty-two, heart sounds clear, temperature 35.8° C. Acute vascular paralysis was diagnosed and 0.5 c. c. of a one in 1,000 solution of epinephrin was injected. In

fifteen minutes the patient felt well and strong, pulse sixty-two and much stronger. A course of carbonated baths was then prescribed, and the patient seems to be permanently improved, with a pulse of seventy-two and a blood pressure of 110.

October 9, 1913.

**The Use of Radium.**—G. Riehl urged the adoption of uniform terms and standards for comparison of the strength and effects of radium. He is of the opinion that radium acts more readily on cancerous than on healthy tissue because the cells are degenerated, and maintains that the same effects are produced on healthy tissue if given in sufficient dose and for a sufficiently long time. His experiments show that serious damage may be inflicted by prolonged intense exposure. Small doses induce leucocytosis, but large doses reduce the number of leucocytes. Various other injuries were noted experimentally. Some of his patients had suffered from vertigo, vomiting, bad pulse, and collapse, showing that either certain organs or the entire organism had been badly affected. On the other hand, he had found that too small doses and too brief exposures had stimulated malignant disease instead of checking it. Wertheim was inclined to think that ordinary treatment would have served as well in his successful cases, and it was his impression that radium treatment rendered the subsequent removal of cancers more difficult. Some of his patients also had suffered from bad symptoms, such as emaciation, general weakness, cardiac weakness, headache, disturbances of the bladder and intestines, and local pains.—H. Peham said that when carcinoma of the female genitals is accessible to direct irradiation it can be favorably influenced, the same as carcinoma of the skin, but that radium cannot be considered a specific cure, and that one is not justified in recommending it in place of operative treatment. It seemed to be the consensus among all the writers who took part in this discussion that cancer should be removed by operation whenever practicable, and that either radium or the Röntgen rays should be used subsequently to kill any cancer cells that may have escaped the knife.

October 16, 1913.

**The Demonstration of Absorbed Sperma in the Female Organism.**—Edmund Waldstein and Rudolf Ekler found in rabbits after cohabitation a ferment that digested testicle tissue, which could not be found beforehand. They are inclined to think that the presence of this ferment may explain certain symptoms in women which have hitherto been thought to be psychical.

**Hypertension and Cholesterinemia.**—Collatino Cantieri concludes that there is no constant and immediate connection between hypercholesterinemia and an increase of the blood pressure. Arteriosclerotics with increased blood pressure may or may not have hypercholesterinemia, and the same is true of arteriosclerotics in whom the blood pressure is not increased. In general the amount of cholesterin fluctuates greatly, both in different cases and in the same case from time to time, the normal of which is unknown. Nephritics commonly have a hypercholesterinemia, even when there is no increase of blood pressure.



**A New Vaccine Therapy for Ozena.**—Gustav Hofer and Karl Kofler report a number of cases of ozena which they have treated by injections of Perez's *Coccobacillus fatidus ozenae*. After about eight weeks' treatment the results seem to be excellent. Soon after the first injection, as a rule, the secretion in the nose and pharynx begins to clear and become fluid, then there follows a diminution of the secretion and of the crusts until the latter almost wholly disappear. The same is true of the fetor. Eczema of long standing gets well, and there is an improvement of the dry pharyngitis and of the voice.

**Concerning Aids in the Prognosis of Pulmonary Tuberculosis.**—M. Weiss says that a study of the lymphocytes aids in determining the prognosis, for in the early stages of the disease the production of these cells is proportional to the energy with which the organism undertakes its defense. Hence the least favorable prognosis is afforded in cases in which the tendency to lymphocytosis is slight. As exceptional demands are made on the lymphocytes by tuberculous foci in the lungs, they are withdrawn from the circulation in such quantities that the proportion in the blood may fall to five per cent., which is a bad sign. Another bad prognostic sign is the appearance of urochromogen in the urine, for this shows that specific toxic substances are being absorbed. To test for urochromogen, one part of fresh urine is diluted with three parts of water, and a few drops of a one in 1000 solution of potassium permanganate are added. If urochromogen is present the fluid becomes a canary yellow.

October 23, 1913.

**Studies of the Coagulability of the Blood, Its Viscosity, and the Number of Hematoblasts in Morbus maculosus Werlhofii.**—Otto Steiger found in this disease that the coagulability and viscosity of the blood were greatly reduced, and that there was a strikingly small number of hematoblasts. No favorable effect could be produced on the coagulability by injections of salt, serum, blood, or peptone, but extract of hematoblasts in the form of coagulin quickly arrested hemorrhages from the mucous membranes, such as a persistent epistaxis.

October 30, 1913.

**Acidity of the Blood in Osteomalacia.**—J. Novak and O. Porges find an acidosis of similar nature in normal pregnancy and in osteomalacia, whence they are inclined to think that an increase of the modification of the ovarian function already present in normal pregnancy is the true cause of osteomalacia.

## ZENTRALBLATT FÜR GYNAKOLOGIE.

October, 1913.

**Hypophyseal Extract in Placenta prævia.**—Herz reports seven cases of placenta prævia in which he made use of hypophyseal extract. In one case the mother died, but she was practically exsanguinated when treatment was instituted. Of the babies, one was not capable of independent existence; of the remaining six, three were born alive and three dead. In five instances well marked labor pains followed the injection of hypophyseal extract.

In one case the pituitrin had the effect of interfering with, instead of accelerating the delivery.

**Myoma of the Uterus and Ovarian Hemorrhage.**—Ohlman briefly reviews eight cases in which the ovaries showed hemorrhagic areas of varying size associated with myomas of the uterus. What the relationship is that exists between myomas and bleeding from the uterus or into the ovary, is not understood. The author believes that when a myoma is present there is usually a marked congestion of the pelvic organ with, of course, involvement of the ovaries. The bleeding from the uterus is the expression of the congestion. The more severe the congestion the greater the external bleeding and the interstitial hemorrhage into the ovaries.

**The Dissolution of Parametrial Adhesions by the X Ray.**—Fraenkel in the course of the past six years has used the x ray on women for many conditions. As a side issue to the effect on the particular condition under treatment he has found many cases in which the uterus had become distinctly more freely movable than at the time when the x ray was started, the uterus in these cases having been bound down by adhesions.

**The Interruption of Pregnancy and Sterilization in Cases of Tuberculosis of the Lungs.**—Werner holds that not only is active tuberculosis of the lungs or larynx a contraindication to conception but that inactive processes must be taken into consideration if the patient is not in good condition. He reports the results of his observations on sixty women, who were pregnant from six weeks to five months. At the time the pregnancy was interrupted Werner sterilized the patients by the removal of the tubes through a vaginal incision.

## CENTRALBLATT FÜR ALLGEMEINE PATHOLOGIE UND PATHOLOGISCHE ANATOMIE.

October, 1913.

**Bone Formation in a Corpus albicans.**—Adachi reports briefly a case in which true bone formation was found in a corpus albicans, there being no traces of teratoma or dermoid cyst.

**A Case of Combined Lymphatic and Myelogenous Leucemia.**—Herxheimer reports at length an instance of lymphatic leucemia of long standing being complicated by an acute myeloblastic leucemia. The case came to autopsy and the findings are given in detail, particularly the results of the blood examination.

## LYON MÉDICAL.

November 2, 1913.

**Cholelithiasis.**—E. Villard and E. Perrin, discussing the differential diagnosis of cholelithiasis, state that icterus appearing suddenly, without a history of former hepatic trouble, should suggest neoplasm as the cause of the obstruction; persistence and lack of variation in the depth of the jaundice, as well as apyrexia or actual hyperthermia are also characteristic of neoplasm, whereas the opposite conditions obtain in cholelithiasis. The law of Bard and Pic, viz., that the gallbladder is small in cholelithiasis and large in neoplasm, is of some value in the differentiation, though numerous exceptions occur. As regards treatment of cholelithiasis the authors advocate early surgical inter-



vention, stones in the bile duct only infrequently undergoing spontaneous elimination, and exposing the biliary passages to infection and obstruction. Operation in early cases is a simple matter, but entails grave risk when the bile tracts are badly infected and the liver parenchyma impaired. The authors report forty cases operated in of cholelithiasis, with a mortality of forty per cent.; many of the patients, however, were operated on very late.

November 6, 1913.

**Amyotrophic Tabes.**—Drey and Malespine divide cases of muscular atrophy occurring in tabes into two groups: 1. Cases of atrophy due to central lesions—small foci of myelitis due to local pathological processes, probably of vascular nature—and generally manifested in localized paralyses, as of the tongue or extraocular muscles; 2, cases of neuritic atrophy, due either to true peripheral neuritis resulting from complications of the original disease, or to anterior radiculitis arising through extension of the tabetic process from the cord itself to the nerve roots; each of these forms is diffuse and progressive in type, but the second alone constitutes a complete clinical symptom-complex, and the name "amyotrophic tabes" should be exclusively reserved for it. The author reports a case of this last variety in which progressive muscular atrophy during sixteen months suggested a multiple neuritis, and the signs of tabes were limited to a zone of hypesthesia around the thorax, slight ataxia of the upper limbs, and incontinence of urine. Mercury and salvarsan brought about temporary symptomatic improvement, but cachexia rapidly increased, nevertheless. An account of the autopsy findings, including the results of histological examination, is given. There were found sacral meningitis, sclerosis of the posterior columns and of the anterior nerve roots, slight perinuclear chromatolysis in the anterior horn cells, and a mild degree of interstitial neuritis in the sciatic and other nerve trunks.

#### PARIS MÉDICAL

November 8, 1913.

**False Varices.**—H. Dausset and P. Lhuillier assert that there is mistaken for deep varicose veins what is merely a chronic cellulitis of the legs and thighs. The condition is met with especially in rheumatic, gouty, or emphysematous patients, as well as in individuals apparently suffering from disordered excretory function of the skin, whether of circulatory, renal, or nervous origin. In addition to the heaviness, edema, cramps, and difficulty of walking present in varicose veins, points of superficial tenderness without evident fibrosis, and later areas of snowlike crepitation and tender nodules, the latter sometimes disposed in chains, are noted when the skin is lifted and the two component layers of the fold gently rubbed together by rolling between the fingers. Another characteristic sign is a white, hard, and painful edema. In all cases of suspected deep varices the subcutaneous tissues should be palpated as described, for if cellulitis is responsible for the symptoms the measures ordinarily employed for varicose veins will prove quite useless. The cellulitis can be readily overcome, and with it insomnia, anorexia, loss of weight, etc., by measures having for their object to promote elim-

ination of toxic wastes and by gentle, systematic massage of the region affected. Hydrotherapy, in the form of affusions, packs, or baths in water the temperature of which is progressively lowered, as well as partial baths in superheated air or electric light baths, may be valuable adjuvant measures. The authors report five cases illustrating the efficacy of the treatment referred to in these cases.

**Hemp or Cotton Plaster Dressings in the Treatment of Fractures.**—Dupuy de Frenelle prefers these dressings to the thick form of plaster dressing ordinarily employed because they permit of palpating the bony fragments while the plaster is hardening, thus insuring good ultimate position. The hemp strands, which should be as fine as possible, may be combed before using and should then be disposed in small bundles of the thickness of the finger and of suitable length. The bundles are covered with the plaster and then placed independently over the area to be covered, one end being secured by a turn of bandage while the rest of the bundle is spread out and adapted over the fractured bone and adjacent tissues. By using a series of overlapping bundles the dressing can be made as broad as may seem desirable. Where very firm support is necessary, a thick plaster dressing of the ordinary type can be added after the hemp dressing has become dry, or on the following day. Short bands of some absorbent material may be wrapped in series around the plaster dressings to accelerate hardening.

#### PRESSE MÉDICALE.

November 8, 1913.

**Cure of Experimental Tetanus in Guinea-pigs.**—M. A. Ruffer and M. Crendiropoulo found that in guinea-pigs to which a fatal dose of tetanus toxin had been given, intramuscular injection of a mixture of antitetanic serum and an extract of the muscles of guinea-pigs that had already succumbed to tetanus retarded death by three or four days as compared with control animals, whereas injection of either component of the mixture alone on the contrary hastened death. Where the mixture was made in the proportion of four parts of serum to six of muscle extract, was allowed to stand at ordinary room or body temperature for some hours before injection, and was administered intraperitoneally, sixty per cent. of the guinea-pigs entirely recovered from the tetanic intoxication, while an additional proportion showed marked symptomatic improvement, only to die later of cachexia. The active body in the extract of tetanic muscle was found to be a substance precipitable by alcohol. The authors conclude that in the muscles of tetanic animals there are formed several principles, some favoring the effects of tetanotoxin and the others annulling them. Antitetanic serum is an incomplete remedy, requiring for efficacious action the addition of other substances, which substances are in part found in the muscles of tetanic animals.

#### JOURNAL D'UROLOGIE

May, 1913.

**Amyloid Degeneration of the Kidney in the Tuberculous.**—E. Rist and L. Kindberg found in twelve cases of this disease that the proportion of urea and chlorides is low and the urea index (Am-

hard) is also low. This was a disturbance in function exactly the reverse of that of nephritis. The amyloid degeneration seems to be the result of serious changes in the blood with no connection with preexisting kidney inflammation. The liver, spleen, and adrenals show amyloid degeneration before the kidneys. The report is founded on twelve autopsies cases.

#### Postoperative Hiccough a Sign of Uremia.—

G. Marion has had six postoperative cases with hiccough and considers it an early symptom of uremia. The first of his patients died ten days after prostatectomy. Death was due to exhaustion after ten days of hiccough. His second patient with hiccough refused all food and took but a few sips of tea or water for five days. At the end of that time the hiccough subsided and the patient recovered. He allows such patients nothing but a little water for four days and then milk. He believes it is very dangerous to give such patients nitrogenous diet.

June, 1913.

#### Recurring Profuse Hematuria with Ureteral Colic, the Only Symptom of Cancer the Size of a Cherry.—

E. Jeanbrau and Etienne report a case in which the patient gave a history of recurring profuse hematuria. The first hematuria occurred eight months before he was first seen. On cystoscopy the blood was seen coming from the left kidney. No tumor could be palpated and a radiogram showed nothing. Examination of the nephrectomized kidney showed a cancer as large as a cherry in the lower pole.

June, 1913.

**Renal Tuberculosis in Children.**—J. Oraison has collected but forty-eight cases from the literature of kidney tuberculosis in children. He adds three of his own. One of his cases was apparently cured by nephrectomy. The symptoms in children are the same as those in the adult, with the exception that children are much more liable to incontinence of urine. One of his patients was apparently healthy, the only symptom being terminal hematuria and a large tender kidney. The early symptoms in this case were frequent urination and a very limp urine. He regards this limp pollakiuria as an important sign of incipient tuberculosis at any age.

**Renal Hematuria after Nephrectomy.**—Pena reports twenty-two cases of hematuria occurring shortly after nephrectomy for tuberculosis. The author has not decided what the hematuria is due to, but the prognosis should always be guarded as the bleeding may come from a tuberculous process in the remaining kidney.

September, 1912.

**Radium in the Treatment of Cancer of the Prostate.**—O. Pasteau and Degrais have used radium in the treatment of cancer of the prostate and conclude as follows: The radium may be applied to the cancer through a suprapubic or a perineal incision, or by means of a urethral catheter. They believe that the radium treatment may so reduce a prostatic cancer that an inoperable case can become operable. It stops hemorrhage and completely eradicates secondary glandular involvement.

**Ureterovaginal Fistula Following Abdominal Hysterectomy Healed by a Retained Ureteral Catheter.**—A. Boeckel reports a case in which

eighteen days after hysterectomy for carcinoma the patient complained of urine in her vagina. This was proved not to come from the bladder but from the left ureter. At first a ureteral catheter could not be introduced, but a few days later a small ureteral catheter was inserted as far as the pelvis of the left kidney. This was left in place, but removed at intervals for larger catheters, for a period of seventeen days. The kidney was irrigated with silver nitrate solution. She returned four months later completely well. A large sized catheter was passed up to the kidney pelvis.

#### REVUE DE CHIRURGIE.

October, 1913.

**Curved Radius.**—A. Binet and M. Mutel report a case of successful operative correction of Madelung's deformity or radius curvus. The case was, as is usual, in an adolescent with a history of rickets, and showed the three characteristic skeletal changes, viz., luxation of the head of the ulna on the dorsal surface of the wrist, apparent subluxation of the proximal portion of the hand, and an incurvation, with dorsally directed convexity, of the lower half of the radius. The procedure carried out and recommended consists in oblique osteotomy of the radius above the wrist through an incision on the dorsal surface of the forearm, leaving a small thickness of the bone uncut, to be dealt with by osteoclasis; lengthening of the radius, if required, by forcibly drawing the hand to the ulnar side, as in the reduction of a Colles's fracture; and hyperextension of the hand on the wrist, to correct the curvature. A palmar splint extending from above the elbow to the finger tips is then worn for a month.

#### Temperature of the Tissues during Treatment by Hot Air, Diathermy, and Electrocoagulation.

—M. Grunspan found by a thermoelectric method that the highest temperature of air that can be borne in direct contact with the skin for two to three minutes is only from 40° to 41°C. At 42°C. the pain is intolerable and a second degree burn immediately results. During the same experiment, however, the air two centimetres from the skin will be found to be at 70° to 80°C. In the subcutaneous tissues the rise of temperature produced was only 1°C., and in the muscles, nil. In diathermy, the subcutaneous temperature was found to rise after fifteen minutes from 32° or 33°C. to 40° or 40.5°C.; any further rise caused intolerable burning, necessitating interruption of the experiment. Electrocoagulation in two cases of breast cancer caused a rise of temperature in the tumors at a depth of from two to three centimetres to 60° or 65°C. within a period of one and a half to two minutes.

#### BRITISH MEDICAL JOURNAL.

November 22, 1913.

#### Anaphylaxis in Its Bacteriological Aspects.—

F. H. Thiele and Dennis Embleton give the results of some experiments, which seem to prove that the anaphylactic antibody is identical with the amboceptor. Anaphylaxis can be produced in any animal in which sufficient amboceptor has been developed. It makes no difference how much amboceptor is present, if enough antigen is subsequently given in-

travenously anaphylaxis will result. The idea has been expressed, and is very generally held, that the anaphylactic response is due to a mechanical irritation caused by an alteration in the surface tension, brought about by a precipitation resulting from the interaction of the antibody with the antigen. The authors combat this view, and bring forth evidence to show that alteration in surface tension alone does not cause the symptoms of anaphylaxis. They also show that the antibody, contrary to previous belief, acts as a ferment. The only material objection to this view is found in the contention that the antibody acts quantitatively, but the authors have been able to disprove this idea by providing for the removal of the protein cleavage products by means of dialysis. If the products of the action of the antibody are thus removed the antibody can become free again and is capable of continuing its action without quantitative limit. This ferment action is infinitely rapid in the human or animal body where the optimum conditions prevail, and the very small amount of toxic substance required for symptoms can be liberated almost at once. As to the relation of anaphylaxis to death from bacterial infection, the authors have demonstrated that the blood of such animals contains a sufficient amount of a substance to cause acute anaphylactic death when inoculated into healthy animals, and that this substance is always present, regardless of the infecting organism. Guinea-pigs dying from acute bacterial toxemia or septicemia all perish in precisely the same way, with similar symptoms, and uniform pathological post mortem findings. The toxic substance present in their sera is identical, irrespective of the bacterium causing death. The authors, therefore, say: "This leads, then, to the conclusion that bacteria have no specific toxic substance, and that the bacterial protoplasm is primarily nontoxic, and becomes toxic only when it has been acted upon by the antibodies present in the infected animal, and the degree of toxicity of a bacterium depends upon the rate of accumulation of these toxic degradation bodies, and this will depend upon the relation between the activity of the antibody present in the animal at the time and the quantity of bacterial protoplasm present—that is, upon the primary dose inoculated and the rate of multiplication of the bacteria. . . . Hence we must not regard this state of so called anaphylaxis or hypersensitiveness as a freak state, nothing to do with immunity proper, but as a state that can always be made to occur and is relative, depending on the power of the antibody and amount of bacterial protoplasm present; according to the relations between them, acute toxic death, delayed toxic death, or recovery may occur, the toxicity of a bacterium depending upon these factors."

**Action of Asbestos Minerals and Allied Materials on Various Substances.**—Myer Coplans, S. A. Edmonds, and W. Gibbs Lloyd present three papers in which it is shown that asbestos minerals have a very remarkable absorptive power for a very wide range of substances. These minerals absorb bacterial toxins, proteoses, antitoxins, cobra venom, complement and amboceptor, agglutinins, proteins, pigments, colloids, and diastase from their watery

solutions. Many of the substances thus absorbed can be recovered unchanged from the asbestos by suitable methods; others seem to be altered in character. Asbestos also greatly reduces the activity of radioactive solutions, and a portion of the radioactivity is imparted to the asbestos, or can be recovered from it by proper methods. In addition to the substances mentioned, asbestos removes ferments, carbohydrates, alkaloids, and hormones from their solutions or suspensions, more or less completely. Though asbestos has been said to be practically insoluble in water, this is not true, for it is found that on contact with, and in the presence of certain substances particularly, the water shows a progressive increase in its content of electrolytes.

**Empusa muscæ as a Carrier of Bacteria from the House Fly.**—R. M. Buchanan finds by careful experiment, that various pathogenic organisms are not only carried by the fungus, *Empusa muscæ*, on infected flies, but are actually thrown off from the fly by the conidia of the fungus, which are shot off to a distance as great as an inch from the fly. The organisms recovered from a series of flies studied were chiefly of the colon group, an occurrence which is rather to be anticipated from the known habits of the fly. One of the most important facts brought out is that the fungus is probably transmitted from one generation of flies to another by their larvæ, and it is altogether possible that infective bacteria also may be thus propagated, attached to the fungus.

**Proteose-Free Tuberculin.**—W. C. Lyons finds that the pure proteose isolated from the culture media used for the preparation of tuberculin will produce a perfectly typical "tuberculin reaction" when applied to the skin of a normal individual. On the other hand, tuberculin from which all of the proteose has been removed will fail to give positive reactions in persons who are normal, and in whom there is no reason for suspecting tuberculosis, while it does react positively in persons known to be tuberculous. This has led Lyons to the study of cutaneous tuberculin reactions with proteose-free tuberculin, and he finds that it is much more valuable as a diagnostic measure than the ordinary tuberculin, not giving reactions in healthy persons. The intensity and duration of the reaction is also of prognostic value. In the early cases the reaction is the most marked, and in the most advanced is the least. Recovering patients give reactions approaching early cases. The proteose-free tuberculin is far less toxic than the ordinary variety and seems to be equally valuable as a therapeutic agent, thus possessing added value.

LANCET.

November 22, 1913.

**Primary Cause of Rheumatoid Arthritis.**—H. Warren Crowe, in a previous paper, reported the isolation of an organism from the urine of a number of patients suffering from rheumatoid arthritis, and which he named "staphyloid coccus A." In the present communication he seeks to establish the relation of this organism, which he has renamed *Micrococcus deformans*, to the disease in which it is found so often. Primarily, he has been able



to identify it as being very closely allied to *Micrococcus epidermidis* of Welch, if not actually the same organism. He denotes it *Micrococcus epidermidis*, variety *deformans*, but has abbreviated the name as already mentioned. By the term rheumatoid arthritis, Crowe means, "only those forms of arthritis which present no demonstrable infection of the joints, and which conform more or less strictly to that typical primary polyarticular disease, sometimes called polyarthritides *deformans*, characterized by fusiform swelling and redness of the joints, frequently symmetrical in character, usually commencing in the fingers, and associated with glossiness of the skin and muscular degenerations and contractures." Although it has not as yet been possible for Crowe to carry out inoculation experiments with *Micrococcus deformans*, he believes that he is justified by the following evidence in concluding that the organism is the etiological factor of the disease defined above. The organism has been obtained in culture from twenty-two cases; four cases have shown positive complement fixation tests against the coccus; it was found to be the cause of eleven of fourteen less severe and doubtful cases. Opsonic tests in such cases show a typical response to the use of vaccines made from the organism. Agglutination tests also indicate its causative rôle in these cases. Certain cases of neuritis seem to belong in the same class as those of arthritis, and in these the organism is also found to be the causative agent. In all, forty-eight cases have been examined and the organism has been demonstrated in forty-five, or almost ninety-four per cent. It is also found occasionally in other conditions along with other organisms. All of the tests have been made with adequate controls—normal persons—in whom the tests were uniformly negative. Crowe suggests that a neuritis usually precedes the development of the joint lesions in the production of rheumatoid arthritis, and it is in these cases of neuritis that the organism is so constantly present. He believes that the etiological relationship between this organism and rheumatoid arthritis is confirmed by the analogy between the conditions found here and those found in acute rheumatism. The latter has been shown to be due to an organism which is normally present in the human body as a saprophyte—the streptococcus. The same is true of *Micrococcus deformans*, which is normally present on the healthy skin, and only gains entrance to the body in certain cases. Other pathogenic organisms frequently present in cases of rheumatoid arthritis are inconstant, and are in the nature of a secondary infection.

#### JOURNAL OF TROPICAL MEDICINE AND HYGIENE.

October 1, 1913.

**Administration of Quinine in Malaria.**—J. P. Bates designates thirty grains a day as the dose of quinine sufficient in the majority of malarial cases, although in the few cases that tend toward rapid spontaneous recovery three to five grains a day will appear to give satisfactory results. For the therapeutic test the amount is sometimes increased to forty-five grains for one or two days. In cases that pass into the grave and pernicious types, Bates gives from sixty to ninety and even 120 grains a day, these massive amounts are never continued, how-

ever, longer than twenty-four hours. In the cases that do not succumb to the infection, the dose is then at once reduced to forty-five grains, and in a day or two more to thirty grains. In the average case, the appearance of full grown, presegmenting and segmenting parasites in the peripheral blood, unusual viscosity of the blood when the ear lobe or finger is punctured, and mental aberrations indicate an increase in the dose to forty-five or sixty grains for a day or two. Absence of these signs, even with large numbers of parasites, indicates a probable average course of the disease, and removes the necessity for doses above thirty grains. In cases where parasites disappear from the circulation, but the gravity of the symptoms increases, quinine is no longer of use and should be rapidly reduced. Bates administers the thirty grain daily doses in two fifteen grain fractions, both in the afternoon; the forty-five and sixty grain doses in three and four fifteen grain fractions, respectively, and larger amounts in ten grain doses every two or three hours. He deems oral administration of quinine more efficacious than hypodermic injection. Where vomiting follows ingestion of the drug, readministration of the latter in ten grain doses after each rejection, with small injections of morphine and hot sinapisms, will give satisfactory results. Bates has seen no ill effects from large doses of quinine save temporary amblyopia in a single patient who was taking thirty grains a day. Some patients continued this daily amount by mistake for two or three months, without harm. For the prevention of relapse, Bates advises the taking of thirty grains of quinine daily on three successive days in each week for six or preferably eight weeks.

**Cultivation of Leprosy Bacillus.**—J. M. Santamaria reports observations showing for the first time on an artificial medium the cycle of evolution of Hansen's bacillus from a nonacidfast, filamentary, branching form to an acidfast bacillus.

Oct. 15, 1913.

**Mountain Sickness.**—T. H. Ravenhill reports his experience with this affection in a mining district in Chile, at an altitude of 15,400 to 16,200 feet. Cases illustrating special cardiac and nervous types of the disorder are reported. On the whole, the manifestations vary greatly and are difficult to recognize. Young, healthy men may be completely overcome, while stout, plethoric individuals of the chronic bronchitis type may not even experience a headache. Some who do not suffer on their first visit may be very ill on their second. Recent alcoholic indulgence and physical exertion increase the susceptibility to an attack. The treatment consists in rest in bed with open windows; light diet, and attention to the bowels. For the headache, acetylsalicylic acid in the dose of one gramme to begin with, then 0.5 gramme every four hours, proved very effective—far more so than acetphenetidin. Oxygen inhalations did not seem to afford relief. In dangerous cases the patient should be promptly moved to lesser altitudes. A certain degree of acclimatization generally takes place at 15,000 feet, which tends to protect the individual when he rises to a still greater altitude; this acclimatization seems usually to be lost, however, after return to sea level for about ten days.

## BOSTON MEDICAL AND SURGICAL JOURNAL.

November 27, 1913.

**The Use of Bacterial Vaccines in Acute Septic Conditions of the Oral Cavity Met with by the Dentist.**—Leon S. Medalia says that vaccine treatment is of value in acute septic dentoalveolar abscesses—even the worst types of mandibular impacted third molar abscesses have apparently yielded well to this treatment. Such cases with septic apical abscesses, especially the deep seated ones, or the so called blind abscesses, acute and subacute, have been greatly benefited by the vaccine method of treatment. He believes that there is a big field for this treatment in acute and subacute dentoalveolar abscess cases, and that its widespread use will save considerable suffering and loss of teeth to the patient, and annoyance to the dentist.

**The Onomatology of Medicine in Relation to Its Original Sources.**—Samuel Delano presents a strong, scholarly protest against the illiterate, lazy, phonetic spelling that predominates to-day in medical literature throughout the United States. Speaking of the roots of words he justly says: "A root is inviolate. It is struck a mortal blow, if mutilated. It is the badge of ancestry; an indestructible index; an irreducible minimum; it may be neither mauled, mangled, nor pulverized. As Sidney Smith said of all creatures, classical roots have rights that we are bound to respect." His paper is not a defense of pedantry, but a plea for justice.

## JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

November 24, 1913.

**Abdominal Adhesions,** by R. C. Coffey.—See this JOURNAL for June 28th, p. 1369.

**The Production of Ulcer of the Stomach by Injection of Streptococci.**—E. C. Rosenow finds that intravenous injection of streptococci of the proper grade of virulence may be followed by ulcer of stomach and duodenum, the ulceration being due to a localized infection and secondary digestion. He suggests that in the human subject the supposed relation between infected tonsils or gums and gastric ulcer may be due, not to the swallowing of bacteria, as usually believed, but to the entrance into the blood of streptococci, of the kind of virulence to produce a local infection in the wall of the stomach.

**Miliary Tuberculosis of the Placenta, with Incipient Pulmonary Tuberculosis of the Mother Becoming Latent after Birth of Child.**—A. S. Warthin shows, that even in the case of an unrecognized latent lesion in the lung of a pregnant woman, tubercle bacilli may enter the circulation and produce a miliary placental tuberculosis. If this is possible it is also possible that, under such circumstances, the bacilli may pass the placenta and enter the body of the fetus. The case also emphasizes the point which the author has made in previous papers, that there is apparently some especial resistance on the part of fetal tissues to the tubercle bacillus, since tubercle bacilli have been found in large numbers in the liver and blood of infants without any histological appearances of tuberculosis. The low virulence of the placental infection in this case may possibly be explained, he says, as the result of such a relative immunity on the part of the placental tissues.

**Myotonia atrophica.**—Foster Kennedy reports

a case of this peculiar muscular degeneration and states that myotonia congenita, or so called Thomson's disease, is not very uncommon, but the combination of increased tonus in some muscles with a primary flaccid palsy in others, in remarkably constant distribution, is so rare that but four cases have as yet been reported in the medical literature of this country.

**Polyposis gastrica (Polyadenoma).**—J. S. Meyer, who reports a case of polyposis gastrica, states that as far as he is able to learn, there has been but one other case, that of Chosrojeff, in which a diagnosis was possible prior to operation or necropsy. His conclusions are: 1. Though the diagnosis was made possible in this case through the presence of a small polyp in the wash water during lavage and the presence of a large polyp in the feces following a hemorrhage, it would seem that at least a probable diagnosis might be made in future cases without this conclusive finding. 2. The roentgenographic and fluoroscopic examinations in a case as extensive as this should always be helpful. 3. Achylia gastrica, together with unusual mucous production, should arouse suspicion. 4. The repeated presence of fresh blood microscopically in gastric contents removed with care is indicative of a redundant, vulnerable condition of the mucosa in which bits of tissue are readily removed by the tube. 5. In severe acute gastric hemorrhage in a patient with achylia gastrica, abnormal mucous production, and normal or increased gastric motility, polyposis is more than probable. 6. Invagination of the pylorus by a polyp could hardly be mistaken for any other condition, after one has experienced the peculiar palpatory findings met with in this case. 7. The etiology is very obscure, but it would seem probable that syphilitic gastritis was here the underlying cause.

**A New Operative Treatment for Spastic Paralysis—Preliminary Report.**—W. Sharpe and B. P. Farrell give reports of two cases and state that in instances of spastic paralysis of the hemiplegic, paraplegic, or diplegic type, with a definite history of difficult labor with or without the use of instruments, in which, on ophthalmoscopic examination, signs of intracranial pressure are shown in the distal retinal veins and a blurring of the optic discs, especially of their nasal halves, a large right subtemporal decompression is performed to relieve the intracranial pressure. If the intracranial pressure is extremely high, and remains high after operation, a left subtemporal decompression is performed the following month. The method of dealing with the various pathological lesions found at operation will be discussed in detail in the more complete report to be published later. The after-treatment consists in the correction of deformities by tendon stretching, the maintenance of corrected positions by means of braces, and skilled massage in conjunction with muscle training and short applications of galvanism and faradism.

## MEDICAL RECORD

November 30, 1913.

**The Freudian Conception of the Psychoneuroses.**—H. W. Frink gives what he regards as brief and incomplete reports of the analyses of

single symptoms, but states that he could not do otherwise, for the analysis of an entire case usually requires several months to perform, and a complete report of it would fill hundreds of pages. It is only from such complete reports, or from actual psychoanalytical experience, that a correct impression of what really goes on in a nervous person's mind can be gained. Those who have had such experience, that is, those who have been willing to spend almost unlimited time in helping neurotics to tell what they really do think about, have had no great difficulty in practically confirming all of Freud's conclusions. To those who doubt the pathogenic power of unconscious ideas, who consider the analytical interpretation of the symbols and mechanisms in dreams and neurosis as fanciful and far-fetched, and who deny the importance of sexuality in nervous disorders, he would say that if they will only apply Freud's method of letting the patients tell all the thoughts which come to their minds, and without being discouraged the first time a subject says, "I can't think of anything more, Doctor," persist for a reasonable length of time, they will surely have ample reason to cease doubting and denying the things mentioned; though without some technical knowledge they are not likely to effect any cures.

**The Mechanism of Immunity in Experimental Cancer.**—From the researches of others and personal experimentation on animals I. Levin concludes that the condition of immunity in experimental cancer, while not identical with, is very similar to the immunity in bacterial diseases, and is due to an active inhibitory influence of the organisms of the host upon the proliferative power of the cancer cells. Furthermore, such an inhibitory action may be produced locally by a certain organ in a generally susceptible animal. As regards cancer in man the author accordingly believes that it is of the greatest importance to study the conditions of organ susceptibility or immunity. Not only will it be possible to learn ultimately in this manner the true pathogenesis of the disease, but also to find the correct methods for its prevention and treatment. It is possible to suppose, for instance, that the action of chemotherapeutic measures or of the radioactive substances is due not only to their deleterious effects upon the cancer cells, but also to the purely local increase of the inhibitory action of the normal organ tissue surrounding the growing tumor.

**Results of Treatment of Syphilis with Salvarsan and Neosalvarsan.**—S. H. Wadhams and E. C. Hill, of the Medical Corps, U. S. Army, report the following conclusions from their experience in the military service: 1. Salvarsan and neosalvarsan, given intravenously, do not appear to cure syphilis. 2. They are of very great value in the active stages of the disease, and are especially useful in patients who cannot tolerate mercury. 3. No harmful results have been noted from frequent injections. 4. No patient should be allowed to assume that he is cured after one or more injections unless the Wassermann reactions, taken at definite intervals for a year or more, are continually negative and the patient has abstained from alcohol for forty-eight hours previous to the test.

**Benign Tumors of the Female Breast; Report**

**of a Case.**—In the case reported a radical operation was performed, and the author, W. E. Hartshorn, states that in the differential diagnosis of benign tumors of the breast the following types must be considered: Periductal fibromata, periductal myxomata, cystadenomata, and inflammatory types. The type depends upon the proportion of fibrous tissue or epithelial cells present, and they constantly merge one into another. Regarding the danger of the tumor, a safe statement would be that the greater the proportion of the epithelial element, the greater the possibility of a serious outcome. Benign tumors of the breast are best treated by complete excision, this term being used to include removal of the breast. It is not necessary always to do a radical operation, but in all doubtful cases the rule should be, complete excision, removal of the muscles, and a dissection of the axilla. It is far wiser to be too radical than to risk the blame sure to follow a recurrence. Each case must be weighed as a clinical entity to be decided by itself; no general rule can be safely laid down. Occasionally a transverse incision along the lower border of the breast will be found advisable.

#### ARCHIVES OF INTERNAL MEDICINE.

October, 1913.

**Absorption of Protein without Digestion.**—E. Van Ness Van Alstyne based her studies of this question on the fact that no method compares with the observation of the presence or absence of an anaphylactic reaction as a means of sharply distinguishing closely allied proteins. The experiments reported showed that protein may be absorbed unaltered through the intact epithelium of the gastrointestinal tract. While physiologically the amount thus absorbed is too small to be of significance as a factor in nutrition, conditions interfering with normal digestive function, such as ligaturing a portion of the intestine, or the whole stomach, or isolating part of the intestine as a fistula, markedly increase this amount, exception being made, however, for the duodenum, ligation of which does not facilitate absorption of unaltered protein. The amount physiologically absorbed, though small, may be of decided import, in that only a very small quantity of protein is required to sensitize an animal or intoxicate an already sensitized animal. These observations would seem to be of significance in the explanation of asthma through anaphylaxis, of many skin conditions classed by dermatologists as anaphylactic in nature, and of certain food intoxications.

**Relation of Fatigue to Localization of Paralysis in Plumbism.**—R. R. Mellon reports experiments upon frogs, proving conclusively the validity of Edinger's contention, that lead in itself has no predilection for any group of muscles except as such choice is made possible by their overuse. Fatigue is, therefore, the main factor in the localization of lead palsies. Some evidence to this effect has already been obtained clinically.

**Reinspiration of Expired Air.**—T. R. Crowder found samples of air taken from within the nostrils during inspiration to show an excess of carbon dioxide over that in the air of the room in general, and from this excess calculated the propor-



tion of expired air re-inspired. When remaining quiet indoors, a person re-breathes from one to two per cent. of this air, and when in bed, from one to five or even ten per cent., according to the position assumed. By means of artificial air currents re-inspiration can be prevented entirely, provided the face is free to receive the current. Sleeping in tents, tent houses, or half open porches does not obviate it. Re-inspiration to a moderate extent cannot be considered harmful, since in healthy persons, re-breathing carbon dioxide automatically causes a compensatory increase in pulmonary ventilation, which will serve not only to reduce the carbon dioxide in the air cells, but also any toxic protein or other organic substance that may be present. The author holds it an error to suppose that the good effects of efficient ventilation are due to greater chemical purity of the air; the respiratory function being—normally at least—perfectly adapted to maintain its balance through a wide range of chemical purity. Ventilation is essential rather in the interest of the heat economy of the body. Metabolism being reflexly retarded by a warm aerial envelope, ventilation is necessary in order to maintain the thermic balance of the body and to stimulate its chemical activity; ventilation with cool air is especially desirable.

**Functional Kidney Testing in Uremia.**—N. B. Foster refers to three cases of chronic nephritis, with diagnosis confirmed at necropsy, in each of which the phenolsulphonaphthalein test had given a result approximating the normal, in spite of the subsequent early fatal termination. In one of these cases the test was made only four days before death, and in another, eleven days. The author points out that it will be necessary to ascertain in what proportion of cases of renal disease one is apt to be thus misled before forming an opinion as to the diagnostic or prognostic value of the test.

**Blood Pressure in Tuberculosis at a Great Altitude.**—L. S. Peters and E. S. Bullock conclude from a study of this question in six hundred cases, that the blood pressure of both normal individuals and consumptives is higher at 6,000 feet than at sea level. The pressure tends to increase, up to certain limits, with continued residence. From a prognostic standpoint the blood pressure findings are of great value in tuberculosis. There is no relation between the degree of involvement and blood pressure, but there is a constant relation between the degree of toxemia and blood pressure; the latter being, on an average, increased in patients with a temperature of 99° to 100° F., and lowered in those with temperature above 100° F.

#### INTERSTATE MEDICAL JOURNAL.

October, 1913.

**Eradication of Malaria.**—C. C. Bass expresses the opinion that all that is required for the complete eradication of malaria is for every one who had malaria during a warm season to take the proper amount of quinine on each of two successive days in each of six consecutive weeks during the cool season following. If this statement could be brought with sufficient authority to the attention of all the people, and if the importance of everybody's cooperating could be emphasized, he believes

that a vast majority of the malaria carriers would follow the advice given. In spite of the most thorough dissemination of this information, no doubt a few cases of malaria would occur during the warm season, but these cases are not a source of infection to mosquitoes until the disease has lasted about two weeks, and it is very important that thorough and successful treatment should be applied before they become infectious. Eradication of malaria becomes, in fact, therefore, a question of educating the people. Effort to secure eradication along educational lines would meet with two serious obstacles. First, there would be a few infected persons who would not follow the advice given, either because they think they know more about the disease than the scientists who have studied it for many years, or because they have not enough concern for the health and life of themselves and others to take proper treatment. The question would arise, the author says, whether such people should not be segregated until they are no longer a menace to the community. The second important obstacle would be the importation of cases of malaria from other countries, and in the event of our getting sufficiently free from the disease here, there would be the same reason for preventing others from bringing this infection into the country as there is for quarantine regulation to prevent the introduction of yellow fever, trachoma, etc. As a further protection it might be possible to carry the propaganda of education into various tropical countries, and thus materially assist them to check the ravages of the disease.

**Medical Inspection and the Nutrition of School Children.**—I. S. Wile states that the relation between nutrition and medical inspection is patent. The inspection should be so thorough as to indicate not merely the names of various symptoms and conditions, but should suggest whether or not malnutrition could possibly be an underlying factor. Under such conditions school lunches could serve in a remedial way by raising the standard of nutrition. Frequently the inspections reveal some children not possessing marked defects, but who are very close to the health poverty line, and for them school lunches could be instituted for prophylactic purposes. Most civilized countries have already installed such lunches as a natural and normal part of an educational movement, without laying unnecessary stress upon its value as a health measure. As medical inspections are regarded as advantageous to the school system through the lessening of disease and the improvement of the mental calibre of the children, careful attention to nutrition may supply a valuable means of increasing mental activity and building up the physical health of school children.

#### ANNALS OF OPHTHALMOLOGY.

October, 1913.

**New Operation for Extirpation of Tarsus of Upper Lid; Report of a Case.**—F. W. Dean reports a case in which he removed the tarsus through an incision through the skin surface of the lid, instead of through the conjunctiva, as in Kuhnt's operation.

## Proceedings of Societies.

### CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

GEORGE EMERSON BREWER, PRESIDENT.

(Continued from page 1138.)

**Some Uses of Fat in Surgery.**—Dr. JOHN F. BINNIE, of Kansas City, said that fat was well suited for transplantation in many instances. It was undoubtedly the connective tissue, the basis of the fat, which was of value in the transplant, but in other instances other varieties of connective tissue would be valueless compared to that which was infiltrated with oil. The control of hemorrhage was difficult to obtain in wounds of the liver. Tampons of foreign material, while useful, had obvious objections. The sutures were liable to tear out in the friable tissues. Such wounds might be treated by omental grafts. The omental plug became adherent to the raw surface of the liver wound, prevented hemorrhage and became converted into fibrous tissue. A number of liver wounds had been successfully treated by omental tamponade. Doctor Binnie related numerous cases in which fat had been, and could be used to great advantage as a transplant.

**Peridental Infections: Their Relation to Neighboring Organs.**—Dr. V. P. BLAIR, of St. Louis, stated that it was now recognized that the clinical manifestations of disease that we classify were in most cases the direct or indirect results of infections that gained entrance to, or were harbored in some particular organ or part of the body. The appendix, the urethra, the kidneys, the skin, and the tonsils had been recognized as important primary or intermediary foci of infection. But while the mouth was the most prolific of all, it was only lately that oral sepsis began to receive the attention that it deserved. Exclusive of the tonsils it was the teeth and their immediate coverings that here furnished the great area of infection that menaced every tissue and structure in the body.

Pyorrhoæa alveolaris in an advanced form was not a common affection, while dental caries was the most common affliction of the civilized races, hardly five per cent. being exempt. After caries had penetrated into the pulp chambers there was an open avenue to the vascular tissues about the apex of the teeth and thence through the blood and lymph streams, and possibly the nerves, to all of the body tissues. Pathogenic organisms lodged and incubating within the pulp chamber and root canal might thus be disseminated.

The proportion of antral empyemas that were attributed to dental infections was variously estimated up to fifty per cent. Based upon observations made during eighteen years as demonstrator of anatomy in the dissecting room, it was his belief that infection of the antral mucosa of dental origin was rather rare, but that infection and suppuration in the submucosa was exceedingly common. They had observed two cases of torticollis with early scoliosis that were relieved by opening an alveolar

abscess in each. Of nine cases of Ludwig's angina which had been seen, four were due to dental sepsis.

The purely local effects of peridental infection were not always of a chronic character. They might be extremely acute and very extensive, going to an acute alveolar abscess, a necrosis, cellulitis, or adenitis. They had seen three cases of sarcoma or malignant endothelioma and one of Hodgkin's disease beginning in the cervical lymphatics. Two forms of cellulitis of the neck were worthy of special mention; one, the chronic *Holzphlegmone*, three cases of which he had observed to be of dental origin, and the so called Ludwig's angina, to which latter when not promptly and properly treated in the past had been ascribed a death rate of forty per cent. Hugo Stark had found in 113 children with chronically enlarged cervical lymph nodes that eighty per cent. had carious teeth and in forty-one per cent. of this eighty per cent. no other cause, not even hereditary, could account for the lymphangitis. In a few cases of tuberculous adenitis the tubercle bacillus was found in a carious tooth corresponding to the infected node. It was now recognized that the so called metastatic or secondary parotiditis was directly dependent on oral sepsis traveling up the excretory duct, and they had been able to express pus from Stenson's ducts before any suppuration was evident in the glands.

Premature loss of the teeth might change the shape of the jaws and secondarily the nasal chambers. Irregular eruption had been cited as a cause of nasal spurs and deviation of the septum. One hundred and ninety-seven cases of ankylosis of the jaw were reported in the literature; in only five cases was infection of the teeth given as a cause. In twelve cases of their own two more were due to scar bands in the cheek due to intraoral slough, but a dental origin of the sloughing was not certain. Like any other joint the temporomandibular might be indirectly affected by chronic suppuration in any part of the body. The view that baldness might be dependent upon dental disorders was strongly supported by French writers.

Among the most interesting were the sensory, mental, and physical derangements that might be due to dental abnormalities. In ninety-four cases of tic douloureux which they had examined, dental irritation was the apparent cause in twenty-six, but thirty-five out of the ninety-four began in the third division of the nerve. Troemner observed that in fifty-eight cases of mental derangement thirty showed impacted teeth, and that in twenty-two of twenty-eight cases of mental derangement operated in, definite improvement had taken place within two weeks after operation. They had also observed similar instances, and in examining cases of epilepsy that were sent to them for operation they paid particular attention to the condition of the teeth.

**The Surgery of the Fauical Tonsil as It Relates to the Functions of the Tongue and Soft Palate in the Production of Voice.**—Dr. G. HUDSON MAKUEN, of Philadelphia, stated that the faucial tonsil differed from other tonsils, not only in respect to the conditions attendant upon its location in the pharynx, but also in respect to its development. The faucial tonsil was not a homogeneous, but a complex organ, and it was more

highly specialized than the other tonsils which combined to form the so called Waldeyer's ring. In addition to the possible systemic functions of the tonsil during childhood, it had during adult life certain important mechanical functions which were chiefly operative in phonation and articulation, and even in old age after it had undergone what had been called physiological sclerosis, its mechanical functions continued, and the tonsil then served as a protective agent to the faucial region in that it built up and strengthened that portion of the intrapharyngeal aponeurosis known as the capsule of the tonsil by the addition of its own connective tissue. The capsule of the tonsil was even more essential to the maintenance of the normal structural relations of the pharynx than the tonsil itself, and its removal was to be deprecated from the standpoint of one who had any regard for the phonatory and articulatory functions of the adjacent muscles. The mechanical functions of the tonsil in phonation and articulation were threefold: First, it served to maintain the normal anatomical relations of the soft palate, the tongue, and the larynx; second, it served to keep the pillars of the palate apart and to direct them in their phonatory and articulatory activities; and third, it had in itself important acoustic properties in artistic vocalization.

An extracapsular tonsillectomy required a more or less extensive dissection of the mucous membrane covering the tonsil, the important muscles adjacent to the tonsil, a large portion of the intrapharyngeal musculoaponeurotic sheath, and in some instances also a portion of the peripharyngeal aponeurotic sheath.

This extensive dissection resulted in a large granulating cavity in which union took place between the cut or lacerated surface of the mucous membrane, muscles, and musculoaponeurotic sheath or sheaths, binding them all together at central points of cicatrization, and several months after the operation the old landmarks that formerly characterized the distinctive features of the walls of the pharynx were practically gone forever. Instead of the beautiful clean cut sharp edges of the palatal pillars during phonation and articulation and the well marked pharyngeal recesses both between and on either side of the pillars, they had plain oval pharyngeal walls with occasional bands of tense fibrous tissue coming into greater prominence when the mouth was open and the tongue depressed. Moreover, the normal mucous membrane of the parts having been destroyed, its place was occupied by smooth cicatricial tissue having a glistening surface and no mucous secretion whatever.

The three important peripheral organs of phonation and articulation, viz., the soft palate, the tongue, and the larynx, were anatomically and physiologically interdependent, and possessed many points of similarity. The integrity of the soft palate was essential to the distinctive structural characteristics of the pharynx and to the normal action of the tongue and larynx. The palatopharyngeus muscle, owing to its direct connection with the larynx, had important cord stretching functions, and the valvular action of the soft

palate in phonation and articulation was well known. Radical surgery of the tonsils must necessarily result in a greater or less distortion of the pharyngeal structures and, therefore, in an injury to the voice. The normal tonsil or the one in a healthy condition and of normal or approximately normal dimensions was not only beneficial to the voice, but it was absolutely essential to the attainment of the highest artistic results in singing and speaking, but just as the normal tonsil was helpful in voice production the abnormal tonsil might be altogether prejudicial, and it might be prejudicial to such an extent as to make some kind of tonsillar surgery absolutely imperative. Before doing radical tonsillar surgery it seemed only reasonable to demand a thorough differential diagnosis. It was easier to enucleate than it was to investigate, and especially was this true with their improved technic, in the perfection of which they had spent so much valuable time. Future years would find them trying, not how to enucleate, but how to avoid enucleation.

The extracapsular tonsillectomized pharynx was always necessarily a damaged pharynx, and the operation ought to be done only when absolutely necessary, and when the damage to the pharynx and to the individual threatened to become greater by leaving it undone. In the majority of instances the only good reason for doing an extracapsular tonsillectomy was the difficulty of doing an intracapsular tonsillectomy, which consisted in a careful dissection of the gland from within its pocket in the intrapharyngeal aponeurosis. This was a difficult but not impossible operation, and the fact that some tonsillar tissue might remain adherent to the capsule was no objection to it because when the operation was properly performed good drainage, the *sine qua non* of every operation, would be thoroughly established.

**Operations on the Extraocular Muscles.**—Dr. EDWARD JACKSON, of Denver, said that operations on these muscles had had periods of great popularity and almost complete disuse, because of failure to apply well known facts of physiology to the ocular movements. Most movements required the cooperation of all the muscles; and the operation on one muscle changed the balance for all movements.

Tenotomy of the internal rectus and external rectus was liable to leave the position of the eye in control of the secondary adductor muscles—the superior and inferior recti, or the secondary abductor muscles—the obliques. Contraction of the secondary adductors had as much effect in producing convergent squint as contraction of the internal rectus. Hence tenotomy should be extended to the nasal margins of the tendons of the superior and inferior recti.

The vertical movements were intimately associated with wheel rotation of the eye. Paralysis of the superior obliques was to be corrected by transplanting the insertion of the superior rectus back and out, so that it would have more power to cause wheel rotation with less power to turn the eye up. By changing the insertion of a muscle upon the eyeball its function could be radically altered.



## NEW YORK NEUROLOGICAL SOCIETY.

*Regular Meeting, Held at the New York Academy of Medicine, October 7, 1913.*

The President, Dr. SMITH ELY JELLIFFE, in the Chair.

**Tumor of the Spinal Cord.**—Dr. H. CLIMENKO reported two such cases, and showed the specimens. The first case, which he said was an instance where syphilis could mask the diagnosis of a tumor of the cord, was that of a married woman, a Jewess, fifty-five years old; a native of Austria. When she was admitted to the Montefiore Home, on November 17, 1911, she stated that both of her parents had died in the forties, her mother of some wasting disease of many years' duration. One brother died of cardiac disease. There was no history of miscarriages in the family. Her personal history was that she was the youngest child, breast fed; that she had convulsions in early childhood and was always of a weak and delicate constitution. Her menstrual history was negative. She married at the age of twenty-one; she was the mother of nine healthy children and had never miscarried. About four years after her marriage she was treated for cystitis, and ten years ago she had a superficial ulceration of the left leg. Her present illness, dating back about fifteen months, was insidious and progressive. She first suffered from numbness and tingling and tugging sensations, commencing in the soles of both feet and gradually extending up to the hips. Shortly afterward pains developed in the region of the midspine radiating downward into both legs. These were more or less constant. Following these, there was weakness and stiffness in both legs which was preceded by a girdle sensation in the lower abdomen. About three months later she lost the power to walk, and two months prior to her admission incontinence of both the urine and feces developed. A few weeks ago, she noticed tingling sensations in the little finger of the right hand. There was no history of diplopia, headaches, vomiting, nor convulsions. When Doctor Climenko first saw the patient, at the time of her admission to the home, she could neither stand nor walk. She lay on her back and could sit up only with difficulty. Both lower extremities were flexed and extremely spastic. The double Babinski, Oppenheim, Mendel, and Bechtereff reflexes were present. There was double ankle clonus and both knee jerks were very lively. The lower abdominal reflexes were absent. The various reflexes of the upper extremities were present and normal; the pupils reacted to light, accommodation, pain, and sensually. The gross motor power of the active movements in the lower extremities was greatly diminished and carried out very sluggishly. The passive movements were difficult to carry out, due to the enormous spasticity. The spine did not show any deformities, but there was marked hypersensibility to pressure over the tenth, eleventh, and twelfth dorsal spines. The cranial nerves were negative. There were marked sensory disturbances, extending from the mamma downward anteriorly and posteriorly. An examination of the blood gave a positive reaction to the Wassermann test. The cerebrospinal fluid was negative, but showed an increase of globulin. The patient was

given two full doses of salvarsan and many intramuscular bichloride injections, after which her condition was slightly improved. On May 20, 1912, after a careful study of the sensory disturbances, and influenced by the marked spinal tenderness, a diagnosis was made of a constant lesion within the spinal canal, causing pressure on the cord. The patient was operated on by Dr. Charles A. Elsberg on June 14, 1912, when he removed an elliptical, cauliflowerlike tumor, situated at the level of the ninth, tenth, and eleventh dorsal vertebrae, and measuring three quarters by one half by one quarter inch. Pathologically, this proved to be an endothelioma.

The second case reported by Doctor Climenko was that of a widow, fifty-two years old, born in Russia of Jewish parents, who entered the Montefiore Home on March 21, 1913. In her case the symptoms, which pointed to a lesion in the upper segment of the cord, were such that an operation could not be considered. She died on July 6, 1913, and the autopsy showed a tumor in the cervical region, the cord here being enlarged throughout the entire length to about twice its normal thickness. Pathologically, the lesion was a gliosarcoma, with resulting degeneration of the cord.

**A Case of Manic Depressive Psychosis in a Child.**—Dr. M. S. GREGORY presented a girl, ten years old, who was born in Austria and came to this country with her parents about three months ago. No history of a psychosis or a neurotic taint in the family or its collateral branches was obtainable. The patient was the third of four children, two of whom died in infancy. Her childhood was apparently normal, and during that period she had the usual diseases, without complications or sequelae. She was considered an average scholar, and her deportment showed no abnormality. She was bright and cheerful, took an active interest in play and associated with children of her own age. She was easily angered, however, and excited, and unduly sensitive. She was an only daughter. The child's parents stated that she was perfectly well until the early part of August, 1913, when she experienced a great disappointment because her mother would not permit her to go to a party. On the following day she was unusually quiet and sad, complained of headache and refused food. She insisted that she was weak and had a pain in the cardiac region. She would remain seated in one place without showing much interest. On August 24, 1913, when she was brought to Bellevue Hospital, a physical examination revealed no objective evidence of a neurological disorder. The pupils responded to light and accommodation; the optic discs were normal. The knee jerks were active and there were no sensory disturbances nor hysterical stigmata. Mentally, she was profoundly depressed and remained in the characteristic attitude of flexion, with head bowed and body bent forward. Her general movements were slow and delayed. She said nothing spontaneously; answered a few questions to the point, but in a rather low tone of voice and after some deliberation. She complied with the usual requests, although slowly. When asked what ailed her she complained of headache and pain in the stomach; said that she could not walk and wished to go home. She would calculate slowly.

and occasionally, when she made mistakes and her attention was called to them, she would rectify them. She was well oriented and gave a good account of herself, memory for both remote and recent events being good. There were no hallucinations nor delusions. In the ward she would sit quietly by herself, manifesting no initiative. She took food when it was given to her, but never asked for anything nor expressed any desire. She seemed to be in touch with her surroundings, however, and apparently took notice of what was going on about her. She remained in this condition for several days, but gradually improved, so that on September 13th, about three weeks after admission, she was taken home contrary to medical advice. Her mother stated that when she returned home she was in fairly good condition for a few days, but that her depression soon returned. She was readmitted to the hospital a week later in a condition much the same as that on her first admission. However, she soon began to improve and at the present time she was fairly active, smiled occasionally, spent her time in playing with picture blocks and puzzles, and took outdoor exercise, but she was still quiet and was rather slow in her movements. She did not talk spontaneously, but when addressed she smiled and answered questions in a low tone of voice. She said she now felt well and was anxious to go home. The Binet-Simon test showed her scale of intelligence equal to nine and a half years of age. Manic depressive psychosis, Doctor Gregory said, was apparently very infrequent in childhood. At least, the literature was very meagre. It was possible that the disease was more frequent than suspected and that such cases were often unrecognized and mistaken for other disorders. Very often the depression might be associated by the parents and even by the family physician with the bodily condition of the child, and these cases naturally rarely came to the attention of the psychiatrist. During the past eleven years, the speaker said, he had seen only four cases under the age of twelve years. Manic depressive attacks, however, occurring between the ages of twelve and fifteen were comparatively frequent. The youngest of his four cases was a girl of seven, who had the manic phase of the disease, which lasted six weeks and ended in recovery. In another, a boy of eleven, the disease followed a severe fall. He had alternate attacks of depression and excitement, each lasting a week. He recovered in five weeks. The third, a boy of twelve, manifested an attack of excitement of two weeks' duration, with complete recovery. It was of interest to note that in all of the cases mentioned the attacks were of rather short duration, which coincided with the observations of Ziehen and others.

Doctor JELLIFFE, the president, said that so far as his review of the records showed, this was the first case of manic depressive psychosis in a child of ten years that had ever been presented or reported at a meeting of this society. He agreed with Doctor Gregory that such cases might readily be overlooked by the parents or physician, and that the symptoms might be attributed to malaria, and constipation, or various other bodily ailments.

(To be continued.)

## Letters to the Editor.

### THE AUROMETER.

NEW YORK, November 29, 1913.

To the Editors:

Dr. A. Rose, in his anxiety to place the "right name" upon the instrument which I call the aurometer, lays himself open to suspicion that he misunderstood the intentions of this instrument.

It is not an instrument to test hearing, for, as he may know, in order to test hearing vibration of sound is necessary which this instrument is not intended for and does not produce.

By referring to the description of the instrument he can readily see that I dwell upon the distance of the ear from the source of sound vibration, irrespective of the amount of hearing the patient possesses when he presents himself for treatment.

Therefore, the aurometer is an *ear measure* intended to measure the variations of the ear's distance from the source of the vibration of sound from time to time.

M. LUBMAN, M. D.

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*Handbuch der Hygiene.* Unter Mitwirkung von Geh. Obermedizinalrat Dr. R. ABEL, Berlin, Kaiserl. Baurat J. BOETHKE, Berlin; Geh. Medizinalrat Prof. Dr. C. FRAENKEN, Halle; Prof. Dr. E. FRIEDBERGER, Berlin; Prof. Dr. U. FRIEDEMANN, Berlin, et al. Herausgegeben von Prof. Dr. M. RUBNER, Geh. Medizinalrat, Berlin, Prof. Dr. M. v. GRUBER, Obermedizinalrat, München, und Prof. Dr. M. FICKER, Berlin. III. Band, 1. Abtheilung: Die Infektionskrankheiten. Die pflanzlichen Parasiten, Allgemeiner Teil; Morphologie, Biologie, Epidemiologie, Seuchenbekämpfung, Desinfektion, Infektion und Immunität. Mit 146 Abbildungen. Leipzig: S. Hirzel, 1913. Pp. 853.

This volume maintains the excellent character of its predecessors and in its 800 pages gives a full and complete review of the subjects discussed. The first chapter considers the vegetable microorganisms from a morphological point of view, as well as giving the methods employed in examining them. The second chapter takes up their biological characteristics. That on infectious diseases discusses the matter in some detail, methods of protection against active and latent cases, against animal characters, etc., being given. The subject of disinfection is considered at some length, many pages containing illustrations of the apparatus used, while the text gives very fully the technic of the methods employed. The final chapter deals thoroughly, in a clear manner, with both immunology and serology. This book can be recommended as being well adapted to the uses of the teacher and the laboratory worker.

*Elements of Water Bacteriology.* With Special Reference to Sanitary Water Analysis. By SAMUEL CATE PRESSCOTT, Associate Professor of Industrial Microbiology in the Massachusetts Institute of Technology, and CHARLES EDWARD AMORY WINSLOW, Associate Professor of Biology College of the City of New York, Curator of Public Health, American Museum of Natural History, New York. Third Edition, Rewritten. First Thousand. New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Limited, 1913. Pp. xiv+318. (Price, \$1.75.)

This publication is a timely one inasmuch as the purity of the water supply has become such an important matter. The authors cover the ground thoroughly and the conclusions to which they have come are worthy of careful consideration. They hold that the lactose bile fermentation test is a sufficient identification of the colon group for ordinary sanitary purposes. Then too they point out that when one is using the quantitative estimation of bacteria as a measure of sewage pollution, the essential thing is

that the section of the total bacterial flora which is obtained should be thoroughly representative of that portion of it in which we are most interested the group of the quickly growing, rich-food-loving, sewage forms. Warning is given that agglutination tests for the typhoid bacillus are not significant unless obtained in dilutions as great as one in 500 or one in 1,000 particularly on account of its close relationship to *Bacillus dysenteriae* of Shiga. The book is a valuable one and should be in the possession of all who are doing work connected with the bacteriology of water.

*Die Röntgendiagnostik der Darmkrankheiten*. Von Dr. M. FAULHABER, Privatdozent an der Universität Würzburg. Mit 34 Abbildungen im Text. Halle a. S.: Carl Marhold, 1913. Pp. 59.

The author shows very well how important the Röntgen ray can be in the diagnosis of intestinal diseases. In the brief mention of the technic recommended the use of barium sulfuricum purissimum is advised. By the aid of illustration the various positions of the normal intestines are indicated clearly. Subsequent chapters take up the questions of chronic functional obstipation, ulceration, and strictures of the intestine; the different conditions being well shown by x ray pictures.

*Bakteriologisches Taschenbuch*. Die wichtigsten technischen Vorschriften zur bakteriologischen Laboratoriumsarbeit. Von Dr. RUDOLF ABEL, Geheimem Ober-Medizinalrat in Berlin. Siebenzehnte Auflage. Würzburg: Curt Kabitzsch, 1913. Pp. vi-138.

By omitting illustrations and mooted methods Doctor Abel has made his little book a valuable one for actual laboratory work, as it is, in fact, a presentation of the most important methods employed in carrying out bacteriological examinations. Much is added to the usefulness of the book by its being interleaved. That its value has been appreciated is evidenced by the fact that this is the seven-teenth edition.

### Interclinical Notes.

Dr. Ben Trovato informs us, that in reply to a young colleague specializing in diseases of the chest, who wrote him to ask what would be a suitable present for his fiancée, he has suggested a necklace composed of alternate settings of Laennece pearls and Charcot crystals. According to the doctor, any asthmatic Jeweller or lapidary could supply unlimited quantities of these gems.

Sir Almroth E. Wright in *The Unexpurgated Case against Woman Suffrage*, beside many inaccuracies of his own, suffers from two by his publisher (Paul B. Hoeber, New York; \$1 net), who misspells his name on the cover and gives also a variant of the title of the book. The work is so partial and so venomous in its attack on women that it will afford amusement even to ardent and prejudiced woman suffragists. Sir Almroth will not admit that women have a single claim on the vote, nor does he seem to allow that not every man is wise in his exercise of the suffrage. He insists also that every woman get married despite the difficulties in the way, not the least of which is the discrepancy in numbers compared with men. Of such questions as child labor, he makes light, averring that they can be easily settled by "a little good will." Sir Almroth furthermore ignores such well known phenomena as wife beating when he calmly writes that "the reign of force which prevails in the world comes to an end when a man enters his household." Does he never read the papers? Many a woman could tell him that physical violence would be preferable to some things she has to suffer under the present régime; yet Sir Almroth blandly says of matrimony "this is the covenant so faithfully kept by man." We do not hold a brief for woman suffrage and do not profess to know how it would work out. We are sure, however, that a book of this kind will make no converts, for, despite the fact that some of Sir Almroth's contentions are correct, they are presented in so unfair and intemperate a style that his arguments, like vaulting ambition, o'erleap

themselves and fall on the other side. If women, indeed, are the extraordinary creatures the distinguished author says they are, it is high time they were deprived of the privilege of supervising the early education of men, for the opportunities they possess of inculcating their erroneous views on the mind during the first impressionable decade of its existence are enormous, and the total lack of principle and general incompetence—attributed to them by Sir Almroth—furnish a most unfortunate example to their young charges.

### Meetings of Local Medical Societies.

MONDAY, December 15th.—New York Academy of Medicine (Section in Ophthalmology); Medical Association of the Greater City of New York; Medical Society of the County of Erie (annual); Elmira Clinical Society (annual); Hartford, Conn., Medical Society.

TUESDAY, December 16th.—New York Academy of Medicine (Section in Medicine); Psychiatric Society of Ward's Island; Tri-Professional Medical Society of New York; Medical Society of the County of Kings; Buffalo Academy of Medicine; Binghamton Academy of Medicine; Clinical Society of the Elizabeth, N. J., General Hospital; Syracuse Academy of Medicine; Ogdensburg Medical Association; Oswego Academy of Medicine.

WEDNESDAY, December 17th.—New York Academy of Medicine (Section in Genitourinary Diseases); Woman's Medical Association of New York City (Academy of Medicine); Medicolegal Society, New York; Northwestern Medical and Surgical Society of New York; Buffalo Medical Club; New Jersey Academy of Medicine (Jersey City); New Haven, Conn., Medical Association.

THURSDAY, December 18th.—New York Academy of Medicine (stated meeting); German Medical Society, Brooklyn; Aesculapian Club of Buffalo; Newark, N. J., Medical and Surgical Society.

FRIDAY, December 19th.—New York Academy of Medicine (Section in Orthopedic Surgery); Clinical Society of the New York Postgraduate Medical School and Hospital; New York Microscopical Society; Brooklyn Medical Society; Alumni Association of Roosevelt Hospital; Saratoga Springs Medical Society.

### Official News.

#### United States Public Health Service:

*Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending December 3, 1913.*

**Goldberger**, Joseph, Surgeon. Directed to proceed immediately to Detroit, Mich., for an investigation of an outbreak of diphtheria, and to advise with the local health authorities regarding the measures necessary to control the epidemic. **Kearny**, R. A., Assistant Surgeon. Directed to report to the Division of Domestic (Interstate) Quarantine for duty in the inspection of public buildings in Washington, D. C. **Liddell**, T. J., Assistant Surgeon. Directed to proceed at such times as may be practicable, to various places in Louisiana to obtain data and material for determining the incidence of malaria. **Oakley**, J. H., Surgeon. Directed to proceed to Louisville, Ky., and in cooperation with the local authorities, make an investigation of the prevalence of trachoma in the schools of Jefferson County, Ky. **Smith**, F. C., Passed Assistant Surgeon. Authorized, together with necessary witnesses, to proceed to El Paso, Texas, for the purpose of testifying for the government in water rights case. **Warren**, B. S., Surgeon. Upon the request of the chairman of the United States Commission on Industrial Relations, and with the approval of the secretary of the treasury, detailed for duty with that commission for the investigation of industrial sanitation and hygiene.



*Board convened.*

Board of commissioned medical officers convened to meet at the Bureau, Monday, December 1, 1913, at 10 o'clock a. m., for the purpose of examining Passed Assistant Surgeons Robert L. Wilson and John T. Burkhalter, to determine their fitness for promotion to the grade of surgeon. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Assistant Surgeon General W. C. Rucker, member; Surgeon J. W. Schereschewsky, recorder.

**United States Army Intelligence:**

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending December 6, 1913:*

**Bartlett, W. K.**, Captain, Medical Corps. Ordered to Fort Huachuca, Ariz., and thence to accompany the Second Cavalry to Fort Ethan Allen, Vt. **Browne, R. W.**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort Dade, Fla., and thence home where he will be relieved from active duty in the Medical Reserve Corps, at the expiration of the leave of absence for one month and twenty-six days, which has been granted him. **Collins, C. C.**, Major, Medical Corps. Joined Field Hospital No. 2, on November 24th, Presidio of San Francisco, Cal. **De Loffre, S. M.**, Captain, Medical Corps. Ordered to temporary duty at Fort Ethan Allen, Vt. **Drake, Percy G.**, First Lieutenant, Medical Reserve Corps. Relieved from duty at Fort McKinley, Maine, and after being granted all the leave of absence due him, will proceed to his home standing relieved from active duty. **King, C. T.**, Captain, Medical Corps. Joined Vancouver Barracks, Wash., November 18th. **Kramer, Floyd**, Captain, Medical Corps. Relieved from duty in the Army Transport Service and will proceed to Fort McKinley, Maine, for duty. **Mayo, Harry N.**, First Lieutenant, Medical Reserve Corps. Ordered to active duty and assigned to Fort Douglass, Utah, for duty. **Powell, W. A.**, Captain, Medical Corps. Ordered to temporary duty as attending surgeon and medical superintendent, Army Transport Service, San Francisco, Cal., during the absence of Captain Hansell. **Van Kirk, H. H.**, First Lieutenant, Medical Corps. Ordered back to the Presidio of Monterey with Troop I, First Cavalry. **Wilson, J. S.**, Major, Medical Corps. Ordered to Fort Huachuca, Ariz., and thence to accompany the Second Cavalry to Fort Ethan Allen, Vt.

**United States Navy Intelligence:**

*Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending November 29, 1913.*

**Backus, J. W.**, Surgeon, Medical Corps. Detached from the *South Dakota* and ordered to the Navy Yard, Puget Sound, Wash. **Hoen, W. S.**, Passed Assistant Surgeon, Medical Corps. Detached from the Navy Yard, Puget Sound, Wash., and ordered to the Navy Yard, Mare Island, Cal. **Kelley, H. L.**, Passed Assistant Surgeon, Medical Corps. Detached from the *North Carolina* and ordered to the *Prairie*. **McLean, N. T.**, Passed Assistant Surgeon, Medical Corps. Detached from duty in the Pacific Reserve Fleet, and ordered to the *South Carolina*. **Odell, H. E.**, Surgeon, Medical Corps. Detached from the Navy Yard, Mare Island, Cal., and ordered to the Asiatic Station. **Stalnaker, P. R.**, Passed Assistant Surgeon, Medical Corps. Detached from the Navy Yard, New York, N. Y., and ordered to the *Prairie*. **Stepp, Jacob**, Surgeon, Medical Corps. Detached from the *Montana* and ordered to the *Prairie*.

**Births, Marriages, and Deaths.***Married.*

**Baum—Lawrence.**—In New York, on Monday, November 24th, Dr. Wilhelm Ludwig Baum, of Chicago, and Mrs. Dwight Lawrence. **Bockar—Baft.**—In New

York, on Thursday, November 27th, Dr. Aaron Bockar and Miss Jeanette Baft. **Darrah—Hand.**—In Cape May, N. J., on Tuesday, November 25th, Dr. Leon C. Darrah, of Reading, Pa., and Miss Helen L. Hand. **Hardt—Herdic.**—In Philadelphia, on Monday, November 24th, Dr. Albert F. Hardt and Mrs. Louise H. Herdic. **Lanza—Thomas.**—In Nashville, Tenn., on Tuesday, November 18th, Dr. Anthony Lanza, of the United States Public Health Service, and Miss Laura Kate Thomas. **McClenathan—Barnes.**—In Connellsville, Pa., on Monday, November 24th, Dr. John C. McClenathan and Miss Della T. Barnes. **Miller—Bowman.**—In Philadelphia, on Thursday, December 4th, Dr. Warren J. Miller, and Miss Ina C. Bowman. **Newman—King.**—In Elizabeth, N. J., on Wednesday, November 26th, Dr. Louis G. Newman, of Westfield, and Miss Gertrude King.

*Died.*

**Boyer.**—In Philadelphia, on Saturday, December 6th, Dr. Zaccur P. Boyer, aged sixty-seven years. **Broell.**—In Chicago, on Sunday, November 30th, Dr. Adolph J. Broell, aged forty-three years. **Clark.**—In Amherst, N. H., on Monday, December 1st, Dr. John Howe Clark, medical director, United States Navy, retired, aged sixty-six years. **Crofford.**—In Los Angeles, Cal., on Monday, November 24th, Dr. Thomas J. Crofford, of Memphis, Tenn. **Dail.**—In Chickasaw, Okla., on Wednesday, November 26th, Dr. Adolphus W. Dail. **Dee.**—In Niagara Falls, Ont., on Tuesday, December 2d, Dr. John M. Dee, aged eighty years. **Dwelly.**—In Fall River, Mass., on Thursday, December 4th, Dr. Jerome Dwelly, aged ninety years. **Edwards.**—In St. Elmo, Ala., on Wednesday, November 26th, Dr. William M. Edwards, aged fifty-nine years. **Finney.**—In Onancock, Va., on Sunday, November 23d, Dr. Edward B. Finney, aged seventy-eight years. **Frazer.**—In Danton, Va., on Wednesday, November 26th, Dr. John Decker Frazer. **Goodyear.**—In Groton, N. Y., on Tuesday, November 25th, Dr. Miles D. Goodyear, aged sixty-seven years. **Green.**—In St. Louis, Mo., on Sunday, December 7th, Dr. John Green, aged seventy-eight years. **Greenleaf.**—In Lawrence, N. Y., on Wednesday, December 3d, Dr. Richard Cranch Greenleaf, of Lenox, Mass., aged sixty-seven years. **Harper.**—In Spring Valley, N. Y., on Wednesday, November 26th, Dr. Gertrude Hammond Harper, aged eighty-two years. **Henderson.**—In Washington, D. C., on Thursday, November 27th, Dr. George Henderson, aged seventy-one years. **Howard.**—In Dallas, Texas, on Friday, November 21st, Dr. Henry P. Howard, aged eighty-four years. **Hunter.**—In Columbus, Ohio, on Sunday, November 30th, Dr. Ham Hunter, aged fifty-two years. **Kemper.**—In Galesburg, Ill., on Friday, November 28th, Dr. John Kemper, aged eighty years. **Le Moynes.**—In Pittsburgh, Pa., on Monday, December 1st, Dr. Frank Le Moynes, aged seventy-four years. **Merrill.**—In Pepperell, Mass., on Tuesday, December 2d, Dr. William Hutchinson Merrill, aged fifty-three years. **Miller.**—In Baltimore, Md., on Sunday, November 23d, Dr. William E. Miller, aged forty-three years. **Montell.**—In Baltimore, Md., on Sunday, November 23d, Dr. Henry K. Montell, aged thirty-one years. **Morse.**—In Gloucester, Mass., on Tuesday, December 2d, Dr. Abby Swan Morse, aged sixty-seven years. **Newcomb.**—In Champaign, Ill., on Tuesday, November 25th, Dr. William Kendall Newcomb. **Nolte.**—In Red City, Mich., on Wednesday, November 12th, Dr. Harry S. Nolte. **Nott.**—In Brownsville, Texas, on Monday, November 24th, Dr. Thomas E. Nott, of Spartanburg, S. C. **Parker.**—In Waco, Texas, on Thursday, November 27th, Dr. J. T. Parker, aged seventy-six years. **Rich.**—In New York, on Thursday, December 4th, Dr. George H. Rich, aged sixty-eight years. **Usilton.**—In Philadelphia, on Wednesday, December 3d, Dr. Charles A. Usilton, aged fifty-nine years. **Van Ness.**—In Chatham Centre, N. Y., on Tuesday, December 2d, Dr. Sherman Van Ness, aged fifty-four years. **Walker.**—In West Monterey, Pa., on Thursday, November 27th, Dr. Robert Alvin Walker, aged fifty-nine years. **Yerkes.**—In Alton, Ill., on Thursday, November 27th, Dr. Titus P. Yerkes, aged seventy-seven years.

# New York Medical Journal

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### Original Communications.

#### THE QUESTION OF DIABETES AT THE INTERNATIONAL CONGRESS OF MEDICINE IN LONDON.

By R. LÉPINE, M. D.,

Lyons, France,

*Professor Emeritus of Medicine, Faculty of Medicine,  
University of Lyons.*

There has hardly been a medical congress for the past twenty years at which the question of diabetes mellitus has not been discussed; in view of the frequency of the disorder and the ever increasing literature on the subject this is not to be wondered at. At the International Congress of Medicine held in London during the past summer two most interesting papers were presented. Unfortunately, they have not yet appeared in full.

Unstinted praise is due Dr. George Dock for the admirable manner in which, in treating of the pathogenesis of the subject, he emphasized the existence of several factors in the etiology of the disease. It is through combinations of these different factors that the special characteristics of individual cases are produced—just as from various combinations of the letters of the alphabet there can be formed an infinity of words. Formerly there were thought to exist a nervous diabetes, a pancreatic diabetes, an arthritic diabetes, etc. Theoretically, such a classification may seem easily justifiable; clinical examination of a diabetic, however, will nearly always demonstrate an association of several factors in the causation of the disease. Thus, if a subject becomes diabetic after a fall on the head, this is not due alone to the injury, but to a predisposition, as is proved by the fact that not in every one receiving an injury to the head does diabetes develop. Extensive sclerosis is often found post mortem in spite of the absence of diabetes during life.

Doctor Dock proposes seven pathogenic factors for the disease, but this number is open to discussion. Personally, I am not convinced that there are seven cogent etiological factors. The factors of secondary importance appear to me, however, to be numerous, for science is daily adding to the number. Among the important factors several can be broken up further, e. g., the nervous factor, which is certainly operative in several ways.

Lesions of the pituitary body and of the superior cervical ganglion (of the effects of which Doctor Dock gave a detailed analysis based on the experiments of Weed, Cushing, and Jacobson) act in a different manner from puncture of the floor of the

fourth ventricle: for the stimulus which such a puncture produces is transmitted to various organs, the capsules, the liver, and even to the entire economy by way of the spinal cord, down to the first dorsal segments (Wertheimer), whereas according to the investigators already named, electric stimulation of the pituitary body is followed by glycosuria even after section of all nervous pathways. If this is actually the case, one would have to deal, not with a nervous action, but with the action of the internal secretion of the hypophysis, this furnishing, moreover, a new illustration of the importance of the internal secretions provided the basal chain of neurons which, according to Sajous, connect the pituitary with the thyroid and adrenals, were also severed. Additional proof is supplied by the frequent incidence of diabetes where atrophy of the pancreas decreases its internal secretion.

Doctor Dock justly accords an important place in the pathogenesis of diabetes to the diminution of general glycolysis. It is somewhat surprising, however, that he fails specifically to mention the constitutional condition (cellular, no doubt), usually arthritic, which in certain subjects with a hereditary predisposition diminishes glycolytic power in the organism at large. If after the ingestion of 200 grammes of sugar an arthritic patient excretes a larger amount of sugar than a normal subject (and that this is the case can readily be shown), it is because his cells do not function normally. Ebstein, as is well known, epitomizes this cellular abnormality as follows: In gout the protoplasm of the cell is normal, while the nucleus is diseased, as is shown by the increase of the endogenous purin bodies; in diabetes and in obesity, on the other hand, the nucleus is healthy and the protoplasm diseased, though in a different manner in the two conditions; the obese individual fails perfectly to oxidize his fats, while the diabetic patient does not properly break down his glucose.

Be this as it may, we must, I repeat, congratulate Doctor Dock for having well recognized the value of diminished glycolysis, all the more since his collaborator in the report presented, Doctor von Noorden, denies—without justification indeed—this diminution of glycolysis any rôle in the pathogenesis of diabetes. In this connection it is to be noted that Doctor von Noorden stands almost alone in the position he takes, his view not having even been recognized by his most devoted adherents. His error is rendered manifest by the fact that in cases of grave diabetes, as Hanriot was the first to observe, ingestion of one hundred grammes of glucose does not cause an increase in the respiratory quotient, as it would in a healthy subject. This signifi-

cant finding is corroborated by the results obtained as regards glycolysis either in an isolated and perfused organ or *in vitro*. Among the experiments on the isolated heart, those of Starling and Knowlton appear to me conclusive, in spite of the criticisms directed against them, and as for my own experiments *in vitro*, carried on through a period exceeding fifteen years, they can leave no room for doubt in the matter.<sup>1</sup> To the results of glycolysis in an isolated organ or *in vitro* an attempt has been made to oppose the facts brought out by Levene and Meyer (*Journal of Biological Chemistry*, xi, 1912, p. 347), showing that the apparent decrease of glucose may be due to a condensation and not to destruction of the sugar. In this connection I shall merely call attention to the fact that this interesting phenomenon of condensation never occurs in experiments of brief duration. Our own never lasted over an hour, and, with due reservation of statements made in the *Journal de physiologie*, 1911, p. 184, the destruction of sugar may be taken as a certainty.

If I insist upon the decrease of glycolysis in diabetes it is because I am convinced of its practical importance. I am certainly aware that in certain forms of diabetes there is an exaggerated formation of sugar at the expense of the aminoacids. But this is not a matter of prime importance. This view of the decrease of glycolysis in diabetes affords an important therapeutic indication—that of increasing glycolytic activity. Now, diet is not the sole means of accomplishing this. At the London congress dietetic regulation was declared to be the only treatment for diabetes. This is an exaggeration, and I maintain that the treatment of diabetes does not consist entirely in prescribing oatmeal and fats. As I have stated elsewhere (see *Le Diabète sucré*) the diabetic patient must be treated medicinally. He must be thoroughly examined, every abnormality of nutrition sought out, and an attempt made to restore the nutritive state to normal. Diet, to be sure, is essential in the treatment of diabetes; but generally there is something to be ordered besides. To throw aside all medicinal measures is a mistake: not that there exists at this time any specific for the disease, but because this or that drug may correspond to some indication in a given individual. For example, I have seen a patient who could not do without quinine, though he was not malarial. Another may do well on opium, etc. I do not refer in this connection to the alkalies, the utility of which is generally recognized; nor should physical agencies be entirely overlooked. It is well known that glycosuria is increased by a low surrounding temperature, and that a moderate degree of heat decreases it. Why, then, is climatotherapy so little availed of? Massage is almost always very useful.

The final word on the treatment of diabetes was by no means spoken at the London congress. This need occasion no surprise; international congresses are rather solemn affairs, which lack the calmness and concentration necessary to bring out clearly all the essential features of a question.

<sup>1</sup>For a résumé of these experiments, see Lépine, *Le Diabète sucré*, Paris, 1909, p. 172, et seq. Also, Lépine et Bouhass, *Journal de physiologie et de pathologie générale*, 1911, p. 353; Vandevent, *Archives internationales de physiologie* ix, p. 351; Edelmann, *Biochemische Zeitschrift*, 1912. The question as a whole is reviewed to date in *Revue de médecine*, 1913, p. 451, et seq. See also my conception of the entire process in Sajous's *Analytic Cyclopaedia of Practical Medicine*, 1913, iv, p. 8.

## ORBITAL ABSCESS FROM INFECTION THROUGH THE ETHMOID.\*

By JOHN O. ROE, M. D.,  
Rochester, N. Y.

The intimate and important relations existing between the ethmoid labyrinth and the orbital cavity are well illustrated in the following cases of orbital abscess resulting from an acute extension of an ethmoid infection, which I herewith report. This intimate relation is also shown in the frequent disturbances of vision that result from nerve irritation, reflected from the nose to the retina and to the ocular muscles—this irritation being caused by intranasal pressure, the result of various diseased conditions of the turbinate bodies and of the accessory sinuses.

Onodi, who has given this subject more attention than any other observer, has in his book, *The Optic Nerve and the Accessory Sinuses of the Nose*, clearly shown how this takes place through the anatomical connection of the two regions. Notwithstanding the fact that many cases of visual defects and disturbances from nasal and accessory sinus diseases are reported by different observers, the subject is not given the attention it should receive. Many chronic visual defects and also many chronic headaches that are attributed to these visual defects go unrelieved, because the fundamental cause of the disturbance in a large proportion of cases remains unrecognized.

The two cases of ethmoid disease in the acute form, illustrating this intimate association of the ethmoid sinuses with the orbital cavity, which I herewith report, are of special interest, the first one particularly so because it illustrates not only the readiness with which ethmoid diseases may extend to the orbit, but also the ease with which the orbital cavity can be reached and abscesses of this region opened by the nasal route.

CASE I. Stanley Gilmore, aged seventeen years, was brought to my office on the morning of August 10, 1911, by Doctor Carpenter, of Pittsford, N. Y. The young man was suffering from an extremely swollen condition of the tissues of the right orbit and of the surrounding parts, completely closing the eye. The history of the case is as follows: On July 16th Doctor Carpenter was called to see the boy and found him suffering from a sore throat and cold in the head. He continued to grow worse and soon began to have some swelling about the right eye. From July 20th to August 6th he remained in much the same condition, except that the swelling about the right eye increased so much as to amount to a general cellulitis. The swelling covered nearly the whole side of the face, but was more prominent about the eyeball, causing a well marked bulging and discoloration. The upper eyelid and the parts immediately above the eye were swollen, so much so that the patient was able to see with this eye only when the eyelid was raised. When the eye was opened he could see dimly, although he said the sight seemed very much blurred. The case being urgent, the temperature having increased to 103° F., I decided to operate at once. As the pain and swelling were most intense directly back and above the eye, it seemed to be a complication of an acute frontal sinusitis, producing what appeared to be a subperiosteal abscess, involving the orbit and the supraorbital region. But on examining the nose, the turbinates and other parts were found markedly swollen, with a mucopurulent discharge coming from the ethmoid region. It was quite evident, therefore, that the orbital infection had come from the nasal infection, which was manifestly re-

\*Read before the American Laryngological Association at the thirty-fourth annual meeting.



lated to the sore throat that he had had for several days previous to the ocular involvement.

In order, however, to settle the question regarding the presence of a subperiosteal abscess above the orbit, I made a deep incision with a slender knife down to the bone, just to the right of the supraorbital notch. As no pus was found in this region, it was clearly evident that we had to deal with a complication of the rhinitis and ethmoiditis only. Moreover there were found, after a careful examination, no further indications that the other accessory sinuses were involved.

As the ethmoid cells were unquestionably the source of the orbital infection and abscess, the logical method for opening this abscess was through these infected cells by the nasal route. Cocaine was applied to the interior of the nose, and by the use of a small amount of chloroform the pain of the operation was avoided. After removing the anterior portion of the large middle turbinate, I went through the posterior ethmoid cells and the posterior portion of the orbital plate, using an angular pair of cutting forceps, which I had specially designed for these operations. Very little resistance was encountered, as the osseous structures had evidently become necrotic and very much softened. As soon as the abscess cavity was reached, pus began to flow into the nose. I immediately enlarged the opening sufficiently to give free vent to the pus, and by pressing gently over the eye the pus flowed out in a stream, until we estimated that fully an ounce had escaped. After getting out all the pus obtainable, I irrigated the nasal cavity with a warm saline bichloride and boric acid solution, one to 5,000, and the nasal cavity was packed loosely with iodoform gauze. A mild pressure with a bandage was made and maintained over the orbital region to force out gently whatever pus remained or might continue to accumulate from the disintegrated tissues. The cellulitis, together with the orbital infiltration and swelling rapidly subsided, so that at the end of ten days they were almost gone, and the boy made a complete and uneventful recovery.



FIG.—Showing swelling and discoloration about the eye when one half subsided.

The accompanying illustration shows the swelling about the eye when it had about one half subsided.

CASE II. Another exceedingly interesting case came under my observation about three months later. On October 20th, I was called on the telephone by Dr. L. P. Conley, to come to Clifton Springs to see a young man, nineteen years old, who had an enormous swelling of both eyes and was becoming more or less delirious. When I reached there I found the young man in a semicomatose condition with evidently a septic cellulitis of the orbital region on both sides. The history of the case showed that the young man about ten days before had injured his hand with a rusty nail, the wound becoming immediately infected. Directly afterward he began to have a cold in the

head, evidently the result of inoculating himself by picking his nose with the infected hand, thus causing an acute infection of the ethmoid cells.

He grew rapidly worse so that the morning I saw him he was becoming delirious and somewhat comatose. The marked bulging of the eye, the cellulitis, and discoloration of the orbital tissues very much resembled the condition in the case previously described. The temperature at this time was 103° F., and we were undecided as to whether the brain disturbance was due to pressure from orbital infection and probable abscesses or to a meningitis. If due to a meningitis there was absolutely no hope for his recovery, but if due to the pressure from the orbital infiltration there was some hope for him. Therefore, in order to give him the benefit of this doubt and every possible chance, I at once proceeded to open into both orbits, through the posterior ethmoid cells in about the same manner as described in the previous case. More or less bloody pus came away, but not in any considerable quantity as in the previous case. The young man, however, did not rally as we hoped after the removal of this apparent orbital pressure, but continued to grow rapidly worse and died the latter part of the afternoon of the same day. An examination was made shortly after by Doctor Webb, pathologist of Clifton Springs Sanitarium, who found this orbital phlegmon and infectious ethmoiditis to be associated with an acute meningitis and a general streptococcus infection, which we believed to be the case when no relief was obtained from the operation.

While such cases are rarely met with, they are sufficiently frequent to emphasize the importance of giving careful attention to the ethmoid labyrinth in all cases of orbital abscess. In the first case the infection was entirely local, while in the second case the streptococcal infection was general, although the meningeal involvement was probably secondary to the same infection that caused the orbital phlegmon, having extended to the meninges through the cribriform plate.

While the ethmoid sinuses are those most closely connected with the orbit, orbital abscesses are sometimes associated with disease of the other sinuses, and even with all of them at the same time, being the result of the same infection.

Villeneuve (*Clinique chirurgicale*, 1891) reports a case in which not only the ethmoidal, frontal, and maxillary sinuses were involved in association with the orbital abscess, but the phlegmon extended to the meninges. The frontal sinus was opened and the opening continued through into the cranial cavity. The cranial abscess was drained through this opening and the patient recovered. Gruening (*Mount Sinai Hospital Reports*, N. Y., III, 487, 1903) reported a similar case in which the patient died. Wilson (*Laryngoscope*, XVI, 1906) reports a case of empyema of the frontal, ethmoidal, and sphenoidal cells, associated with abscess of the orbit and followed by serous meningitis, optic neuritis, and otitis media. The abscess was opened by a Killian operation and the patient recovered. In this case drainage was maintained through the wound, although Wilson states that pus was exuding into the nostril through a hole about the size of a dime in the orbital plate.

Harlan (*Philadelphia Medical Journal*, VII, 932, 1901) reports a case of abscess of the orbit with disease of the ethmoid. In this case Jansen's operation for empyema of the frontal and ethmoidal sinus was employed, except that, instead of packing the cavity with gauze, as Jansen does, drainage through the nostril was used and the wound sutured.

Oliver and Wood (*American Journal of the Medical Sciences*, CXXIV, 92, 1902) report a case of

orbital abscess associated with antral and sphenoidal disease. The case was that of a girl, thirteen years old, and the obscurity of the different conditions giving rise to the trouble made the diagnosis difficult and of long delay. In this case the abscess was opened by an external incision through the lower eyelid and the antral abscess through the canine fossa, drainage being instituted through the external wound.

Roy (*British Medical Journal*, II, 1864, 1906) reports a case of orbital abscess simulating a malignant growth, but on attempting to remove the supposedly sarcomatous eye, an orbital abscess was revealed by a gush of pus through the preliminary opening made for the removal of the eye.

In nearly all the cases reported the orbital abscess has been opened by an external incision, either a Killiani or a Jansen operation. This method is necessary in all such acute cases when the frontal sinus requires opening; but when the orbital abscess is associated with inflammation of the ethmoid, maxillary, or sphenoidal sinus only, the logical way of opening the abscess is by the nasal route. In the case of orbital abscess reported by Posey (*Pennsylvania Medical Journal*, VI, 414, 1902-3) he referred the case for an examination to Doctor Packard, the consulting rhinologist of the hospital, who readily evacuated the orbital abscess through the posterior ethmoid cells. Cases of orbital abscesses, however, that come under the observation of the oculist and the general surgeon, are almost invariably opened by the external route.

In considering the comparative advantages, disadvantages, and dangers of the operation for the opening of orbital abscess by the external and internal route, certain points in the technic must be considered. By the external route, the operator has the advantage of direct ocular inspection of the work as he goes along, is enabled to follow the course of the diseased process in whichever direction it may lead him, and can also directly control any hemorrhage that he may encounter. On the other hand, the disadvantage of the external route is the external disfigurement, which, more or less, follows such operations, sometimes amounting to a considerable deformity.

The advantages of the internal route are many and important. In the first place, the opening is made into that portion of the orbit where the abscess and phlegmon are generally most concentrated. This is particularly true in all those cases in which the orbital abscess has resulted from infection through the ethmoid. We are also following the disease from its source and at the same time removing or eliminating the source of the infection in the ethmoid cells. There is also entire freedom from the danger of disfigurement or deformity; and we are giving drainage to the abscess through the most direct route. The relief is speedy and the complications of the external wound are avoided. In those cases where the frontal sinus is involved, even if this is not discovered until after the opening through the ethmoid has been made, it does not preclude a direct opening into the frontal sinus externally if found necessary, but, on the contrary, affords a more direct and effectual drainage.

The comparative danger attending the two opera-

tions depends entirely upon the technic of the operator. In either case a bungling operator may do irreparable damage, when in proximity to the cranial cavity; but with a skillful technic and a thorough knowledge of the anatomy of the parts, the internal operation can be made as safe as the external.

I will not attempt to mention any points of the external operation so commonly done and quite familiar to you all, but I will mention some of the points that I have found most important to observe in an operation for entering through the posterior ethmoid cells. On beginning the operation, the first and most important thing is to locate the posterior wall of the nasal cavity, throughout its entire extent from the cribriform plate to the basilar process. Unless this is carefully and accurately done, so that the exact depth of the nasal chamber at every point is known, no operator should attempt to open the posterior ethmoid cells, because he would be uncertain as to whether he was penetrating an ethmoid cell or the cranial cavity.

In examining a skull, the cranial cavity is always found rounded at this region so that the cranial contents lie posterior to a line drawn at right angles to the posterior nasal wall. Therefore, by locating the posterior nasal wall accurately, and going in laterally at right angles to the anterior plane of the wall, the posterior ethmoid cells can be opened with the utmost ease and accuracy, and with entire freedom from the danger of penetrating the cranial wall; whereas by penetrating these cells anteroposteriorly, we have no certainty as to when we have reached the last posterior wall, or the anterior cranial wall.

The instrument which I mainly use in penetrating these cells is a forceps cutting at right angles made right and left for the respective sides. I use for locating the posterior nasal wall a slender, thin, flat steel probe, which will much more readily pass obstructions than the slender round silver probe, so commonly used. This little instrument, which is most serviceable in all nasal work, I have designated as my long finger with an eye at the end of it, as it indicates to me the exact situation and condition of the different parts of the nasal chamber, and is a very material aid to direct or indirect inspection.

It may be supposed that there is danger of increased infection following through this opening, into the orbital cavity; but this is more imaginary than real, for we are removing rather than spreading the infection already present. In other cases in which I have been very desirous of removing all infected ethmoid cells and where the os planum happened to be unusually thin, I have opened into the orbit, and in no instance have I ever had any ill effects.

Therefore, it is readily seen that with a thorough knowledge of the anatomy and the particular configuration of the nasal chamber and its posterior wall, readily ascertained by the method which I have described, the opening of the orbital abscess by the internal route is easily, accurately, and safely made. It is also free from all dangers of disfigurement, while it is the most direct, the most logical, and the most desirable method for opening orbital abscesses in cases where the infection has entered through or extended from the ethmoid cells.

## EPILEPSY.

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Epilepsy is derived from the Greek *ἐπιληψία*, which means a laying hold of. It is the strangest disease known to man and has existed in all ages. Man and woman, young and old, rich and poor, are the victims of this psychicomental disease. In ancient times the epileptic was considered a sacred person, hence the name *morbus sacer* (sacred disease). Later on just the opposite view was taken of the disease; the epileptic was then considered as one possessed by devils. We now know that epilepsy is a brain disease. It will be convenient, in describing epilepsy, to consider it under two separate headings; namely, (a) the epileptic attacks and (b) the epileptic.

## THE ATTACKS.

The principal variety of attack in epilepsy is the familiar convulsion in which all body parts participate; it is known as the grand mal type or major epilepsy.

In almost half of the cases the general convulsion is preceded by a certain premonitory symptom known as the aura (*αὔρα*=a breath), which for the same patient is usually the same in every attack. In many patients the following auras have been noted: Peculiar sensation in the head, a kind of vertigo; flashes of light before the eyes, or the apparent seeing of an animal or other object; ringing or roaring sounds in the ear; an uncomfortable sensation in the abdomen, a grinding or burning abdominal sensation which usually extends in an upward direction; sharp pain in the same region; the noticing of a peculiar odor or metallic taste; pins and needles sensation in the arms, legs or elsewhere; an object slowly becoming larger or smaller to the view; a definite thought or word may occur to the patient's mind; a brief period of joy and ecstasy may occur; rapid mental activity may occur in which thought after thought occurs in quick succession; sudden twitching of a muscle or muscle group; dancing; running in a circle; whistling; moaning, etc.

After the persistence of the aura or premonition, anywhere from a second to thirty seconds or more, the patient suddenly loses consciousness, as if struck by lightning, and falls to the ground. Serious injuries, such as fractures, dislocations, bruises, burns, may result from these terrific falls in which violent muscular contraction often plays a part. This lightning fall, if not accompanied, is immediately followed by a strong and general muscular contraction (the tonic spasm). The trunk muscles are strongly contracted, the violent muscular action rigidly extends the legs and arms, or these extremities may assume a position of flexion. The air is forcibly driven from the lungs and produces a sharp cry in many cases. The face turns pale, to be followed later by a purplish or bluish discoloration (cyanosis). The eyes are staring and fixed, and appear as though they would pop out of their sockets. The head is usually turned to one side. After this continuous contraction of the

muscles has lasted for a half minute or less, the stage of clonic spasm begins, which lasts usually from one half to five minutes. This appears to be an intermittent jerking of all the body muscles. The saliva is churned up and exudes from the mouth as a frothy fluid. The tongue is frequently bitten. The thumb covered by the fingers is buried in the palm of the hand. The head, arms, forearms, wrists, thighs, legs, and feet twitch, jerk, and contract until what has seemed to be a really long time, has actually been only a minute or a little more. The urine may be voided during this stage. A period of relaxation then supervenes; the patient is now in a deep stupor, and the exhausted muscles are at rest. Half an hour later the patient may come out of the stupor with a clear mind or in a dazed condition or in a state of actual delirium. Frequently the stupor turns into natural sleep. These attacks are sometimes induced by sleep and are then spoken of as nocturnal epilepsy. This form of epilepsy has occurred in certain people a year or more before it has been discovered. In one who wakes with sore and aching muscles as if he had been beaten, and if his tongue is sore or bleeding, from having bitten it, and if he has unconsciously voided his urine or feces in the bed during the night, epilepsy is to be suspected. If, in addition to these symptoms, a paralyzed or greatly weakened group of muscles is found, and these muscles rapidly regain their strength after awakening, a nocturnal epileptic attack can be diagnosed with certainty.

A small proportion of epileptics have what is known as the minor epileptic attacks or the petit mal type. In these spells there is a momentary loss of consciousness. During a conversation an afflicted person will suddenly turn pale and become dazed (momentary unconsciousness). There may be slight twitching of facial muscles, especially those about the mouth. The patient often describes the attack by saying that "I knew nothing for a second." Then he regains consciousness, continues the conversation, or continues to perform any act which he had begun, apparently as if nothing had interrupted him. These petit mal attacks may, as in the grand mal type, take place either during the day or night, and they may, as in the first type described, be preceded by an aura or delirious behavior, or they may be followed by delirious behavior. Some patients are the victims of both kinds of epilepsy, the grand mal seizure occurring at one time and the petit mal occurring at another. In some instances the patient emerges from the physical epileptic attack only to enter upon a mental attack. The mental attack varies in nature and duration, not only in different subjects, but also in the same patient at different times. He may be simply confused, mixed up, dazed, stupid, or act in an automatic manner, which state may subside in a short time, or he may be in a state of wild delirium, raging, running amuck, doing damage, inflicting injury to others as well as to himself, which may persist for hours or even days. It is during this stage of delirious behavior that all sorts of ill deeds are committed. A patient at such a time may indecently expose himself, commit an immoral act, or he may be the perpetrator of thefts, cruel acts, arson, homicide, and, in fact, every crime known



to man. At this time there is usually extreme clouding of consciousness, the patient says many curious things, and performs strange acts, sometimes in an automatic manner.

When the delirium subsides and consciousness is completely regained, the patient may possess a fragmentary recollection of what has recently happened. As a rule, however, he has no memory for the events which have occurred during the time of delirious behavior. In some epileptic attacks the physical convulsion is mild in degree and short in duration; it may escape observation and the mental phase come prominently forth as the real attack. In many criminal cases these attacks become important from a medicolegal point of view. In the repeated juvenile offenders (800 consecutive cases) who have been brought before the Chicago courts. Doctor Healy has found that seven and one half per cent. of them are epileptics.

Some patients immediately preceding a grand mal or petit mal attack will have a fit of ill humor in which they will be conscious, dazed, or delirious. Before the physical seizure, they may be depressed, uneasy, restless, excited, and angry or in a really high strung condition, and the convulsion will clear the atmosphere and bring about a state of relief and mental repose. The dipsomaniac or periodic drinker is closely allied in his nature and behavior to the epileptic. Have we not all seen a man of fine parts, apparently in good health, doing good work and performing real service, become depressed, uneasy, nervous, and irritable? Then suddenly with an irresistible force he plunges into alternating bouts of hard drink and deep sleep, only to come to at the end of a week or so in a changed, relaxed, subdued condition, with only partial memory for what has occurred during the preceding week. During these states of delirious behavior or befogged condition, the patients are disoriented, that is, they do not know where they are, nor to whom they are talking; they are confused and do not comprehend questions and wander about in an aimless way. These befogged states occurring before, and especially after, the physical attacks are spoken of as preepileptic and postepileptic insanity, and it is during these periods that some epileptics have to be removed from their homes to hospitals, jails, or other custodial places; in institutions at such times they receive special care and attention.

Some physical conditions and many peculiar mental states occur in epileptics at times when the convulsion is absent or apparently absent. These states are known as epileptic equivalents. They are supposed by many neurologists to replace the fit. An example of a physical equivalent is the occurrence of a sudden attack of profuse sweating in one who is also subject to occasional convulsions. The mental equivalent, the one that generally occurs, is also called psychic epilepsy. Some authorities contend that a physical convulsion perhaps so small as to escape observation, occurs in every one of these mental states. It is during this psychic attack or delirious behavior that all sorts of strange antics and peculiar emotional disturbances are gone through, and of which the epileptic usually retains no recollection. They occur in those patients who have physical seizures at long intervals.

During these psychic attacks the patient wanders about in a dazed manner; there is more or less clouding of consciousness. He moves automatically, as if some outside force controlled his movements. His actions are purposeless. He answers questions in an unintelligent way, and grumbles and fusses with those about him or with imaginary people. The epileptic in this condition is temporarily deluded and in some cases hallucinations are prominent, that is, he sees imaginary things and hears imaginary voices and sounds. During this period patients may indulge in all sorts of doings; such as masturbation, exposing themselves, bestial and perverted sexual acts, attempts at rape, setting fire to houses, desertions, pilferings, and dreadful assaults. At such times they have been known to cut to pieces their own parents, to stab, to shoot, and to perform all sorts of brutal outrages. Most of these acts are without a purpose and there is no attempt on the part of the patient to conceal them. Sometimes victims run away to escape from their imaginary persecutors. They may shout and shriek and run amuck doing much damage to property and persons. Sometimes they go about in a dreamlike manner with happy countenances showing that they are full of ecstatic joy. In this joyful mood they imagine that they are wafted to heaven or that they see the golden gates on the pearly shore. There is only partial recollection of these events or there may be no recollection at all for the entire psychic attack. You can readily see why in all these attacks it is so essential to look carefully for a convulsion, a minor epileptic attack or other evidences of epilepsy. It is well in these cases to search carefully the patient's history of long years ago. "Status epilepticus" is where the seizures are continued one after another with very short space of time between them. Unconsciousness is continuous and between fifty and two hundred convulsions occur in twenty-four hours. A fourth of the patients die in this state.

#### THE EPILEPTIC.

To-day there are some epileptics who are doing good work and are accomplishing things in the world of events; as far as can be observed they are not suffering with mental impairment. These particular cases are exceptional. In almost all epileptics there is some mental impairment and this is present in every degree from slight defect of memory all the way to conditions of profound dementia (impairment and destruction of mental faculties). The more frequent the seizures the more prominent the dementia. In fifty per cent. of the patients the dementia is mild and can be detected only by a trained observer. The character and disposition of epileptics possess certain things in common, they also possess traits that are entirely different in different individuals; breed and blood count here just as in normal persons. Many of them are over religious and spend much time in praying and bible reading. They follow the familiar lines of thought, which as the dementia increases becomes more and more restricted. Into their conversation they inject hackneyed expressions, stilted phrases and pious sayings. As the mental horizon diminishes the egotism increases and in ordinary conversation they may

praise themselves and their belongings. They are apt to be pleased with themselves and may be ceremoniously polite. While they forget many events of their present and past life, they may be able to express themselves clearly in their narrow thought field. At times epileptics are peevish, obstinate, stubborn and unruly. Sudden changes in mood from depression to elation and the reverse are apt to occur. They are irritable, easily angered, and fly into a rage without due provocation. It is then that they become threatening and dangerous and show a complete lack of self control.

In this wild anger they may curse, strike and injure those who unluckily happen to be near. Attacks of ill humor are especially apt to occur in the early morning. An epileptic may get out of bed in an irritable and vicious mood; he will then answer questions in monosyllables, his fault finding and cursing may quickly change into furious rage. With wild terror in his eye, he may break dishes, hurl objects to the floor, smash windows, strike with terrific blows those about him and finally come to rest in a relaxed, amiable and subdued condition, feeling a sense of relief for having given vent to his feelings. In some, these attacks of ill humor are periodical and may precede or replace an actual convulsion, in which case they would be known as equivalents.

Grasset<sup>1</sup> thus sums up the epileptic character: "On the one hand they are sombre, taciturn, defiant, suspicious, always ready to fly into a passion, to hurt people, to become enraged and to strike; on the other hand they are obsequious, obliging, wheedlesome, full of effusion and gentleness. . . . In reality epileptics are all or nearly all irritable, subject to attacks of sudden, violent, and ferocious transports of rage, during which time they do not, as it were, belong to themselves. This irritability is the keynote of their character. Many have in addition vices and perverse instincts; many are greedy, violent. . . . They frequently have a tendency to a sickly piety or a sort of excessive religiousness, mixed hypocrisy."

#### PREVALENCE AND CAUSE.

It has been estimated by observers who have made intensive studies of various localities here and abroad that the number of epileptics in well to do countries is one to every five hundred of the population. In poor countries the ratio is somewhat greater. In the United States with its population of ninety million people there would therefore be one hundred and eighty thousand epileptics.

Heredity plays a most important part in the production of epilepsy. In almost all cases there is a strong hereditary tendency toward the disease, which exists from birth. In sixteen per cent. of the cases, epilepsy exists in one of the parents or grandparents. In fifty per cent. of the cases insanity, feeble mindedness, hysteria and other neuroses existed in the parents. Fifteen per cent. of these people have alcoholic parents. Brain injury at the time of birth and subsequent to birth is a potent cause. Other causes are syphilis, tuberculosis, infectious diseases (scarlet fever), and emotional

causes such as fright and shock. Where the inherited soil is favorable for the development of epilepsy the exciting cause may indeed be very slight.

#### EPILEPSY AND THE STATE.

Five to ten per cent. of these unfortunates are curable if proper treatment is instituted. This percentage includes all cases, even cases of considerable duration. Cases that are taken in hand early in life and placed in suitable hospitals or colonies offer the best chance of recovery. The greater number of epileptics seek institutional care when the disease has made its ineradicable stamp upon them. During the year ending September, 1911, there were admitted 272 patients to Craig Colony, New York. One hundred and twenty-three (123) of them were twenty years of age or under and one hundred and forty-nine (149) were over twenty years. In 219 of these 272 cases the age at which the disease first occurred was under twenty-one years. These figures show that although the majority of cases begin early in life, they do not enter institutions until well advanced.

Epileptics are placed in hospitals when custodial care is necessary on account of the trouble and

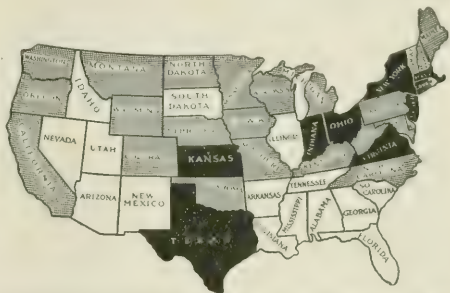


FIG. 3.—Taken from the publication of the COMMISSION OF EPILPSY, Elizabeth McCremick Memorial Fund, 222 Plymouth Court, Chicago. States in solid black have colonies exclusively for epileptics; those with cross hatching have colonies connected with other institutions or make some other provision for epileptics; those in white make no provision for epileptics.

danger which they cause at home. The hospital or colony for epileptics is the place *par excellence* to place these unfortunate people, and that too, early in life, as soon as possible after the onset of symptoms. In many instances the poor epileptic, if a child, is early excluded from school. He is often shunned by the children of his neighborhood, who cannot understand him. At home, on account of his seizures and peculiar disposition, he is a constant source of trouble. When company comes he is hustled out of the way in order that they may not be made uncomfortable and that the family may not be mortified. There is constant anxiety for the family when the epileptic is away from home and, as a result, his visits to places of amusement and recreation become fewer and fewer. Debarred from school, and being poor or in moderate circumstances, it is impossible for him to obtain instruction in intellectual pursuits or manual training which would enable him partially or completely to be self supporting, and which would cheer his life and retard to some extent the dementing process. Owing to his disposition and likelihood of attacks

<sup>1</sup> Taken from the pamphlet of the National Association for the Study of Epilepsy. Translated by Jelliffe, Funk & Wagnalls.

he cannot occupy a position of responsibility, even if he has received a fair degree of education. As he advances in age and his disease becomes more extensive, his life is narrowed to the home where, owing to unavoidable circumstances, his physical and mental condition in many cases runs a rapid downhill course.

As I said before the place for such an unfortunate is in a hospital or colony especially designed and conducted for the care of epileptics. Briefly, the advantages of such an institution are these:

1. For economic reasons, a collection of patients in a colony or hospital can receive the most modern care and treatment, the like of which could not be furnished to an individual.

2. The patients in such a place lead a well regulated life under careful supervision. Exercise, amusement, food, baths, work, medication, etc., are carefully prescribed to suit individual cases.

3. The patients have the benefit of experienced physicians and nurses who are constantly becoming more expert.

4. "Idleness is the devil's workshop," is especially true in regard to epileptics. At these colonies various kinds of work can be afforded as best suited to the degree of learning and need of the individual. On colony farms, outdoor work, which is so beneficial, can be afforded. Farm work, gardening, dairy work, poultry raising, can be indulged in, and the progress of dementia is thus retarded.

5. The colony is able to maintain a graded school with trained and experienced teachers.

6. In a few instances patients who are doing fairly well may be granted furloughs. These frequently act as real stimulants to the epileptics, and their visits home, often in an improved condition, are appreciated by their relatives.

7. Being fellow sufferers, the epileptics have sympathies and interests in common. They are thus enabled to bear their sorrows more patiently, and life is made comparatively happy for them.

8. In colony life, their physical and mental condition actually improves. This is frequently shown by the thin and delicate becoming stout and resisting soon after their arrival. The seizures become less severe and the interval between them often lengthens. In fact, their lives are prolonged.

9. In independent colonies, the epileptic, on account of his physical or mental fit, will not afford an objectionable sight to the feeble-minded or other invalids with whom he is now often housed.

10. In such institutions the sexes can be separated, which is such an important step in preventing the reproduction of epileptics and other defectives.

11. Being together in large numbers, they afford the opportunity for clinical, pathological, and therapeutic research. Such research is benefiting and will continue to benefit epileptics, and it will be instrumental in diminishing the incidence of this dreadful malady.

At present in thirty-four States (including the District of Columbia), epileptics are cared for in public and private hospitals, sanitariums, institutions for incurables, pauper asylums, and homes. These unfortunate people are in many instances in places that are ill adapted to their needs, or they are at home, where they can receive little or no at-

tention. They are a troublesome burden to the family, and in many cases a source of actual danger to the family and community. The neighbors of a vicious epileptic can all tell you a tale of woe. Even the learned judge and experienced juror are beginning to wake up to the fact that in many instances the repeated lawbreakers are the helpless victims of *morbus sacer*.

State hospitals or colonies established solely for the purpose of treating and caring for epileptics are nine in number. They are as follows:

Connecticut: The Connecticut Colony for Epileptics, Mansfield Depot, Connecticut. Patients to be received July next.

Indiana: Indiana Village for Epileptics, New-castle, Indiana; patients, 114.

Kansas: Kansas Hospital for Epileptics, Parsons, Kansas; patients, 484.

Massachusetts: The Monson State Hospital, Palmer, Massachusetts; patients, 900.

New Jersey: New Jersey State Village for Epileptics, Skillman, New Jersey; patients, 392.

New York: Craig Colony for Epileptics, Son-yea, New York; patients, 1,420.

Ohio: The Ohio Hospital for Epileptics, Gal-lipolis, Ohio; patients, 1,447.

Texas: Texas State Epileptic Colony, Abilene, Texas; patients, 375.

Virginia: State Epileptic Colony, Madison Heights, Lynchburg, Virginia; patients, 121.

Other State institutions in which epileptics are cared for are:

Michigan: Michigan Home for the Feeble-minded and Epileptic, Lapeer, Michigan; epileptic patients, 400.

Minnesota: Minnesota School for Feeble-minded and Colony for Epileptics, Faribault, Minnesota; epileptic patients, 205.

Missouri: Missouri Colony for Feeble-minded and Epileptic, Marshall, Missouri; epileptic patients, 140.

North Carolina: State Hospital, Raleigh, North Carolina; epileptic patients, 148.

Wyoming: Home for the Feeble-minded and Epileptic, Lander, Wyoming.

Some other institutions caring for epileptics which are private or semipublic in nature are:

The Pennsylvania Epileptic Hospital and Colony Farm, Oakbourne, Pa.; patients, 76.

The Passavant Memorial Homes for the Care of Epileptics, Rochester, Pa.; patients, 63.

Silver Cross Home, Port Deposit, Maryland; patients, 24.

The Hospital Cottages for Children, Baldwinsville, Massachusetts.

The Brunswick Home, Amityville, Long Island, N. Y.

The list of private institutions is far from complete, so many hospitals and homes care for a few epileptics.

The following States now have laws which wholly or in part prohibit the marriage of epileptics: Connecticut, Indiana, Kansas, Michigan, Minnesota, New Jersey, Ohio, Utah, and Washington.

The public conscience in regard to the prevention of epilepsy and care of epileptics is now being



aroused in many places, and eventually every State will have its colony or colonies for epileptics. The colony will be the centre of research and instruction. From it will be sent forth pamphlets and reports which will instruct the public in regard to the prevalence, causes, and prevention of epilepsy. The colony will have a register of epileptics and physicians, and homes will be compelled by law to report all cases of epilepsy that come within their notice. This system obtains to-day in New Jersey, and perhaps in other States.

Field workers will also be attached to the colonies, and it will be their duty to collect complete family histories of colony patients and to perform field duties as may be required. The carefully chosen authorities of these institutions will, in the future, as they have in the past, make recommendations to the chief executive and State legislators in regard to the necessity for the enactment of laws preventing the marriage of mental defectives and laws dealing with the segregation of mental defectives—all of which laws when rigidly enforced will greatly diminish the number of epileptics and other defectives.

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## THE BACTERIOLOGY OF PYORRHEA ALVEOLARIS.\*

BY CLAUDE P. BROWN, M. D.,  
Philadelphia.

The investigation of the bacteria present in pyorrhea alveolaris was taken up at the suggestion of Dr. Joseph Head, who has described the symptomatology, pathology, and treatment of this condition by local measures supplementing the use of bacterial vaccines.<sup>1</sup>

The name "pyorrhea alveolaris" was proposed in 1877, although it would seem to have been used before that time. While this name may not be scientifically descriptive, its use during approximately half

a century has given it associations which cannot be misunderstood.

In 1550 Ambroise Paré made unmistakable reference to this condition. A study of skulls has convinced investigators that it is a disease of ancient as well as of modern man. Leeuwenhoek drew attention, as early as 1682, to what he called "animalcules" in material removed from the teeth. This material, however, was suspended in rainwater which at that time he regarded as being perfectly pure. Miller's work was devoted chiefly to a study of the bacteria of the mouth. It is of importance here on account of the location of the lesion, since the bacteria of pyorrhea are almost of necessity from mouth infection. Galippe and Harlan isolated two organisms and believed these to be the specific cause of the disease. Hunter quotes Arkovy who found that *Bacillus gangrenæ pulpæ* was present in ninety-five per cent. of cases with diseased pulp and dental caries. Dr. J. M. Riggs described this condition and demonstrated his method of treatment in 1860. In the paper read at that time, he states that he had recognized and treated it for twenty-five years previously. Vincentini made a microscopical study of the mouth flora, and recognized many of the fungus forms which are found in the mouth. Goadby seriously took up a study of pyorrhea bacteriologically in 1904, and in 1906 published his findings in eighteen cases. In the Erasmus Wilson lecture delivered in 1907 he reported a total of seventy cases, including the eighteen previously recorded. In that report streptococcus was found nineteen times; *Bacillus necrosis dentalis* was found fourteen times; *Micrococcus catarrhalis*, twenty-three times; *Bacillus septus*, fifteen times; the *Staphylococcus aureus*, twelve times; the *saccharomyces*, five times; pneumococcus was found five times; *Micrococcus citreus granulosis*, six times.

In two cases reported in 1908 *Streptococcus brevis*, *Staphylococcus albus*, and the *saccharomyces* were found. Later, an anaerobe, the *Bacillus necrosis dentalis*, which Goadby calls a diplobacillus, was isolated. In 1909 it is reported that slide examinations revealed in addition to the others, a leptothrix *Bacillus fusiformis*, and three varieties of spirochetes. He was unwilling to credit to the Gram positive cocci entire responsibility for the infection. He believed that because of the early appearance and frequent association of certain bacilli and *Micrococcus catarrhalis* that they probably had etiological importance.

Eyre and Payne, in 1909, studied culturally a series of thirty-three cases, said to have been the filthiest coming to the dispensary at Guy's Hospital. The bacteria isolated were considered to be factors in causing the infection only when the opsonic index to them was particularly high or particularly low. Treatment was instituted with vaccines containing organisms thus selected. These writers began, however, with the assumption that the bacilli were of no importance and discarded them, confining their work to the micrococci alone. In discussing this paper Goadby took exception to such exclusion. He did not agree that the best method of attempting to find out the particular bacteria related to any given disease was to make a special selection of the micrococci, confining one's attention to the estima-

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<sup>1</sup>This paper concerns only the bacteriological work. The practical application of the vaccines prepared and the clinical results following their use are described in detail in the above mentioned paper by Doctor Head.

tion of the opsonic index only with regard to the micrococci present. He found in his earlier work, in which the opsonic index was estimated for a large number of organisms present, that if the estimation had been confined to any one division, say micrococci, a number of them might be found to be related to the disease itself, but that some bacilli as well when tested also gave a low index. He said: "If the opsonic index has any value at all, if it showed a diminution or a large increase to any one organism, well and good; but if a large number of organisms were related thereto the chances were either that the opsonic index did not give all the knowledge required or the other organisms were also concerned in the infectious process." He had shown that some of the bacilli were concerned, at all events in the early stages.

Carmalt-Jones and Humphries reported five cases. *Streptococcus brevis* was isolated three times, in one case the findings were not reported, and in the others merely a statement was made that several organisms were isolated. The first four patients were treated with a vaccine containing *Streptococcus brevis*, the fifth with a vaccine containing *Streptococcus brevis* and staphylococcus.

In 1908 Mayou reported a case of staphylococcus infection of the eye following the removal of an infected tooth. This case is interesting from the fact that the infection did not clear up after the removal of the tooth, but extended to the orbit. Cure finally resulted only when staphylococcus vaccine was used. Bebbe notes fifteen cases of pyorrhea, in six of which the pneumococcus was present in practically pure culture. He says about the others merely that the growth was principally pneumococci with a small mixture of staphylococci. Vaccine treatment was instituted in all. Whittle asserts that he has isolated an organism which would grow in a twenty per cent. solution of formaldehyde. Best isolated a number of organisms, among which *Streptococcus pyogenes* and *Micrococcus catarrhalis* were the most common. Sims isolated a spirillum once, *Bacillus buccalis maximus* once, and another bacillus which he found difficult to grow.

Williams has reported a series of eight cases of pyorrhea treated with autogenous vaccines, also thirteen dispensary patients receiving stock vaccines. The vaccines contained only streptococcus or streptococcus and staphylococcus. For the cultural work the only medium used was plain agar. Logan made cultures from the teeth in ten cases of pyorrhea in human beings and three cases in dogs. This bacteriological work is of no value. Incipient, moderately advanced, and far advanced cases have been studied by Medalia. In a larger percentage of the 115 cases reported, opsonic index determinations and urine and feces examinations were made in conjunction with the bacteriological studies of the local lesion. The culture media used were blood serum, glucose bouillon, and blood agar. The last, however, was used only to establish the hemolytic properties of the streptococcus. Obviously bacteria that require hemoglobin for development were thus missed. His findings were as follows: Pneumococcus in chains in twenty-six cases; pneumococcus in chains and staphylococcus in sixty-seven cases; pneumococcus, staphylococcus, and

streptococcus, ten cases; pneumococcus and streptococcus in chains, three cases; pneumococcus in chains and *Micrococcus catarrhalis*, one case; staphylococcus, two cases; staphylococcus and streptococcus in chains in one case; staphylococcus and *Micrococcus catarrhalis*, two cases.

Friel reports three cases in which autogenous vaccines were used successfully. Blessing isolated three types of staphylococci, *Diplococcus lanceolatus*, and *Streptococcus longus*. Leary states that Vincent's fusiform bacillus is present almost constantly, and he apparently thinks this organism a cause of pyorrhea, if not the specific cause. It may be true that *Bacillus fusiformis* is related to pyorrhea etiologically, at times it may be the chief cause, but the successful treatment of patients by autogenous vaccines in which it is not present would seem to show that if it has any rôle at all it is of minor importance.

Cummins calls attention to a number of systemic conditions which are the result of oral sepsis. In some cases extractions were done. No cultural methods are given; there is simply a statement that vaccines were used for treatment. Collins reports treating three cases of pyorrhea with a vaccine of *Streptococcus viridans*. Goadby (1911, 1912) has devoted considerable attention to the relation between diseases of the mouth and rheumatism and rheumatoid arthritis and various other dyscrasias. His conclusions coincide with the earlier deductions of Hunter and the later observations of other writers. In 1900 and again in 1911, Hunter attributed to mouth infections, systemic conditions ranging from a simple gastric disturbance to toxic neuritis and even pernicious anemia. Daland and Merritt have called attention to the relation between systemic disease and mouth infections.

Merritt's opinion is that one of the principal things necessary in the treatment of pyorrhea is to see that the defensive or protective substances of the body are brought into contact with the bacteria; otherwise we can expect little permanent result from the use of any systemic measures.

Lindsay reported 172 cases of rheumatoid arthritis, about 8.5 per cent. of which had pyorrhea. Lambert reported 190 cases of rheumatoid arthritis, in seventy-six per cent. of which the teeth were decayed or had dropped out as a result of advanced pyorrhea. Fitzgerald apparently thinks that the tissue changes associated with advanced pyorrhea are due to the streptococcus.

#### TECHNIC AND CULTURAL METHODS.

My technic and cultural methods are the following: The material for bacteriological examination was collected from the pyorrheal pocket by the method of Dr. Joseph Head. That is, after thorough cleansing around the gingival margin, a thin, spear shaped platinum instrument was heated to redness and while still hot was run up alongside of the root into the pocket. This was then streaked on the surface of slanted blood agar in test tubes. These blood agar cultures were taken to the laboratory as soon as possible. As much of the material as could be removed from the culture medium was then, by means of a sterile platinum loop, carried to a blood agar plate. This was then spread by

means of a sterile glass rod or spatula, as suggested by Hitchens. Without reinoculation this spatula was carried to three plates in succession so that the organisms were well distributed, thus facilitating the fishing of single colonies. I draw attention to this spatula because it can be put into a large test tube and sterilized, whereas the ordinary rod bent at right angles must be heated and is exposed while cooling. After twenty-four hours in the incubator at 37.5° C. the fishings were made; these were likewise made to blood agar slants. After twenty-four hours' incubation, slides stained by Gram's method were studied microscopically. When indicated, other stains were also used. If necessary for further identification of streptococci

all of twenty cases, and Medalia found it in ninety per cent. of 115 cases. None of the three writers mentions the hemophilic bacilli of which *Bacillus influenza* is a representative.

It is probably premature to insist on a standard method for the isolation of the infecting bacteria from pyorrheal pockets. It is not, however, premature to insist on the use of a medium which will offer conditions favorable to the growth of the greatest possible variety of pathogenic bacteria, a medium at least equal in this regard to nutrient agar containing red blood corpuscles. I believe that blood agar is the best medium for isolation, but for certain microorganisms a modified medium and special technic may be necessary. If evidence

TABLE 1.—RESULTS OF CULTURES FROM PYORRHEAL POCKETS

	Streptococcus aureus.	Streptococcus albus.	Sarcina.	M. tetragenus.	Cocci neg. cocci.	Cocci neg. bacilli.	Facultative anaerobic groups.	Streptococcus (non hemolytic).	Streptococcus hemolytic.	Streptococcus viridans.	Enterococcus.	Diphtheria.	Diphtheria.	Yeast.	Capillary.	Small.
1	+															
2	+															
3	+															
4	+															
5	+															
6	+															
7	+															
8	+															
9	+															
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98	+															
99	+															
100	+															

and pneumococci, serum dextrose bouillon cultures and animal inoculations were made. The Gram negative bacilli, with the exception of those which would grow on blood agar only, were inoculated into fermentation tubes of bouillon containing various carbohydrates for gas production. Bacilli were studied for motility in hanging drops. With a few exceptions all organisms isolated were used in the vaccine.

In nearly all the studies reported by other workers plain agar, bouillon, and Loeffler's blood serum mixture were the only culture media used. It is not strange that the results in even the most serious work are scarcely comparable. It is noteworthy, for instance, that Goadby, who used plain agar, isolated the pneumococcus but five times in seventy cases, while Beebe found this organism in

is obtained to demonstrate the pathogenicity of *Bacillus fusiformis* in pyorrhea, the proper methods for its isolation must be used. It is my intention in continuing this work to study the anaerobic bacteria by the necessary special methods. This has not been done so far.

The question of selecting the proper bacteria from those isolated in a given case is one susceptible, at this stage in our knowledge, of endless discussion. A definite and final decision cannot now be rendered. Some have started out with the preconceived idea that the cocci only are pathogenic. They have discarded the bacilli present without further consideration. Goadby and others have attempted to pick out the bacteria responsible for the infection by a determination of the opsonic indices to the germs isolated. More recently the comple-



ment fixation test has been suggested for the same purpose. Such investigations may be of great scientific interest, but I must question their practical value. Besides increasing out of all proportion the labor required for the preparation of the vaccine, I believe the chances for error both in technique and in interpreting the result obtained are so great that one may not safely eliminate any organism present in the specimen. We believe it is better to make a vaccine containing all the different types found, discarding only those obviously nonpathogenic or sporogenic bacteria. The vaccines used in the series of cases reported by Doctor Head were made in accordance with this belief. The excellent results obtained are submitted as justification for the procedure followed.

#### PREPARATION OF VACCINES.

The method of preparation of the autogenous vaccines for these cases was similar to that followed in the laboratory for making stock vaccines. The organisms were grown on suitable culture media, ordinary agar sufficing for the most of them; in the case of hemophilic organisms blood agar, of course, was used. After twenty-four hours in the incubator at 37.5° C., the growth was washed from the surface of the agar with normal saline solution. The suspension was removed and thoroughly shaken to break up clumps. After the withdrawal of a small portion for counting, the suspension was heated to 60° C. for one hour. Wright's method was used for counting the bacteria. After the count had been made, the heavy suspension was diluted with normal saline solution to give the desired number of bacteria in each cubic centimetre. To this dilution was then added 0.25 per cent. triresol. To be certain of its sterility a small quantity of the finished product was planted in fermentation tubes containing freshly sterilized dextrose bouillon. These check cultures were incubated for five days. In addition to this, each vaccine was tested for freedom from any toxic or other harmful substance by the injection of at least one c. c. subcutaneously into a guineapig. This test is used particularly to demonstrate the absence of tetanus toxin or the bacillus of tetanus. The guineapigs were kept under observation for fourteen days.

On completion of the tests the vaccine was put into a twenty c. c. vial with a soft rubber cap over it like those used by Wright. Some of the more recent vaccines were put into syringes of one c. c. capacity with a printed graduated label which facilitated the use of fractions of a cubic centimetre.

The suspensions of bacteria were so diluted that they contained the various organisms isolated in the following proportions:

Staphylococci ..... 300 million per c. c.  
All other organisms ..... 50 million per c. c.

The accompanying tables show in detail the results of the bacteriological study of the cases.

Figures preceding + sign indicates where more than one type of that organism was present.

Diplococci noted above had very much the same appearance on blood agar as the pneumococcus, excepting that the colonies were smaller. They were replated several times and remained true to type. Serum bouillon cultures showed only cocci in pairs and were not pathogenic. I was unable to demon-

strate capsules on organisms present in fluid withdrawn from mice several hours after intraperitoneal inoculation.

The bacillus noted in the last column was of the milk fermenting type. It would not have been possible to differentiate the several types of streptococci without blood agar and most painstaking and careful study of colony formation, with a lens, using direct white artificial light.

#### PNEUMOCOCCUS.

Strains 8, 10, 18, 19, 20, 23, 28, 36, and 46 were inoculated into mice and the capsule was demonstrated, Miss capsule strain being used. The remaining cultures noted in Table 1 were all of this same type, but were lost before animal inoculations could be made.

TABLE 2.—CHARACTERISTICS OF CULTURES OF THE BACILLUS INFLUENZÆ (HEMOPHILIC GROUP).

Case number.	Clear flat top.	Clear glistening colony.	Minute clear colony.	Irregular colony hemolytic.
7.....	+	..	..	..
19.....	+	+	..	..
20.....	..	..	+	..
26.....	+	..	..	..
27.....	..	..	+	..
29.....	..	..	+	..
32.....	..	..	+	+
36.....	..	+	..	..
37.....	..	..	..	+
39.....	..	..	..	..
40.....	+	..	..	..
41.....	..	..	+	..
43.....	..	..	..	+
45.....	..	..	+	..
46.....	+	..	..	..
47.....	+	..	..	..

The strains in the first column were replated on blood agar. They changed somewhat, becoming pinpoint in size without special characteristics. We can attribute this only to symbiosis. Following the same plan regarding those in column four, they lost their hemolytic character, but retained somewhat their irregular granular characteristics. The other two did not change their characteristics.

Those in the first, second, and fourth columns were short Gram negative bacilli with many threadlike forms, while those in the third column were identical with *Bacillus influenza*.

TABLE 3.—CHARACTERISTICS OF DIPHTHEROIDS.

Case number.	Minute clear colony.	Whitish opaque colony.	Clear whitish colony.	Yellowish white.
8.....	+	..	..	..
9.....	+	..	..	..
11.....	..	+	..	..
12.....	..	..	..	..
15.....	+	..	..	..
16.....	..	..	+	..
23.....	..	+	..	..
30.....	..	+	+	..
32.....	+	+	..	..
36.....	..	..	+	..
37.....	+	..	..	..
38.....	+	..	..	..
40.....	+	..	+	..
43.....	..	+	..	..
46.....	+	+	..	+
47.....	..	+	..	..

TABLE 4.—GRAM NEGATIVE COCCI.

Case number.	Clear watery colony.	Yellowish brown undulating colony.	Brownish moist colonies.	Minute clear colonies.	Grayish moist colonies greenish tinge.
7.....	+	+	..	..	..
10.....	+	..	+	..	..
12.....	..	..	+	..	..
13.....	+	..	+	..	..
14.....	..	..	+	..	..
15.....	..	..	+	..	..
16.....	..	+	+	..	..
17.....	+	..	+	..	..
18.....	+	..	..	..	+
20.....	..	+	..	+	..

TABLE 4.—GRAM NEGATIVE COCCI (Continued)

Case number	Clear watery colonies	Yellowish loose undulating colonies	Brownish moist colonies	Minute clear colonies	Grayish moist greenish tinge
23.....	+	..	..	..	+
24.....	..	..	..	..	..
26.....	+	+	..	..	..
27.....	..	..	..	..	..
28.....	..	..	..	..	+
29.....	..	..	+	..	+
30.....	..	..	..	..	..
31.....	..	+	..	..	..
32.....	..	..	..	..	..
33.....	..	..	..	..	..
34.....	..	..	+	..	..
35.....	..	..	..	..	..
36.....	..	..	..	..	..
37.....	..	..	..	..	..
38.....	..	+	..	..	..
39.....	..	..	..	..	..
40.....	..	..	..	..	..
41.....	..	..	..	..	..
42.....	..	..	..	..	+
43.....	..	+	..	..	..
44.....	..	..	..	..	..
45.....	..	..	..	..	..
46.....	..	..	..	..	..
47.....	..	..	..	..	..
48.....	..	+	..	..	+

TABLE 5.—GRAM NEGATIVE BACILLI

Case number	Gels. tin.	Dext.rose.	Raffi.rose.	Saccha.rose.	Man.rose.	Lact.rose.	Dulcite.	Muc.ility.
12.....	..	..	..	..	..	..	..	..
14.....	L	..	..	..	..	..	..	A
16.....	..	+	B	+	+	B	B	M
19.....	..	..	B	+	+	..	..	M
20.....	NL	..	..	+	..	..	..	M
22.....	NL	..	..	..	..	..	..	S
23.....	NL	..	..	..	..	..	..	O
24.....	NL	..	..	..	..	..	..	A
25.....	NG	..	..	..	..	..	..	S
26.....	..	..	..	..	..	..	..	O
27.....	..	..	..	..	..	..	..	M
29.....	..	..	..	..	..	..	..	M
30.....	NG	..	..	..	..	..	..	A
31.....	..	..	..	..	..	..	..	S
32.....	..	..	..	..	..	..	..	M
33.....	..	..	..	..	..	..	..	O
34.....	..	..	..	..	..	..	..	M
35.....	..	..	..	..	..	..	..	M
36.....	..	..	..	..	..	..	..	M
37.....	..	..	..	..	..	..	..	M
38.....	..	..	..	..	..	..	..	M
39.....	..	..	..	..	..	..	..	M
40.....	..	..	..	..	..	..	..	M

L, liquefied; NL, not liquefied; NG, no growth; +, grows poorly on plain agar; —, no gas produced; +, gas produced; B, bubble; O, nonmotile; A, actively motile; S, sluggishly motile; M, moderately motile.

## CONCLUSIONS.

1. While a large number of organisms have been isolated in this series, we are unable to attribute to any one of them an etiological rôle in pyorrhea alveolaris.

2. The use of plain or serum agar, plain or serum bouillon, or Loeffler's blood serum mixture are not the best culture media for studying diseases of the mouth and of the respiratory passages.

3. Blood agar is the best culture medium known to us at present for work of this kind because the hemophilic bacteria grow only upon this medium; in addition to this a number of types of streptococci can be differentiated at once, by the appearance of the colony, studied with a lens—using direct artificial light.

4. A vaccine for the treatment of pyorrhea should contain all the organisms isolated in a given case.

5. Before drawing final conclusions, a study of the possible association and rôle of anaerobic bacteria is necessary.

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THIRTY-THIRD AND DIAMOND STREETS.

## THE MECHANOTHERAPEUTICS OF ACUTE CROUPAL PNEUMONIA.

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Historical note.—In 1847 an attempt was made by Branting (1) to treat acute pneumonia by means of manipulations; he appears, however, only to have employed those forms known as arm vibration and chest lift shaking. During subsequent years no systematic plan of treatment was worked out to deal with the condition specified—indeed not even an effort was made to repeat Branting's first steps—until at last during the early seventies Henrik Kellgren systematized his methods of combating the disease. These, however, have hitherto hardly found any acceptance; in fact, any reference to them almost invariably leads the author (2) to state that any form of manual manipulation for such conditions as acute pneumonia is most strongly to be condemned. Whether this is in general argued from theoretical grounds or from actual failure after repeated attempts, it is impossible to say. During the early seventies Henrik Kellgren, as already intimated, had been employing his special methods with success, and his efforts were mentioned about this time by both Wretling (3) and Glatter (4); Wretling (5), who learned the *modus operandi*, was able at a later date to test its efficacy himself. In 1890 Arvid Kellgren spoke with confidence of the success that he and his brother had achieved (6). A very brief account of the methods employed was published by Möller (7) in 1900, and a somewhat more detailed one by the author (8) of this paper in 1903. Otherwise medical literature on the subject is conspicuous by its absence, and

this is the author's reason for further enlarging on the subject.

CERTAIN POINTS IN THE PATHOLOGY AND SYMPTOMATOLOGY OF ACUTE CROUPOUS PNEUMONIA.

Those points need consideration in view of what follows. As is well known, the onset of the disease is fairly sudden, the respiratory change coming on early. The respiratory act very soon becomes quick, shallow, and labored. The cause of this respiratory distress has been variously ascribed to pain, fever, loss of part of the pulmonary function, nervous elements, circulatory disturbances, etc. To my mind by far the most important cause—and the one which hitherto has almost escaped recognition—is reflex contraction of certain of the muscles of respiration, this reflex contraction being in the majority of cases aggravated by such direct causes as spread of inflammation, toxemia, venous and lymph stasis, etc. The contractions as a rule come on fairly early (sometimes almost immediately), and tend to become more marked during the course of the disease; then, according to whether the disease terminates by crisis or lysis, they disappear either rapidly or slowly.

The reservation must be made that not all cases of pneumonia exhibit these muscular contractions, and those that do not are the least severe and least dangerous ones. Indeed the severity of the disease is, *ceteris paribus*, proportionate to the amount of muscular contraction.

In many cases these muscular contractions are among the first symptoms, and they may become firmly established before even the most careful examination can detect anything wrong with the lung itself. This early arising of the contractions is analogous to the same phenomena as regards the abdominal organs.

In 1903 I wrote (9): "In the abdomen reflex contractions of the muscles of its wall are frequently found as a result of irritative or inflamed conditions of organs in its cavity. The same state of matters obtains with the thorax; reflex contractions of the intercostal muscles result from many morbid conditions of the lungs, bronchi and pleura." In the course of the description of the treatment of acute croupous pneumonia, I stated (10): "The impediments to respiration that lie in the muscular apparatus are found to be: Contractions in the intercostal muscles over the affected lobe or lobes, deficient action of the diaphragm, with or without marked contraction of the abdominal muscles." These various remarks seem, however, to have passed almost unnoticed, but more recently a certain amount of independent work has been done with regard to the reflex contractions arising in thoracic disease, especially with regard to phthisis pulmonum and pleurisy. The name of Pottenger (11) is generally associated with the former, the name of Ramond (12) with the latter. One or two authors have also studied the arising of reflex contractions in acute croupous pneumonia, but only as regards one or other group of muscles; no one has drawn the clinical picture of the muscle contractions as a whole.

In the next place it is necessary to enter into certain details concerning the site and extent of these contractions, and the deductions to be drawn

therefrom. These contractions may occur in the following muscles: 1, Intercostals; 2, diaphragm; 3, erector spinae; 4, anterior abdominal muscles; 5, cervical muscles; 6, pectorals; 7, serratus magnus; and, 8, various others.

1. Intercostals.—The intercostal muscles that lie over the affected lobe or lobes are nearly always contracted in the whole of their length. This is not always the case in deep seated pneumonias, but always when the inflammation has reached the surface. In severe cases of pleuropneumonia the contraction in the intercostal muscles may be observed to extend either above or below the affected pneumonic area, and when the lower intercostal muscles are affected, the corresponding anterior abdominal muscles are generally also contracted. Part of the contraction in the intercostal muscles is in all probability due to the fact that when the inflammation has reached the surface, pleurisy is present to a greater or less extent. The intimate connection between the blood, lymph, and nerve supply of the pleura and intercostal muscles readily accounts for the facility with which intercostal muscle contraction arises in cases of pleurisy; the author in a recent article (13) on the Mechanotherapeutics of Acute Pleurisy has emphasized these points. Myositis of the intercostal muscles has been noted by several authors (14).

2. Diaphragm.—The contraction may be unilateral, the half on the affected side being involved, or bilateral. There is seldom complete bilateral immobility: when there is, the case, unless this contraction is removed or alleviated, almost always proves fatal. Litten's phenomenon has been noted to be absent on the affected side in pneumonia and the diminished excursion of the diaphragm on one or both sides has been frequently demonstrated by means of the x rays. In connection with this, it is of interest to note that diminished movements of the diaphragm have been found to be an early sign of phthisis (15).

This diminution of movement may be aggravated directly through myositis (16) arising in the muscle, by extension of the inflammation from an involvement of the diaphragmatic pleura, or from irritation of the phrenic nerve either reflexly or directly. I have seen marked fixation of the diaphragm in cases of apical pneumonia. Other causes may be attempts of the muscle to provide a support for the consolidated portion (whose weight is greatly increased), or temporary loss of contractility and expansibility of the lung.

The chief causes of the contraction appear to be reflex. It has been established that irritation of the intercostal nerves can readily cause contraction in the diaphragm. Hess's diaphragm reflex (17) is the result of light percussion of the nipple; Walrein (18) found that it also resulted from irritation of the skin in the nipple line or between the third to sixth ribs, or in the axilla. Quadroni (19) found this reflex present in seventy-five per cent. of all cases; it is absent in locomotor ataxia and allied conditions (20). A large number of reflexes (21) through the phrenic nerves are said to occur; according to Capps (22), these nerves are sensory to the anterior two thirds of the diaphragmatic pleura.

3. Erector spinae.—There is nearly always contraction in the segments whose nerves of supply



correspond to the anterior roots that supply the intercostal spaces over the pneumonic area, and the contractions in the former seem to follow very closely those in the latter. In pneumonia of the lower lobe the contraction sometimes extends downward to the sacrum—lymph stasis in the gluteal region has been described in cases of pneumonia (22a), but it rarely extends above the upper limit of the pneumonic area. These contractions may be due more to the presence of pleurisy than the pneumonia. Ramond (12) found erector spinae contractions in ninety-four per cent. of all pleurisy. Romolo (23) found that the arising of an exudation in the pleura in cases of pneumonia removed them.

4. Anterior abdominal muscles.—These are frequently involved, especially when the lower intercostal muscles are contracted, but less commonly in apical pneumonia. The contractions may be unilateral or bilateral and may involve chiefly the recti or be more general. They may be very severe—a case has been recorded in which they only yielded to chloroform narcosis (24)—and may either persist throughout the respiratory phase, or relax between each inspiration. Hoffman (25) found, as a result of experimental investigation, that abdominal rigidity is a reflex arising through the intercostal and lumbar nerves, and can arise from irritation at any point in their course. It can also arise in cases of pleurisy through irradiation, but in cases of pneumonia only when the parietal pleura is affected by toxemia, etc. Gläsenfeld (26) regards the abdominal rigidity as due to irritation of the sympathetic. Hampeln (27) as caused by involvement of the vagus and sympathetic, while Franke (28) considers it to ensue from lymphatic involvement.

5. Cervical muscles.—These are often contracted in cases of apical pneumonia, less frequently in pneumonia of the lower lobe. Such contractions must not be confounded with the rhythmical contractions of these muscles in their capacity as extraordinary muscles of respiration in consequence of dyspnea. In connection with this, it is of interest to note that Pottenger found contraction in the scaleni of one side in the case of an acute tuberculous lung.

6. Pectoral muscles.—Contraction or irritability of these muscles is a fairly early sign; this is similar to what occurs in phthisis pulmonum (28).

7. Serratus magnus.—This muscle appears to be contracted in some cases, thereby pulling the shoulders forward; the pectorals may assist it. Probably the cause is irritation of the lateral branches of the intercostal nerves, although in cases of apical pneumonia it is possible that the lower roots of the long thoracic nerve may be affected.

8. Various other muscles, such as the posterior scapular, subclavius, trapezius, etc.—These may also be affected, but are not sufficiently important to need more than passing mention.

#### THE EFFECTS OF THE PERSISTENT MUSCULAR CONTRACTIONS.

This will now be considered. Viewed as a whole, it is a limitation to a greater or less extent of the respiratory movement. Considered more in detail:

1. Gaseous interchange in the lung.—The greater the muscular contraction, the greater the fixation of the thorax and the smaller the amplitude of the respiratory movement (29). The acceleration of respiration only to a certain extent compensates for the diminution in depth. This is easily tested even in health; a series of rapid but shallow respirations is insufficient, and it soon becomes necessary to take a deep breath in order to remove the feeling of impending suffocation. With regard to pneumonia it must be remembered that a respiration rate of fifty is common, and that even in nonfatal cases from sixty to seventy may be reached; thus the patient suffers from an insufficient intake of oxygen and an inadequate elimination of carbonic acid.

2. Venous return to the heart.—In consequence of the diminished respiratory movement, the ordinary mechanism by which inspiration tends to cause a negative pressure in the veins—expiration the opposite—is rendered much less efficient. Venous stasis results not only in the inferior and superior vena cava, but also in the pulmonary veins. As a result there is venous congestion around the air vesicles, and this tends to reduce the proper oxidation of the blood.

3. Blood.—The blood tends to become venous partly from the stasis in the large veins, partly from the diminished intake of oxygen, and partly from the diminished output of carbonic dioxide (30). The last factor has a further deleterious effect upon the circulation rate, as the excess of carbon dioxide causes the blood to become more viscous and increases its tendency to coagulate. It must be remembered that even in the early stages of an attack of acute pneumonia, venesection may bring to view a flow of tarry dark venous blood.

4. Heart.—The heart's work is increased, because: (a) It endeavors to replace the loss of the venous suction and force pump consequent upon the diminished movements of the chest wall; (b) there is greater resistance in the lung generally, due to the venous stasis and blocking of the pulmonary capillaries; (c) there is increased viscosity of the blood; and (d) there is insufficient oxygen and too much carbon dioxide in the nutrient blood in the coronary arteries.

5. Pleura.—When pleurisy is present (as almost always) there ensues practically a complete and persistent cessation of the local respiratory movements. This causes not only a complete cessation of the activity of the pleurolymphatic respiratory pump, but as a consequence causes in the muscles themselves a partial, if not complete, cessation of their own lymph flow, together with a very considerable amount of local venous stasis. Further, the arterial circulation in the pleura is impaired, and in addition the irritation of the intercostal and diaphragmatic nerves tends to aggravate the pain.

6. Other effects.—These may be summarized as follows: Venous congestion and lymphatic stasis in the abdomen, and frequently distention in that cavity; impediment to the circulation, arterial and venous, in the muscles of respiration themselves and inflammation will therefore more readily ensue in them. This will of course aggravate the pain already present from the persistent contraction, and so cause greater immobility of the muscles.

From these considerations it is obvious how prejudicial and dangerous a factor is this contraction of the respiratory muscles. And the consequences are still further aggravated by the fact that throughout the solid lung the circulation is practically at a standstill, and this in itself embarrasses the heart's action.

#### THE MANUAL TREATMENT APPLICABLE TO THE DISEASE IN QUESTION.

The objects of the manual treatment are as follows: 1, Diminution of the muscular contraction; 2, diminution of the inflammation in the pneumatic area, and promotion of the circulation throughout it; 3, diminution of the inflammation in the pleura and promotion of the circulation through it; 4, stimulation of the nervous elements of the lungs; 5, increase of the respiratory movements, the combined result of the foregoing; and, 6, improvement of the constitutional powers as a whole.

The manipulations and exercises employed are as follows:

1. Vibrations. I have on several occasions described (31) the *modus operandi* so it is here but necessary to add that they should only be generated through *incomplete* tetanus of some of the muscles of the forearm, and not through complete tetanus of most of the muscles of the upper extremity—a mistake, I regret to say, that is frequently made. The correct method of executing vibrations is not muscularly tiring; it enables the operator to apply them evenly, gently, and continuously for as long as may be necessary. Vibration may be stationary or running.

A.—Stationary vibrations. The operator sits at the side of the patient; let it be presumed for the sake of illustration that the left lung is affected, and that the operator is seated at the right of the patient. One of the following positions may be selected:

(a) The operator passes his left hand between the patient and the bed, and places the last phalanges of his fingers which are somewhat separated over the most affected portions of the erector spinæ; he then places the separated fingers of the right hand over the most contracted intercostal spaces. This is employed chiefly for basal pneumonia and the concomitant pleurisy.

(b) The operator passes his left hand between the patient and the bed, and places the palmar aspect of his fingers, which are separated, on the interscapular region; his other hand he places over the corresponding anterior portion of the chest. This position is employed chiefly for general vibration of the chest, double pneumonia, or as a method of applying vibrations to the heart.

(c) This is the same as (b), but the operator places one of his hands posteriorly over the scapular region of one side, his other hand over the corresponding anterior aspect of that side of the chest. This is employed chiefly for apical pneumonia.

The results of these vibrations are:

(a) Removal of or diminution in the amount of the contraction in the intercostal muscles, erector spinæ, diaphragm, and anterior abdominal muscles. According to the position of the operator's hands, so will the upper or lower muscles be particularly

influenced. Coincident with the removal of the contraction is the diminution of venous and lymph congestion in the muscles themselves, and the promotion of the venous and lymphatic circulation therein. This reduces the pain, still further enabling the muscles to work rhythmically in order to re-establish the movements of respiration.

(b) Absorption of the exudation and inflammatory material in the inflamed lung, and promotion of the venous and lymphatic flow therein. The fact that vibrations favor the absorption of chronic exudations has long been recognized, although but few observations have been published as regards acute exudations. I have repeatedly found that such acute exudations in synovial membranes, tendon sheaths, pleura, and peritoneum can be made to undergo absorption by means of vibrations in a very short space of time (31). In pneumonia the difference in the auscultatory phenomena before and after vibration of the lung show that the affected part of the lung has become less solid and that freer ventilation is taking place in it.

(c) Absorption of the exudation and lymph deposits in the pleura, and improvement in the pleurisy. The reader is referred to a recent article by the author (13) on the subject of the Mechano-therapeutics of Acute Pleurisy.

(d) Diminution of pain. This is partly due to the direct analgesic action of the vibrations, and partly to other factors, such as reduction of the muscular contractions, promotion of the circulation, diminution of the inflammation, etc.

(e) The gaseous interchange in the lungs is promoted. A certain amount of experimental work has been done in connection with this which supports this fact as ascertained clinically. Von Marxow (32) set up the theory that the minute shocks (vibrations) imparted to the cells of the lungs by the heart beat were necessary for the gaseous interchange, that they were indeed *sine qua non* for actual existence. Other observers have concurred in this. Buttersack (33) concluded that the vibration of the blood in the arteries was a very important factor in this connection. Buchheim (34) considered that the vibration of the blood in the aorta stimulated the cardiac nerves.

(f) Increase in the amount of expectoration, which is ejected with greater ease and less pain, and is frequently seen to be less viscous than before.

(g) Sedative effect on the cardiac action; a reduction of ten beats a minute is frequently found after thorax vibration. This results partly through the medium of the cutaneous nerves and partly through direct effect on the heart muscle. The sedative effect of heart vibration on the cardiac action has been studied in a large number of diseases, although acute forms of disease have hitherto received very little attention. As the result of many hundreds of observations I can assert confidently that the beneficial effects of heart vibration on the cardiac action in acute diseases is as marked as in the majority of chronic ones, if not more so.

B. Running vibrations. (a) These are executed slowly along the intercostal spaces in a direction from before backward. Generally one space is treated at a time, the operator using his approximated forefinger and thumb; if two or three spaces

are treated simultaneously the tips of the fingers are used. The general effects of these are the same as those obtained from stationary vibrations. Their special effects are the promotion of the venous and lymph return in the intercostal spaces and the pleura (the intimate connection between their respective vessels must be borne in mind). (b) Side shaking: This movement is often wrongly carried out, and I shall therefore describe its technic. The operator, standing in front of the patient, places his hands laterally against the patient's lower ribs, one at each side. Continually drawing the ribs slightly forward, he executes an intermittent series of soft elastic pressures downward, inward, and forward. The elbow joints must be kept fairly well extended, and the movement is generated chiefly from the shoulder joint through alternate movements of abduction and adduction. Beginners are often seen to carry out this movement, keeping their elbow joints flexed to a right angle, the hands being considerably dorsiflexed; the movement becomes in consequence jerky and irritating, and would probably do harm in a case of pneumonia. Care must be taken during each relaxation not to move the hands relatively to the patient's thorax; they must maintain their close contact and identity of position throughout.

The effects of this side shaking are: (a) A pumping of air in and out of the lungs, especially the lower part. This is of special value in basal pneumonia. Auscultation before and after side shaking in these cases often demonstrates that better ventilation has been induced.

(b) Promotion of the circulation in the lungs, especially in the lower part, through the alternate application and removal of pressure.

(c) Promotion of the lymphatic return in the same. This is of especial value in reducing the inflammation in the affected area.

(d) Diminution of the amount of contraction in the intercostal muscles, anterior abdominal muscles and diaphragm, with promotion of their circulation, reduction of the virulence of any inflammation therein, and consequently a diminution of the pain. All these tend to reestablish the movements of respiration.

(e) Improvement in the pleurisy.

(f) Sedative effect on the cardiac action.

3. Active respirations. The average practitioner would, I imagine, at once urge that under the circumstances they were impossible on account of the intense pain caused, and dangerous because they would irritate the inflamed pleural surfaces by making them rub against each other; also that every form of exertion on the part of the patient should be strictly avoided as dangerous. When, however, the preliminary vibrations and side shakings have reduced the muscular spasms, the inflammation, the pain, etc., as already made clear, it is found that the patient can take deep inspirations and expirations with but little pain—indeed any pain which arises with the first inspiration diminishes or even quite disappears when a few more have been taken. It is often advisable to assist the patient's active efforts at respiration by simultaneous passive manipulations, generally in the form of side shaking, or pressure upon the abdomen during expira-

tion. This greatly aids the patient's efforts and renders possible much deeper respirations. Moreover, the effect on the circulation and gaseous interchange in the lungs is much more marked. If it be found that a definitely localizable pain is the cause of the patient being unable to take a deep respiration, a short vibration specially applied generally removes it, and enables such respiration to take place with ease. The patient being thus rendered to take deep respirations, the beneficial results on the circulation of both blood and lymph in the lungs, pleura, and heart itself, are too obvious to need more than mention; their importance can hardly be overestimated.

4. Subdiaphragmatic suction. The movement, which it is best to term thus, is carried out as follows: The operator places the tips of his fingers and thumb, or the tips of his fingers alone, in the subcostal angle below the xiphisternum. Applying a certain amount of pressure meanwhile, he then moves them in unison with that part of the skin of the abdomen with which they are in contact at a fairly slow rate downward; after which, relaxing the pressure, he brings them back to their original position. The movement is repeated several times in succession. The effect of the movement is to relieve the contraction of the diaphragm; this can often be induced in a most striking manner.

The immediate effects on the respiratory act of these local lung manipulations are often quite marked. The patient himself feels a relief which no other method, as far as I know, can afford; the respiratory movements are less labored—the movements of the *alae nasi* can sometimes be seen to cease—and becomes slower and deeper; the cyanosis is reduced in amount. Besides this, quiet sleep often supervenes immediately—another very desirable result.

5. Frictions on the posterior divisions of the spinal and on the intercostal nerves. The technic of nerve frictions has been described elsewhere (35). The effects are: (a) Momentary contraction of the corresponding erector spinae and intercostal muscles, possibly to some extent of the anterior abdominal muscles and diaphragm, with subsequent greater relaxation; (b) stimulation of the sensory elements of the lungs and pleura, with resultant stimulation of the excitoreflex of repair. The action is analogous to that of a mustard plaster placed between the shoulders for bronchitis; (c) vasoconstrictor phenomena probably play a part; (d) transient dilatation of the lung (probably)—the so called reflex of Abrams; there seem to be no records of investigation as to whether this reflex is induced in pneumonia, but it certainly seems to occur in healthy lungs, and by temporary relief of the tension it would help in promoting the circulation; (e) as regards the fourth and fifth left dorsal nerves, a stimulatory effect on the heart; (f) as regards the eighth and ninth left dorsal nerves, a stimulatory effect on the spleen; (g) as regards the tenth and eleventh dorsal nerves, a stimulatory effect on the kidneys; and (h) leucocytosis.

6. Abdominal pettrissage, including frictions on the kidneys. The *modus operandi* I have described on several occasions (36); the reader is referred to the original articles. Neither is it necessary to detail the effects of the manipulations comprised under this



heading other than those that bear specially on the disease in question, which are as follows: (a) a depressive effect on the lungs, due to dilatation of the splanchnic area; (b) sedative effect on the cardiac action; it has been shown in cases of heart disease how by means of abdominal petrissage the pulse rate can be reduced—the cardiac action becoming more regular and stronger and the same is the case with regard to pneumonia, in which (as is well known) the heart has to work against greatly increased resistance; (c) diuresis: this is often found clinically; (d) improvement in the digestive functions and appetite—as regards most fevers, I have frequently found that whereas before treatment the patient could not and would not eat a morsel, after it was over spontaneously asked for food, and ate it with relish; (f) leucocytosis; and (g) possibly respiratory reflexes.

7. Heart vibration. This is practically included in vibration over the affected lung (which see), although in pneumonia of the right lung it may become necessary to apply special vibrations over the heart.

8. Various other manipulations. Head vibration and nerve frictions are efficacious in restoring mental equilibrium, and also in reducing the fever, although not to such a marked extent as in other fevers. I have, however, frequently effected a reduction of  $1^{\circ}$  F. by these means.

As a rule the treatment I have described is carried out three times a day in bad cases, twice in less severe ones. Each sitting should average half an hour.

I feel confident that were the manual treatment substituted for the ordinarily employed methods, acute croupous pneumonia would no longer be the serious disease it is at present. One condition must, however, be insisted on; the treatment must be applied with correct technic, and by a properly trained hand, otherwise disastrous results may ensue.

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## CEREBROSPINAL FLUID AND ITS DIAGNOSTIC SIGNIFICANCE.\*

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I wish to discuss primarily the manner of production of cerebrospinal fluid, its circulation in the cranial cavity, and the factors determining its amount. The first thing that I should like to emphasize is that cerebrospinal fluid is a secretion, not an exudate, transudate, nor lymph. This has been recently established by the investigations of Haynes and Kopetsky, as well as foreign observers, and the assertion that the cerebrospinal cavity is one large lymph space is now generally refuted. The blood supply to the brain, through the arrangement from the circle of Willis, is always abundant; especially is it so at the choroid plexus of arteries, the return circulation being amply taken care of by the cerebral veins which empty into the great venous sinuses. I repeat that the cerebrospinal fluid is a true secretion furnished by the glandlike cells of the ependyma which covers the choroid plexus, for upon this phenomenon will largely depend the manner of treatment in affections of the cranial cavity.

The amount of fluid constantly present is, according to Howell's conservative estimate, about sixty to eighty c. c. It courses from the choroid plexus into the lateral ventricle through the foramen of Munro into the third ventricle, thence through the aqueduct of Sylvius into the fourth ventricle and through the foramen of Majendie into the great subarachnoid space. After filling the spinal canal it courses upward over the brain to enter the superior longitudinal sinus. Rarely is any carried away by the lymphatics. When the Pacchionian bodies are fully developed after the third year they transfer the spinal fluid to the sinuses. Since the pressure in the arteries is always above that in the sinuses, and since the pressure of the spinal fluid is below that of the arteries and slightly higher than

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in the sinuses, you can readily understand why the fluid does not change as rapidly as those fluids that have a driving force behind them, as it entirely depends on slight difference of pressure, so that as slowly as it is secreted so is it eliminated. This is a wonderful contrivance of Nature to avert sudden changes in intracranial tension, so that normally, although the blood pressure can oscillate to some degree during sudden changes of posture and emotion or slight cranial trauma, yet the intracranial tension does not vary to as great an extent, owing to this slow circulation of spinal fluid. This rather meagre communication of cerebrospinal fluid, however, and direct arterial supply of blood becomes a disadvantage during the progress of abnormal conditions, for under such circumstances toxic products are very slowly eliminated, and, what is even more important, the all neutralizing elements of the blood stream are not brought into actual contact with the bacteria and their toxins that flourish in an ideal culture medium.

What are the constituents of normal cerebrospinal fluid in so far as they interest us by their variation in disease? Normally it is a clear, crystalline, colorless fluid. It may have a slight yellowish tinge due to leucine in the pigment of blood serum. Although it is usually slightly alkaline, it may be very faintly acid due to an increased lactic acid content. Its specific gravity varies between 1.005 and 1.010, and as low as 1.003 has been noted normally. Under normal conditions no more than six cells to the c. mm. has been found, and these usually are lymphocytes with an occasional endothelial cell. The chemical substances found which interest us are, first, a reducing substance to the extent of 0.04 to 0.05 per cent. It reduces copper (Fehling's solution) but not bismuth, does not ferment nor give osazon with phenylhydrazin. Although such men as Halliburton and Coriat are in dispute as to whether it is sugar or a body similar to pyrocatechin, suffice it to say that in all normal states it is present if carefully sought for. The proteids found are globulin, nucleoproteid, and protalbumose, all in small amounts never over 0.25 gram to the litre. Serum albumin is rarely present.

Let us consider the changes that are produced in this fluid when bacteria gain entrance into it and begin to multiply. Soon after infection cerebrospinal fluid, due to irritation of the meninges and cerebrum, becomes of higher specific gravity owing to increased globulin, which is the result of bacterial destruction and exudation from the surrounding tissues. Until this increase of globulin occurs, the intracranial pressure remains unaltered, but soon the secreting ependyma attempts to dilute the fluid and the outpouring of fluid becomes greater. It therefore follows that the clinical manifestations of cerebral irritation occur some time after the infection has gained headway.

Noguchi, when he announced his butyric acid test, removed the obstacle, in diagnosing slight increase of globulin encountered in the ordinary rough nitric acid and acetoferricyanide tests. This test has proved itself highly efficient in determining meningeal inflammation in its earliest stage. No matter what the infecting organism may be, the Noguchi test is always present in the earliest stage of meningitis and before the fluid has become vis-

ibly turbid. At this stage, also, the fluid will show an increased number of cells, usually of the polynuclear variety. However, in such conditions as severe intestinal autointoxication, pneumonia, and typhoid fever, the globulin reaction may be positive, but these conditions may be differentiated from a true meningitis, in that in the latter the cellular elements are always greatly increased, and the reducing substance is usually absent. The cellular elements at this stage of meningitis do not aid us in differentiating the variety of meningitis. Even in the late stage of tuberculous meningitis, although there is said to be a mononucleosis, we have found this true only in three of our six cases studied within the past year. In tuberculous meningitis and acute poliomyelitis the reducing substance never disappears. Our conclusions have been confirmed by a vast number of cases studied by Jacobs, as well as Blatties and Lederer.

Now we come to the all important phase in the consideration of cerebrospinal fluid, namely, the diagnosis, especially, as we will all agree, the early diagnosis of acute suppurative meningitis before its classical clinical symptoms and signs become evident. The question here might arise, when should the physician decide to do a lumbar puncture in a case of obscure physical signs when the patient presents a rising temperature? We hold that the physician is more than justified in performing a lumbar puncture when the blood count shows a leucocytosis with a relatively high polynucleosis; when he can exclude acute suppuration of the ear and throat, when the chest and abdominal signs and symptoms are wanting, and when, if possible to obtain it, the urine shows no purulent inflammation along the genitourinary tract; or, in other words, in a case of obscure fever with a high polynuclear blood count.

Let us assume that two days pass after the onset of the rise of temperature, in an average case, before the physician can exclude the ordinary causes of this febrile condition. If at this time a lumbar puncture is performed and a bloodfree spinal fluid is obtained, we shall probably find, assuming the case is that of an early meningitis, that the fluid has lost its clear brilliancy, that upon centrifugation the cellular elements are greatly increased and consist nearly all of polynuclear cells; we also find two chemical tests that are of great significance. You will remember that it is now an established fact that no matter how early in a case of suppurative meningitis, the Noguchi butyric acid test will be strongly positive and the reducing substance usually absent. Under such conditions we have narrowed down, by elimination, the diagnosis to the ordinary pyogenic bacterial infections, namely, meningococcus, pneumococcus, streptococcus, staphylococcus, influenza, or typhoid meningitis. We know that all these forms of meningitis, excepting the meningococcus form, are uniformly fatal. The results attained with Flexner's specific therapy, we believe, depend entirely on how soon we can apply it to the affection.

If, then, you establish a diagnosis of acute meningeal inflammation when the sediment in the spinal fluid contains few of the organisms and when they are with difficulty found or not found at all, what chances are you taking in injecting the only specific

serum now extant? If it proves to be the specific remedy for inflammation the result will be a sure cure for your patient. If the meningitis is due to the other pyogenic organisms, then Flexner's serum certainly will do no harm, and, if anything, it will dilute the toxins already formed and possibly exert some inhibition in the growth of the organisms. The ratio of recovery in specific meningitis is, as in diphtheria, inversely proportionate to the length of time of its existence. It is very easy to diagnose a fully developed case of meningitis, both clinically and pathologically, if the spinal fluid is carefully examined.

A word as to the other affections in which the examination of cerebrospinal fluid aids in a diagnosis of the condition. Swift, and after him Dreyfus, after a prolonged study of the cellular count of spinal fluid in all forms of cerebrospinal syphilis, conclude that the presence of more than seven lymphocytes to each c. mm. in spinal fluid is an aid in diagnosing those conditions. In tumors of the cerebrum, Sicard and Foix have concluded that there is constantly present a high globulin content of the spinal fluid with but few if any cells.

As to the biological reactions of spinal fluid, although complement fixation for meningococcic meningitis has been done by Kraus, Citron, and Bruchs originally, who reported favorable results for this reaction, yet it has not up to the present proved of very great value in the hands of many laboratory workers; so that as an aid in the early diagnosis of specific meningitis it cannot yet practically be applied. The diagnosis of carcinoma by means of spinal fluid reactions has not up to the present given very reliable results. As an index of cerebrospinal syphilis the complement fixation test of Wassermann gave us variable and unreliable results with spinal fluid, until recently, when Swift pointed out and proved that the reason for such finding was faulty technic as to the amounts of fluid used in the test. The Wassermann reaction on spinal fluid, as it stands now, is the most valuable asset that we possess in determining the presence of syphilis within the body, even after the blood serum becomes negative.

Regarding that dread disease, idiopathic epilepsy, I have a phenomenon to announce that I first observed in spinal fluid and investigated several months ago. About the middle of last July, I received in my laboratory a tube of spinal fluid that had been withdrawn from a patient with idiopathic epilepsy. The spinal fluid was deeply tinged with blood, so that when the blood had settled after a few hours, and the fluid above was perfectly clear, it probably took up a half c. c. of space at the bottom of the tube. After it had stood in the refrigerator for about two and a half days, I noticed that all the bloody sediment in the bottom of the tube was gone and the entire fluid had taken on a clear, burgundy red color, as is seen in all hemolytic reactions. It struck me at once that the spinal fluid of this epileptic was hemolytic. In further tests on the spinal fluid of other epileptics, this phenomenon constantly repeated itself; especially and to a far greater degree is the spinal fluid of one epileptic hemolytic to the blood of another, to the extent of one c. c. of spinal fluid to one drop of blood within two days after incubation at body temperature. I

may add that, although I have scanned the literature, no one has yet, I believe, reported this reaction. In those epileptics in whom we find a short coagulation time of blood, this finding, therefore, explains the increase in the coagulation time of blood after hypodermic injections of spinal fluid from one epileptic into another.

#### CONCLUSIONS.

Now as to conclusions, as far as treatment is concerned in infections of the cerebrospinal canal, since spinal fluid is a secretion, drugs therefore, which are introduced into the system, other than directly into the cerebrospinal canal, would not reach it unless the glands which secrete the spinal fluid have a positive chemiotaxis for that particular remedy and secrete it, thus bringing it into actual contact with the diseased area. A drug that seems to find favor with the ependymal cells is hexamethylenamine, and it therefore appears in the spinal fluid as formaldehyde. On the other hand, Cramp and others failed repeatedly to recover arsenic in the spinal fluid after salvarsan given intravenously. Recently, investigators have found that of all antitoxins, none are eliminated through the spinal fluid. This explains why only recently Noguchi and Moore found *Spirochaeta pallida* in the lower layers of the brain cortex, but not in the walls of the blood-vessels supplying these areas; and even more recently puncture of the brain in live paretics and injection of this substance into rabbits actually caused syphilitic lesions in these animals.

It is therefore evident that in the treatment of cerebrospinal disease, unless we can prove that our remedy will appear in the cerebrospinal fluid, we must introduce it directly into the cerebrospinal canal. As for the dangers of lumbar puncture properly performed, I have yet to see a fatality in any one. If we follow Sophian, who has probably performed more lumbar punctures for treatment than any one in America, if the blood pressure is watched while withdrawing spinal fluid, the dangers of lumbar puncture are practically nil.

1832 SOUTH SIXTH STREET.

#### PELLAGRA IN MAINE.

By EDWIN W. GEHRING, M. D.,  
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As further evidence of what seems to be the pandemic nature of pellagra, I, herewith, report brief histories of three cases of the disease seen in Oxford County, Maine, during the past spring and summer. None of these pellagrins was under my care at the hospital; in fact all were more or less inaccessible, hence the incompleteness of histories and examinations.

CASE I. Mrs. R., aged fifty-nine years, was seen in consultation with Dr. H. L. Bartlett, of Norway, Maine, on June 26, 1913. She was a feeble little woman who had always lived and was then living in sanitary surroundings. Everything about her home was immaculate. We were unable to get any satisfactory history of past or present illness; suffice it to state that at a comparatively recent date, during the year 1909, she had had a mental disturbance for which she spent some time in the Augusta Hospital for the Insane. Of late, however, she had been living at home and was at the time of our visit entirely rational.

Her present illness was said by the attending physician to have begun in January, 1913, and her complaint now was of "sore mouth," painful knees, many burning evacuations



from the bowels daily, and irritable stomach. The stools often numbered twenty in twenty-four hours. Upon examination was found a much emaciated woman with a somewhat sallow skin, and a symmetrical dark pigmentation sharply demarcated at the wrists and extending thence over the dorsum of the hands to the proximal ends of the last phalanges. Physical examination was otherwise negative. The red count was 4,000,000 corpuscles per c. mm., white count 9,000; the blood showed eighty per cent. hemoglobin, a mild secondary anemia. There was nothing abnormal in the blood smear. The systolic blood pressure varied from 100 to 105 mm. Hg.; Wassermann test not made. This patient died within one week of our visit, retaining a normal mentality to the end.

Concerning her usual dietary we learned that she was extremely fond of bakers' doughnuts and of uncooked cereals such as shredded wheat.

CASE II. Mrs. B., aged forty-nine years, employee in the stock room of a shoe shop, presented herself in May, 1911, for examination with an infected left palm, which, after free incision, discharged profusely, but incapacitated her for work for seven weeks, when she complained of "sore mouth" and salivation, nausea and diarrhea. Simultaneously, an erythema spread symmetrically from the regions of the styloid processes over the backs of the hands and fingers to the bases of the nails. The dermatitis was sharply demarcated at the wrists and nail bases. Diarrhea also had its onset at this time. During the summer the dorsum of the hands "looked as if painted with iodine." There was marked emaciation. The attending physician at once diagnosed pellagra and sent the patient to the Maine General Hospital for treatment. She entered in October, 1911, and remained five weeks. Upon her return home the hands presented the same intense discoloration, although the "stomach weakness," nausea, salivation, and frequent irritating stools had abated. The physician on duty at the hospital made the following diagnosis: "Chronic poisoning from the absorption of materials used in a shoe shop." During the winter of 1911-1912 these symptoms gradually subsided, although she suffered considerably from pain in ankles and knees. The year 1912 was uneventful.

This patient was also seen with Dr. H. L. Bartlett on September 4, 1913. Up to within two weeks she had considered herself to be in perfect health. Since then there have been "attacks of stomach weakness" with sore mouth and salivation, with the reappearance in both palms of what looked not unlike a dry scaly eczema which did not itch. The patient's general appearance was one of cleanliness and health. Physical examination was negative, also the family and past histories. Of interest was the patient's dietary which included meat in moderation, few vegetables and fruits, no cereals nor grains, bread and butter; also the facts that she had never used cod-liver oil or other vegetable fats, had never been outside of Maine, and that to date no mental disturbance had manifested itself.

Since September improvement in all symptoms had been progressive so that when last seen she looked and felt perfectly well.

CASE III. Mrs. F., aged thirty-four years, was first seen by Dr. H. L. Bartlett about the middle of July, 1913, when she complained of having felt tired for five or six months; the appetite, usually good, had during that time been poor and the patient had lost weight, from 110 to 70 pounds.

**Family history.** Father dead. Cause and age at time of death not known. Mother was living and well; brothers and sisters all living and well.

**Past history.** Patient had had three children and all were living and well. No miscarriages. One frank attack of tonsillitis, but otherwise no illness. Menstrual history negative save that complete cessation of the menses in the late spring of 1913 was the occasion for consulting a physician. Born in Maine, she had lived ever since on a farm among the most picturesque natural surroundings, but had always been "irritable" and a life long sufferer from periodic attacks of frontal headache. At Doctor Bartlett's first visit, he found a spare woman of medium stature, neurotic disposition, who complained of irregular menses, gastric burning sensations, and who exhibited a decided discoloration of the skin, sharply demarcated on both forearms, over the scapular spines, on the forehead, and nose, which looked like very bad sunburn. At this time there was no diarrhea but marked mental disturbance. About August 1, 1913, two weeks later, the patient was taken to the Hospital for the Insane at Augusta, Maine. While

there, diarrhea first made its appearance. For reasons more imaginary than real the husband took his wife home at the expiration of sixteen days, notwithstanding her persistently insane state of mind.

I saw this patient with Doctor Bartlett, as a matter of course on his part which I greatly appreciated, on September 4, 1913, in her home, two weeks after her return from the hospital. At that time it was necessary at night for the husband to hold and tie her in bed. The face wore a troubled, confused look as the patient lay motionless and speechless. It is doubtful if she recognized anybody. The sites of discoloration now presented a dry, scaly appearance. The deep reflexes were plus, superficial reflexes diminished; the pupils equal and regular, responded slowly to light. Heart, lungs, and abdomen were negative. Cervical, axillary, and inguinal lymph nodes enlarged. Urine normal. Blood pressure was not taken nor blood examination of any kind made. Stools were not examined. Since leaving the hospital the appetite had improved and the diarrhea had been checked. Despite the superlatively healthful country in which this patient lived, her immediate surroundings left much to be desired. It was of interest, and perhaps significant, that cod-liver oil had been used as a substitute for lard in this home for eight or nine years, and that only a minimum amount of sweet corn on the cob was eaten in season. Two of the symmetrical, erythematous areas were on parts of the body usually not exposed to the sun's rays—on the scapular spines. Since our joint visit in September the menses had not re-established themselves nor was there evidence of pregnancy. The bowels moved with normal frequency, and as the result of improved, almost ravenous, appetite, gain in weight had resulted. Her physician writes under date of November 4, 1913, "she recognizes everyone now but is morose, melancholy, and talks suicide. Although physically strong enough to be about the house and out of doors, she requires constant watching, and will undoubtedly endeavor to commit suicide if an opportunity presents itself."

These cases, together with others recently reported by Lee (1) of Boston and McDonald (2) of the Danvers State Hospital, fail to establish the etiology of the disease, but they confirm the belief, becoming every day more general, that pellagra is not a disease peculiar to tropical regions. These patients had never been out of the State and had lived continuously in Oxford county, where they had been born. All had gastrointestinal symptoms and typical skin lesions, but as yet only two have presented mental abnormality. In two, mental symptoms preceded those of the gastrointestinal tract and skin, whereas in the third, although the skin has looked as if painted with iodine, and diarrhea has been a distressing symptom, as heretofore stated the mind has not become affected.

One's home is crowded and dirty; the others live in clean, sanitary dwellings, but all have spent their days in one of the garden spots of the earth—Oxford county, Maine.

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### ATYPICAL INFANTILE PARALYSIS.\*

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One of the striking features of the present epidemic of infantile paralysis, which has prevailed since 1907, is the large proportion of atypical cases. The typical and classical form, of which a few cases were seen formerly almost every year, runs about

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the following course. The patient suddenly falls ill with moderately high fever, more or less marked gastrointestinal symptoms, and general weakness of the extremities; in a few days the fever abates, leaving the child paralyzed in one or more limbs. This paralysis gradually passes off, except for one group of muscles in usually one of the lower extremities, which remains atrophied and disabled for life.

In former days a very few cases occurred that varied from the above picture; such were the poliomyelitis of Wernicke and the poliomyelencephalitis of Strümpell, both even then regarded as possible variations from the type described above. The acute ascending paralysis of Landry was looked on as distinct. All these cerebrospinal affections were rare and very imperfectly understood; infantile paralysis was considered a disease of the anterior horns, usually of the lower spinal cord, rarely involving other portions of the gray matter. One of my own patients, however, illustrates the exceptions. About seventeen years ago, she went through a febrile affection with the result of a severe and permanent paralysis of the deltoid, thenar, hypothenar, scapular and dorsal muscles of both sides, consequent disability of both upper extremities and a marked scoliosis. I understand that this case was not correctly diagnosed at the time, because of its exceptional features; in the light of recent experience, a similar case would hardly cause any diagnostic difficulty to-day.

During the epidemic of last fall, I observed in all seven cases, of which only one was typical. I saw this one about a month after the onset, presenting a severe paralysis of one leg, and a slight and disappearing paresis of the other. The history of the attack was the familiar one of transient fever and rapidly developing weakness of the extremities, followed by partial remission of the latter symptom. This case therefore presented nothing unusual, whereas all the others were so atypical as to be worth recording in some detail.

CASE I. This child was seen by me in consultation with Doctor Koronefsky. The child had been sick for several days, with temperature up to 106° F.; the flaccid posture of the left arm at once indicated paralysis of the left deltoid muscle, otherwise there was a general muscular weakness, and a temperature still reaching 105° F. Ordinarily, in a case of such severity, the prognosis would seem doubtful as to life, and poor as to restitution of the chiefly affected muscle; nevertheless, the child made a rapid and complete recovery, save for, strangely enough, a slight weakness in the left leg, but an entire restoration of the deltoid.

We have learned that complete restitution is not so very rare, but we look for this favorable outcome rather in the mild and abortive cases, hardly those of the very severe type, with high fever. Temperatures of 106° F. are uncommon in infantile paralysis, though some authors, for example, Stephens<sup>1</sup>, mention them. I do not feel certain that they are prognostically especially unfavorable in poliomyelitis, any more than in other diseases of early childhood. A fatal outcome in this disease is likely to result from other causes rather than the fever alone, though we must bear in mind that in infantile paralysis a high temperature may be a

bulbar symptom by itself, and therefore of bad omen.

CASE II was seen by me in consultation with Doctor Biscow. There had been a slight fever, with gastrointestinal symptoms, for some days, but the temperature had fallen to normal. During the last few hours there had been noticed a growing stupor, with weakness of all the extremities; when I saw the child it was practically comatose, so that a cerebral disturbance was evident. The reflexes were almost absent in the lower extremities, but otherwise nothing precise could be elicited, as the child's mental condition precluded any voluntary movements. In view of the prevalence of a local epidemic the diagnosis of infantile paralysis was justifiable; in a few days the child's mental condition became normal, and one deltoid muscle showed total paralysis.

This case forms a fitting introduction to four others, all of which presented cerebral symptoms. Patients suffering from the cervical form of poliomyelitis are especially subject to at least transitory involvement of the gray matter of the medulla oblongata and basal ganglia, possibly also the convexity. The deep somnolence, often progressing to stupor and even coma, is a characteristic and alarming feature of this group. I cannot, however, point with certainty to a case of severe and permanent involvement of the cortex, as described by Clark<sup>2</sup>, and therefore do not need to enter upon a discussion of the much mooted question as to which forms of acute poliomyelitis should be regarded as mere variations of acute infantile paralysis. Many authors insist that the cerebral affections associated with poliomyelitis do not affect the cortex, but only the basal ganglia; others, including Clark himself, do not accept this restriction. The whole matter is evidently very far from a final decision, but the frequent grave disturbances of the sensorium, of which we have all seen striking instances, as well as the extreme restlessness and the involuntary movements of the extremities that are so often observed, not to speak of general convulsions, are all strong evidence in favor of Clark's view.

The remaining cases were all observed in the wards of Sydenham Hospital, and could therefore be studied in detail.

CASE III. B. D., male, aged seventeen months, admitted October 20, 1912. Previous history of no significance. Present illness began on October 15th, when the parents noticed that his head fell backward, and that his face was flushed; later in the evening it was found that both arms hung limp. Patient vomited once that night; no convulsions, but the eyes were staring and turned upward. On admission the child was practically comatose, with eyes open, tossing about, moving its legs freely, as well as the forearms, but not the neck and shoulders. The pupils reacted to light; there was no strabismus noted; but a slight facial paresis appeared to be present. The muscles of the shoulder girdle and neck were completely paralyzed; the other muscle groups were slightly, if at all, affected, but the knee jerks were absent.

In the course of a few days the stupor cleared up gradually; as the child began to smile, there was noted a slight facial paresis, which soon disappeared. The temperature did not at any time rise above 100.2° F. The severely paralyzed muscles showed no change for some time. On October 23d there appeared an intense sweating, in large drops, limited to the face, with a normal body temperature; this phenomenon persisted for a number of days in a diminishing degree; general perspiration was not conspicuous at any time. Early in November there appeared a slight improvement in the deltoid muscles; at that time the electrical tests showed reaction to faradism in the shoulder group and the sternomastoids, reaction of de-

<sup>1</sup> *Intercolonial Medical Journal of Australasia*, November 29, 1908.

<sup>2</sup> *American Journal of the Medical Sciences*, April, 1912.

generation in both trapezii. This picture remained without change until the patient's discharge on November 14th.

The blood count showed 17,000 leucocytes, at the outset, gradually falling to normal; polynuclears seventy-four per cent., falling to sixty-three per cent.; Von Pirquet reaction negative.

This case is clearly one involving the uppermost portion of the cervical cord, with special implication of the origins of the spinal portion of the spinal accessory nerve, in itself a rare type. It presents, moreover, some remarkable features in addition. I can find no similar instance of localized facial sweating in the literature, though it is true that many authors, such as Krause<sup>3</sup> and Müller<sup>4</sup> mention general profuse perspiration as rather characteristic of poliomyelitis. Curiously enough, Hliger<sup>5</sup> notes anidrosis in this disease. General hyperidrosis in infantile paralysis may very well be attributed to disturbance of the sweating centre in the medulla oblongata, and is therefore especially likely to occur in cases of the cervical and cerebral types. In the present case this theory fails, although involvement of the medulla oblongata could not be excluded and was, in fact, probably present to a moderate degree; it is more reasonable to bring this local sweating into relation with the slight facial paresis, which was present in the early stages of the disease, though, even under this hypothesis, the connection is not as clear as we could wish.

I must not fail to mention that a well known colleague, who saw the patient prior to admission, gave a doubtful prognosis as to life, evidently fearing an ascending paralysis, with dangerous bulbar symptoms. I suspect that the medulla oblongata was actually slightly involved, as the higher cervical centres undoubtedly were, though alarming symptoms did not develop. It is notorious that fatalities are not very rare in cases of this type. As to evidences of brain implication, the involvement of the sensorium was unusually marked in this case, for a day or two amounting to true coma vigil. The eyes remained open, all the more readily because of the slight facial paresis present.

I may add that this case was finally referred to an orthopedic institution to secure some support to the head, before its final return home. In view of the electrical tests, it is extremely doubtful if the trapezii will recover sufficiently to enable them to support the head unaided. The child is therefore, in all probability, doomed to a decidedly uncomfortable future, unless it can obtain relief from one of the neurological operations now rapidly gaining in vogue. In this case the difficulties will be decidedly greater than in those cases affecting the extremities, where, for example in the distribution area of the brachial plexus, considerable success is said to have been attained.

CASE IV. B. S., male, aged thirteen months, admitted October 16th. No previous illness. Present illness began on October 11th, when the mother noticed that the child was feverish and had its mouth drawn to one side; next day the baby was weak in all its extremities, and seemed to suffer pain; on the 13th there was vomiting, increase of fever, and paralysis of the legs. On admission the child was rolling its head from side to side, the right side of the face was flushed and flattened out, there was a

paresis of all the extremities. The pupils were uneven, and reacted to light feebly, the mental condition was slightly stuporous; slight Babinski, knee jerks not absent. Patient was unable to close right eye. Up to October 20th there was a slight fever (maximum 100.6° F.), the extremities gradually returned to normal, though the deltoids remained parietic for some time. The persistent lagophthalmos resulted in a purulent conjunctivitis that required special treatment; as the child's mentality cleared up, the paralysis of the right facial nerve became the conspicuous feature of the case. The blood count on admission showed 11,000 leucocytes, with forty-one per cent. of lymphocytes; three weeks later we found 8,000 leucocytes, with thirty-three per cent. of lymphocytes; the urine was normal; von Pirquet reaction negative. Tests with faradism on October 27th showed reaction of degeneration in all branches of the facial nerve on the right side, but in no other muscular group. There was profuse general perspiration on one or two days when the temperature exceeded 100° F. The condition of the facial nerve remained stationary up to the day of discharge, November 9th.

This case was a typical one of polioencephalomyelitis, with the main lesion in the pons. It presented no features calling for special comment, except the site of the inflammatory process, which we have now learned no longer to regard as a great rarity, though it was formerly so considered.

CASE V. V. C., female, aged two years, admitted October 20th, 1912. Child had been sick two weeks; onset with fever, no vomiting, but convulsions; abdominal pain and headache, flushing of face. As the disease progressed mother noticed weakness of all extremities, staring of the eyes, inability to raise head; profuse sweating and red rash on the face. On admission patient presented complete paralysis of both legs and of the upper arms; paresis of the neck and hands; an eczematous eruption on the face and body; pupils reacting sluggishly; absence of patellar reflexes; temperature ranging between 100° F. and 102° F.; pulse, from 130 to 160. During the following four weeks the paralysis gradually passed off, except in the legs and right deltoid, the eruption spread over a great portion of the trunk, there were copious sweats, not limited to the face, but most marked there. The temperature persisted above normal, ranging almost daily to a fraction above 100° F., the pulse remained rapid—140 to 160; the respirations about forty. There was no difficulty in swallowing. The leucocyte count, 19,600 at the outset (twenty-two per cent. of lymphocytes), gradually fell to normal; von Pirquet reaction negative; urine normal. During the latter part of November the temperature rose for a few days, at one time touching 104° F., probably because of an attack of bronchitis. In less than a week the former condition was resumed, save that the pulse became somewhat slower, ranging close to 130, possibly because of continued treatment with small doses of digitalis. Electrical tests made on December 9th showed feeble reaction to faradism in the right deltoid and left peroneus group; almost total reaction of degeneration in the right peroneus group of muscles; the remainder of the muscular apparatus seemed normal. About December 20th the temperature fell to normal, remaining there, so that the patient was discharged on the 24th. About a week later the child was readmitted with symptoms of bronchopneumonia and marked cardiac weakness, and it succumbed rather suddenly to an attack of acute dilatation of the heart a few days later. Autopsy not obtained.

In this case it is obviously impossible to determine the relation of the cardiac symptoms to the cerebrospinal affection. Prolonged subfebrile temperatures with tachycardia are not uncommon in poliomyelitis, but a duration of seven weeks is unusual and should, as in this case, lead to a careful search for some other cause. The profuse perspiration might have been due either to the poliomyelitis or to the cardiac weakness, but the relative share of these two affections seems to me indeterminate. There is no doubt, however, that in this case the involvement of the gray matter was un-

<sup>3</sup>Deutsche medizinische Wochenschrift, 1908, No. 42.

<sup>4</sup>Münchener medizinische Wochenschrift, 1909, No. 48.

<sup>5</sup>Kronika Lekarska 1902, Nos. 1 and 2.



usually extensive, as shown by the implication of all extremities and the pupillary and mental phenomena; it is therefore not impossible that this patient suffered from grave impairment of the cardiac innervation, which led to a fatal outcome as soon as a special strain was put on the heart by the attack of bronchopneumonia. It is well known that a fatal paralysis of the diaphragm, caused by a lesion in the centre supplying the phrenic nerve, is not excessively rare in poliomyelitis. It is among the possibilities that the present case may be assignable to this group.

CASE VI. A. J., male; aged nine months; admitted October 17th, 1912. For a week past he had suffered from fever, vomiting, gradually presenting rigidity of the neck, later general muscular rigidity; said to have lost in weight. On admission patient lay in extreme gun hammer attitude, with tonic spasm of all muscles; fontanelle not bulging markedly, pupils equal, pulse 114, temperature 103° F., marked Kernig phenomenon; increase of patellar reflexes; weight 6,780 grammes. A lumbar puncture yielded eight c. c. of a turbid fluid under moderate pressure; the sediment consisted chiefly of lymphocytes, with few polymuclear cells and no meningococci. The von Pirquet reaction was negative, the blood cell count showed 25,000 leucocytes, twenty-nine per cent. lymphocytes. An examination of the ears by Doctor Jarecky showed some retraction of the drum membranes, but no evidence of acute otitis or perforation.

The following day the temperature did not go above 101° F., and in a few days more was normal, but the general condition remained unchanged; the weight of child, very curiously, remained quite stationary between 6,700 and 6,800 grammes. On October 23d, a clear cerebrospinal fluid was obtained, which developed a fibrin clot on standing, did not reduce Fehling's solution, and proved to be sterile when cultivated. At this time it was noticed that the fontanelle was becoming depressed. A few days later the spastic condition began to improve rapidly, to disappear by the beginning of November; the infant began to crawl about, but acted stupidly and seemed to be amaurotic; its hearing appeared normal. After November 12th a rapid gain in weight set in, and the disease had evidently run its course, leaving a residuum of mental impairment and blindness, without peripheral palsies of any kind. The patient was discharged on November 28th.

Early in November an examination of the eyes by Doctor Jarecky showed a very intense papillitis, much of which was still present at the end of the month; the pupils did not react to light.

Treatment consisted essentially in the administration of hexamethylenamine, with general measures as indicated. At the beginning antimeningococcus serum was injected, until the bacteriological findings and the character of the cerebrospinal fluid excluded the diagnosis of epidemic meningitis.

The inclusion of this case, apparently one of meningitis, in the group under discussion, rests on the following points of differential diagnosis. Cerebrospinal meningitis is excluded because of the preponderance of lymphocytes in the cerebrospinal fluid, the absence of meningococci, the rapid recovery from the uncommonly severe posterior basic symptoms, and the absence of an epidemic at the time. Tuberculous meningitis is excluded by the high leucocyte count, the acute onset, the favorable outcome, and the negative von Pirquet reaction. The other forms of meningitis, such as are caused by streptococci, pneumococci, or influenza bacilli, would show the respective germs, and also end fatally; we are therefore safe in excluding them also.

On the other hand, it is shown by all the extant post mortem records, that poliomyelitis is always accompanied by a more or less severe meningitis.

While this is usually of a mild type, it may be sufficiently intense to cause characteristic symptoms for a number of days or weeks, and even occasionally be responsible for a fatal termination. I particularly wish to call attention to the series of cases reported by Koplik,<sup>6</sup> in which symptoms recalling both cerebrospinal and tuberculous meningitis dominated the clinical picture throughout the course of the disease, the most striking features being severe spastic manifestations, such as opisthotonos and Kernig's symptom. While I cannot find records of another case presenting optic neuritis terminating in atrophy and amaurosis, such an untoward event is readily conceivable; all that is required is a sufficient pressure on the optic nerve by a serous meningeal exudate, even though the final outcome may not be fatal; choked disc and optic nerve atrophy without total loss of vision seem to be quite common in the meningitiform type of the disease. As to the failure of the cerebrospinal fluid to reduce Fehling's solution, this is supposed to be rather characteristic of the severe forms of cerebrospinal and tuberculous meningitis; Draper and Peabody<sup>7</sup> invariably obtained reduction in poliomyelitis. This finding does not, however, appear to be constant in the meningeal type, for Koplik (*loci citati*) found the reaction slight or absent in several cases. It seems that the test is of doubtful diagnostic value in severe cases of meningoencephalitis, seeming to vary according to the intensity of the infection, rather than the etiology of the disease.

A characteristic feature of these cases is the acute onset, differing in this respect from tuberculous meningitis, but resembling the meningococcus type. The high leucocyte blood count also seems to be a constant feature, differing herein from the findings in ordinary poliomyelitis; a count of 72,000 is recorded in the literature. The cerebrospinal fluid at first is cloudy, but differs from that of cerebrospinal meningitis in that the sediment consists chiefly of lymphocytes; in a few days the fluid clears up, leaving only a delicate fibrin clot on standing. Bacteria have not been found; the germ of poliomyelitis has only just now been discovered<sup>8</sup>, and may turn up in the spinal fluid of this group. The intraspinal pressure is usually not high, far lower than in the usual forms of meningitis; this circumstance suggested the true diagnosis rather early in my case. The temperature is apt to run the course usually observed in poliomyelitis, possibly rather high at first, but falling to normal before remission of the grave cerebral symptoms.

After all is said, the most striking feature is the disproportion between the cerebral symptoms and the general condition of the patient; this was the chief guide to the true diagnosis in my case. After the first few days, the infant, regularly nursed by its mother, held its own and even gained in weight, in spite of the presence of an apparently serious intracranial condition. This is absolutely contrary to all our experience in cerebrospinal, tuberculous, or other bacterial meningitis, where the patients lose in weight with astonishing rapidity. This clinical discrepancy is so remarkable, that it cannot fail

<sup>6</sup>American Journal of the Medical Sciences, June, 1911.

<sup>7</sup>American Journal of the Diseases of Children, March, 1912.

to attract the notice of the attending physician, and clear up speedily all remaining doubts as to the type of disease. It is hardly necessary to add, as a final corollary, that the prognosis as to life is fairly good; still, unfortunate after effects, such as paralysis of some muscular group, mental impairment, and amaurosis, may remain, so that it is well for us not to be too optimistic in our predictions. I may add the interesting circumstance that resulting paralyses are apt to be of the flaccid type distinctive of poliomyelitis, not spastic as after ordinary meningitis.

The remarkable variations displayed by so small a clinical material are sufficient to convince us that infantile paralysis, once regarded as a peculiarly localized disease, is one of the most protean affections of the central nervous system.

111 WEST EIGHTY-FIFTH STREET.

### Abstracts and Reviews.

#### THE CANCER MORTALITY OF GREATER NEW YORK.\*

BY FREDERICK L. HOFFMAN,  
Newark, N. J.

The probable number of deaths from cancer in the United States during 1913 will be about 75,000. Of this number, approximately 30,000 will be deaths from cancer of the stomach and liver; 12,000 from cancer of the uterus and other female organs of generation; 10,000 from cancer of the peritoneum, intestines, and rectum; 7,000 from cancer of the breast; and the remainder, cancer of other organs and parts. In the State of New York, during the year 1912, there were 8,234 deaths from cancer, equivalent to a rate of eighty-six per 100,000 of population, which is above the average for the United States at large. The number of cancer deaths in greater New York, in 1912, was 4,071, and the corresponding cancer death rate of 80.9 per 100,000 of population was the highest on record for the city since the records have been kept. The average cancer death rate of greater New York for the last five years has been seventy-seven per 100,000 of population, which compares with ninety-four for London, 109 for Paris, and 107 for Berlin. The corresponding rate for Chicago was seventy-eight; for Philadelphia, eighty-six; and for Boston, 107. In 1912, the cancer death rate of greater New York was sixty-six for males, and ninety-six per 100,000 of population for females. The excess in the mortality of females is almost entirely due to cancer of the uterus and cancer of the breast.

The cancer death rate of greater New York has increased during the last twenty years from fifty-nine to eighty-one per 100,000 of population. The male cancer death rate of greater New York has increased forty-three per cent., and the female rate during the same period has increased thirty-three per cent. In the old city of New York, or the boroughs of Manhattan and the Bronx, the cancer death rate during the last fifty years has increased

from twenty-four to eighty-six per 100,000 of population, or at the rate of 253 per cent. during the intervening period. Cancer has increased in greater New York at all ages, but the increase has been most marked at the ages of fifty-five years and over. The rate at this period of life has increased thirty-one per cent. during the last five years, when compared with the average rate during the previous five years. The rate has increased in all of the boroughs, but not to the same degree, partly on account of the influence of the hospital mortality, since the deaths in institutions are not redistributed according to the residence of the deceased. There has been an increase in the mortality from cancer of all organs and parts, except cancer of the skin, which shows a slight decrease, for the last five years compared with the previous five years.

As far as it is possible to judge, the Jewish and Italian populations are subject to at least average cancer death rates. There are no very trustworthy recent statistics for greater New York, but the available data for Hungary and the city of Vienna sustain the conclusion that cancer among the Jewish population is of a relatively high degree of frequency. Since a rather large proportion of the Jews in greater New York are of recent foreign origin, and as such a somewhat select class and mostly of the age period at which cancer is not common, it is readily apparent why, in medical and surgical practice, cancer cases among Jews in greater New York should not be as frequent as might otherwise be the case. According to the statistics of the board of health for the last two years, the proportionate mortality from cancer among persons of Russian and Italian parentage has been relatively high, so that the foregoing conclusion is sustained by the only available data at the present time.

The observed increase in the incidence of cancer in greater New York would unquestionably have been much larger were it not for the gratifying results of early operative treatment. Unfortunately a large proportion of the patients admitted to cancer and other hospitals are in too advanced a stage of the disease to warrant a hopeful prognosis. Early operative treatment alone can apparently secure reasonably satisfactory results, and in any event prolong life for a number of years. Of 1,337 patients admitted to the General Memorial Hospital and treated on account of malignant disease during the period ending with 1911, only 105, or 7.9 per cent., died. The proportion discharged as cured was thirty-four per cent.; as improved, twenty-nine per cent.; while the remainder were either not improved or still under treatment at the end of the year. Of 262 women patients treated for cancer of the generative organs, thirty-six per cent. were discharged as cured; thirty-four per cent. as improved; and not quite ten per cent. died. Of 285 patients treated for cancer of the breast, only five, or 1.8 per cent., died. Unquestionably even better results could be secured by the earliest possible operative treatment. Unfortunately a large number of cancer patients delude themselves with unwarranted hopes of a spontaneous cure, or a cure by other than surgical methods, which, while occasionally successful, are, as a rule, delayed and often a disastrous disappointment.

\*Abstract of address delivered at the meeting of the Eastern Medical Society, New York, October 17, 1913.

For this and many other reasons it appears advisable that the general public should obtain a reasonably thorough understanding of the essential facts of cancer occurrence, and the serious risk implied in more or less speculative and often purely mercenary alleged cancer cures. It is practically to-day the qualified medical and surgical consensus throughout the world, that the only reasonable certainty of relief, and possible cure, in cancer cases depends upon the earliest possible removal of the cancerous tissue by means of a thorough surgical operation. The most trustworthy available statistics on the subject prove that such operations are attended with only slight risk to the patient, but the degree of risk is naturally proportionate to the stage of the disease.

These, in brief, are some of the facts which substantiate the conclusion that cancer is unquestionably a serious and increasing menace to the people of greater New York, who, at the present time, to the number of over four thousand per annum, die from this most dreadful scourge of mankind.

### Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXLI.—How do you treat frostbite? (Closed.)

CXLII.—How do you treat chronic constipation? (Answers were not later than January 15, 1914.)

CXLIII.—How do you treat gallstone colic? (Answers due not later than February 16, 1914.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best essay submitted in answer to Question CXXXIX was awarded to Dr. J. Walker Moore, of Philadelphia, Pa., whose article appeared on page 1117.

### PRIZE QUESTION NO. CXXXIX. TREATMENT OF CHANCROIDS.

(Continued from page 1172.)

Dr. E. W. Phillips, of Chattanooga, Tenn., says:

In the absence of complications the following routine is effective: Cleanse the glans and prepuce with soap and water; apply hydrogen dioxide to the ulcer, remove secretions and dead tissue and dry with a piece of gauze, thus obtaining a surface capable of absorbing the anesthetic. Dust this surface well with powdered cocaine, or apply to it a bit of absorbent cotton saturated with a four per cent. solution of cocaine. Wait five minutes, test

the anesthesia, and, if good, again dry the sore and cauterize it thoroughly with concentrated nitric acid. Apply the acid on a small swab, destroying all the softened tissue that forms the floor and undermined edges of the chancre. If the foregoing procedure has been carried out, the acid causes no pain. In dressing, use a "penis roll" thirty inches long, conveniently made by twice folding lengthwise a strip of three inch gauze bandage. Apply this roll, comfortably tight so as to fill the sulcus, separate the glans from the prepuce, and completely cover in the sore. Moisten this dressing and keep it moist with black wash or a four per cent. boric acid solution. Dress daily, or oftener if the dressing becomes displaced. When the slough separates, if the cauterization has been complete, there is left a clean ulcer which rapidly heals under daily dry dressing. Old or phagedenic chancroids may require recauterization on the third day.

If there exists an inflammatory phimosis, concealing the chancreoid from direct attack, it can sometimes be overcome by soaking the penis for half an hour twice daily in a warm, one in 4,000 permanganate solution, introducing a drain within the prepuce, and applying a wet dressing. Should this fail to render the chancreoid accessible within thirty-six hours, it is necessary to make a dorsal slit under cocaine, and treat the sores as above, bandaging back the preputial flaps. Usually in these cases multiple chancroids with an active balanoposthitis are found.

This technic gives much quicker cures and fewer buboes than any other with which I am acquainted. Even if considerable inguinal adenitis exists it commonly subsides when the chancreoid is properly cauterized and dressed. Rest in bed, and cold applications to the affected glands, are indicated in cases of this sort. A well developed bubo obviously requires appropriate surgical treatment; injection of iodoform, drainage, or enucleation of the glands. Genuine chancreoid infection of a lymph node, fortunately not common, requires nitric acid cauterization, free drainage, and frequent dressing.

It is necessary to follow up only a moderate number of chancreoid cases—an observation easily made in the naval service—to learn that the most typical of chancroids may precede a beautiful syphilitic eruption. Each patient discharged from treatment for chancreoid should be warned of this, and instructed to return for observation at the end of a month. The clinical points that lead one early to suspect mixed infection are: An incubation period of ten days or more; induration about the base of an ulcer not irritated by previous treatment; and, especially, the persistence after cauterization of a sluggish sore, perhaps with some peripheral infiltration, that slowly extends and will not heal. In such cases a Wassermann test should be made after the chancreoid has existed for two weeks, and if negative, repeated in ten days. If syphilis is found, vigorous constitutional treatment should be instituted at once. Every surgeon knows that nitric acid is effective in the cure of chancreoid, but, possibly because of its apparent harshness, few use this agent except in refractory cases. The routine employment of nitric acid was brought to my attention by



Surgeon H. M. Toliree, U. S. Navy, who has for some time obtained excellent results with it.

*Dr. John Ballagi, of Homestead, Pa., says:*

In case the diagnosis is correct and the ulcer is really a chancroid, wash and cleanse the whole penis or vagina, not forgetting the numerous folds and nooks of the female genitalia. (Women with chancroids are very seldom met with in general practice). Use soap and water, after that a two per cent. solution of carbolic acid or a one tenth per cent. of bichloride. Then cauterize the ulcer *thoroughly*. The stick of silver nitrate is not good, unless with a very fine point. I prefer pure nitric acid or concentrated liquid carbolic acid, but the adjacent parts must be protected by petrolatum. If one can see the patient in short intervals, an excellent, painless caustic is the saturated solution of camphor in liquid carbolic acid. Put a small bit of cotton soaked in this solution on the ulcer; cover it with several layers of plain gauze and leaving this on for five or six hours; then remove it, dust the sore with boric acid, and repeat the procedure on one or two consecutive days.

With men special care must be taken to provide against paraphimosis. If the prepuce is roomy and can be pushed back easily, the best is to keep it behind the glans constantly with bandages. But when tight and there is danger of paraphimosis do not try to keep it retracted. Better, put gauze around the whole glans and pull the prepuce forward over it. When there is a phimosis already and the edge of the prepuce is full of ulcers and fissures, do not make an incision, much less a circumcision. Syringe out the preputial sac with warm one per cent. carbolic acid solution or a one in 2,000 bichloride solution, then push so many strips of iodoform gauze between glans and prepuce as will go in. Smear the strips well with borated petrolatum. Dressings must be changed twice or at least once every twenty-four hours, and insist on doing it yourself.

Ulcers around the meatus are hard to manage. The dressing has to be fastened on with two cross-wise strips of adhesive plaster, and the patient instructed not to urinate more than two or three times a day, removing the dressing before and replacing it after each urination.

As a rule, cauterization, except with the camphor-carbolic as stated above, does not need to be repeated. Instead, a mild, slightly irritating antiseptic is to be employed, provided the ulcers are accessible. There is a whole army of drugs used, but two of them only can be regarded as almost specifics, iodoform and the copper salts.

The first is the sovereign remedy for chancroids, particularly when the base of the ulcer is covered with a dirty, membranelike debris. Substitutes for iodoform are not "just as good." Iodoform must be dusted on but sparingly and the crystallized form is to be preferred. To be sure, its odor is far from being pleasant, but when one takes care not to spill any on the patient's clothes and covers the ulcer carefully, the odor cannot be detected except in close proximity. Deodorized iodoform does not exist. When for any reason iodoform cannot be employed (the patient ob-

jects to it sometimes), one may try pyrol tetraiodide, or pure boric acid, or bismuth subnitrate, etc. Sluggish ulcers, the creeping, serpiginous form, may require some stronger stimulant like calomel or salicylic acid, besides repeating the cauterization every three or four days.

Phagedenic (gangrenous) ulcers need a very thorough washing with bichloride, or better, with permanganate solution two or three times a day, and dressing with a one per cent. chlorinated water. Continuous wet bichloride dressings, or surgical interference may become necessary in—fortunately rare—desperate cases. Internal treatment is indicated: Arsenic, iron or other tonics. To lymphatic persons iodine, iron iodide or arsenic must be given.

When the ulcer begins to granulate and shows a clean, suppurating surface, use copper sulphate or acetate. Put bits of cotton or gauze saturated with a one per cent. solution of the salt on the ulcer and leave it there from twenty-four to forty-eight hours.

An unpleasant sequela of chancroids frequently met with is the bubo (commonly called "blue-ball"). It is not always possible to prevent it; it may develop in spite of the most careful treatment. Patients must avoid much walking, traveling, athletics, dancing, horseback riding, and sexual excitement; alcohol is absolutely prohibited. Prescribe rest, plain food, and salines. Should the glands begin to show tenderness or enlargement, put the patient to bed, shave the skin, and order compresses with plain warm water to put on the affected gland; then sometimes the inflammation will subside. If not, let the patient get up (if he can) and walk around; that will hasten the coalescing of the separate individual glands and one will not have to repeat the incision for each gland. When there is fluctuation, but the skin is healthy looking yet (red, but not "blue"), aspiration may be tried. Aspirate the pus with a thin trocar and, without removing the needle, inject into the cavity about the same quantity of ten per cent. iodoform emulsion in glycerin.

In opening a bubo I have found it best to make an ample longitudinal incision, pressing out the pus, but to do no syringing except with warm salt solution, and to pack with iodoform gauze. Sutures are superfluous.

There are several "don'ts" in treating chancroids:

Do not use any ointments on the ulcers.

Do not cut, except a paraphimotic ring, a suppurated gland, or the frenulum, when perforated by an ulcer.

Do not paint the skin over the bubo with tincture of iodine.

Do not put on it ointments or cataplasms.

Contrary to authoritative statements (Keyes, *Surgical Diseases of the Genitourinary Organs*, 1904, page 690), virulent or suppurating bubos are *not* and *do not invariably* become an open chancroid ulcer. Do not dress the ulcer first, when ulcer and opened bubo coexist, else the bubo *may* become a chancroid ulcer.

*Dr. Hartwell R. Burwell, of Washington, D. C., states:*

No hard and fast routine or arbitrary rule should be followed in treating chancroids, but treatments should be governed by the underlying surgical

principles and the various indications met accordingly. Chancreoids of the milder types have been known to terminate in resolution and healing under the treatment of mere cleanliness. This is an important feature of successful treatment. Frequent use of warm saline or bichloride solutions one to 5,000 or one to 10,000 is valuable to prevent the spread of the disease, removing the irritating, contagious, and infectious discharges and secretions from the ulcer as well as the products of mixed infection. Most chancreoids are sluggish and indolent and require more stringent measures in the form of curettage or the occasional application of lunar caustic or phenol eighty-six per cent., followed by alcohol. Deep phagedenic ulcers are benefited by a destructive cauterization with fuming nitric acid. By this form of treatment, a slough, consisting of the diseased tissue, is thrown off, leaving a clean ulcer base for healing. Scarlet red may be applied to the skin margin to assist epidermization. Often the repeated use of the tincture of iodine preceded by a two per cent. to four per cent. cocaine solution, is efficacious in producing a cure in an indolent, resistant sore. Care should be taken to prevent contact with chancreoids, by proper arrangement of dressings containing medicaments, as absorbent cotton soaked in mild bichloride solution. Calomel and other powders are used but they often cause crusting and the retention of the secretions. The use of iodoform as a dusting powder is satisfactory in some cases. Ointment of ammoniated mercury is a good dressing for sores on exposed surfaces. Conditions requiring operative intervention are few but well marked and are due nearly always to anatomical defect, position of the ulcer or some local complication. A tight prepuce which resists retraction makes access to a concealed sore impossible. A paraphimosis or balanitis due to the irritation of a coexistent Neisser infection adds to the difficulties. These conditions must be treated before results can be obtained in the primary object of treatment. Mild alkaline washes, or solutions of boric acid, or hydrogen dioxide diluted with warm water, injected by means of small glass syringe between prepuce and glans several times a day, are useful in reducing the local inflammatory conditions mentioned. This process removes blocked secretions and conditions improve within a few days. If the foreskin now permits retraction, the chancreoid may be cared for as already mentioned, but if still tight and adherent, the best operation to perform in such cases is to make lateral incisions under local anesthesia using one per cent. or two per cent. cocaine solution. This measure exposes the preputial ulcer and also the glans, and favors the removal of decomposed smegma and the irritating discharges which have been accumulating for days or weeks. Often firm adhesions have formed between the glans and the foreskin, the former usually presenting a wormeaten appearance. Cleanliness here, as stated above, is the sheet anchor which must be held to in order to get the best results. Later, when healing is complete, a circumcision is indicated to restore the penis to its normal appearance. Complete excision of the sore has been practised in cases of small indolent ulcers but is not recommended for fear of spreading the infection. Extensive

ulceration involving the urethra may later require plastic operation and should be referred to a specialist. Existing adenitis, when suppuration is present, should be dealt with by free incision and drainage. The wound should be packed with iodoform gauze and allowed to heal from the bottom.

Under general treatment brief mention may be made of the use of mercury internally in the cure of chancreoids. Old, sluggish, indolent processes, which have resisted ordinary forms of local treatment, have been known to heal under the use of some salt of mercury and should be tried in such cases. These cases, it may be said, show a negative Noguchi reaction. Body resistance should be brought up to efficiency by attention to general hygienic measures, cleanliness, food, bowels, etc.

*Dr. H. A. Giltner, of Portsmouth, Va., insists:*

In the line of general measures, the patient should be kept at rest as much as possible and not indulge in severe muscular exercise or become overheated. Alcoholic liquors should be absolutely forbidden and the diet composed of plain and digestible food. The greatest precaution should be taken that friction and compression of the penis are avoided. The essentials of the local treatment are to keep the parts thoroughly clean and dry. This is not so difficult when the lesion is on the skin, but when under the prepuce it is far from easy and also more essential.

The ulcer and surrounding parts should be thoroughly scrubbed with soap and water and then irrigated with warm bichloride solution (one in 2000). After cleansing, dust with a powder composed of equal parts of boric acid, subnitrate of bismuth and calomel. There are other good dusting powders, but the former is to be preferred. When the ulcer is small and superficial and there is but little discharge, one dressing daily is sufficient, but usually two dressings a day are necessary. In a small proportion of cases this simple treatment is sufficient to effect a cure, but in the majority of cases there is more or less destruction of tissue and sluggishness of healing which requires cauterization to stimulate the process. After cleansing the chancreoid, make a thorough application of silver nitrate solution, ten to twenty per cent., using a toothpick on which is twisted a small piece of cotton, being careful that the undermined edges of the ulcer are thoroughly touched with the solution. This application should be made every other day until healing is well under way and the ragged edges of necrotic tissue have disappeared. Some cases will require a stronger solution of the silver nitrate which may be used in any strength, even up to one hundred per cent. in some instances. Carbolic acid is in very common use for the cauterization of chancreoids, but my best results have been obtained by the use of the silver nitrate.

Cases of long standing and with considerable destruction of tissue are best treated with potassium permanganate. Crystals of cocaine or a moistened soluble tablet are placed on the sore and allowed to dissolve. A local anesthetic is necessary as the application of potassium permanganate is very painful otherwise. A paste of the permanganate is made with water and applied until the sore is

black. The cocaine is thought to be beneficial aside from the anesthetic effect, probably through the temporary hyperemia which it induces.

In addition, the treatment of seriginous and phagedenic chancroids requires the use of nutritious foods, tonics, stimulants, and careful attention to hygiene and surroundings.

Locally prolonged immersions in, or irrigations of the penis with a one in 5,000 bichloride solution, after which a dressing of gauze wet with a saturated solution of boric acid or salt solution is applied and covered with oiled silk or other impervious material.

Old, indolent lesions, in which there is infiltration and the sloughs fail to separate, should be curetted and cauterized with pure carbolic acid. When healthy granulations begin to form, balsam of Peru makes a very satisfactory dressing.

Chancroidal phimosis requires incision of the prepuce and the best results are obtained by making lateral incisions one on each side back to the coronal sulcus. All dead tissue should be removed with the curette, the subsequent treatment being the same as in uncomplicated chancroid.

Chancroidal paraphimosis is treated with hot bichloride irrigations and immersions several times a day and if strangulation occurs, an incision must be made through the constricting band.

Buboes should be painted with tincture of iodine daily and a spica applied. It is the experience of the writer that suppuration very seldom follows this treatment.

If suppuration occurs, the pus should be drawn off with an aspirator, repeating as often as necessary. If this fails incise, curette, cauterize with pure carbolic acid and pack with gauze. When the glands remain enlarged with no breaking down, or persist after suppuration, they must be excised.

(To be concluded.)

### Therapeutic Notes.

**Treatment of Hematemesis.**—O. Grünbaum, in the *Practitioner* for August, 1913, states that one of the first measures in hematemesis should be to assure the alarmed patient that the condition is common and recovery the rule. Mental agitation can be further diminished by an injection of one third grain (0.02 gram) of morphine (one eighth or one sixth grain is often worse than useless, exciting the patient instead of soothing him). The author doubts whether ill effects result from carefully transferring the patient to a bed. The head should be low if the loss of blood is so great as to lead to oligemia of the brain and consequent faintness, but in the absence of this the patient should be arranged in the position he finds most comfortable.

As for drug treatment, suprarenal extract in one dram (4 c. c.) doses of the one in 1,000 solution is advised by the author. To avoid the secondary vasodilator effect, the drug must be given at short intervals—not over an hour. Ferric chloride and tannic acid are unsatisfactory, for they convert the blood in the stomach into a hard mass, which irritates the mucosa and leads to vomiting or retching. Ergot is unsuitable because it is absorbed and leads

to a rise of blood pressure. Turpentine is of great use when adrenal extract is not available; but if given frequently, even in small doses, this agent may lead to nephritis. If the adrenal extract, together with one grain (0.06 gram) doses of neutral calcium chloride, does not arrest the hemorrhage, lowering the blood pressure with aconite may be considered. The patient should be informed that this drug will make him feel very faint and ill, but that it cannot be helped, and that in a few days' time great improvement will occur. Two minims (0.12 c. c.) of tincture of aconite may be given every half hour until the heart rate falls below sixty or the pressure below ninety mm. Hg., or the heart becomes very irregular. If the stomach is full of blood, rendering administration of the drug by mouth futile, a dilute solution of aconitine in slightly alkalized normal saline solution may be given hypodermically; or, occasionally, tincture of aconite may be added to enemata.

For the first three or four days the stomach should be kept empty and water supplied to the patient in the form of saline rectal enemata, six ounces (150 c. c.) every four hours. Only if the patient is very emaciated are nutrient enemata advisable.

When the hemorrhage has stopped, treatment should be directed to healing the ulcer. The diet should be liquid, and rich in proteid, in order to fix hydrochloric acid in the stomach. It should not contain albumoses and meat extracts. Feeding should be at relatively short intervals, and it may be advisable to neutralize the acid secretion by giving moderate amounts of bismuth subcarbonate, magnesium oxide, sodium bicarbonate, and calcium carbonate. The food should not be that especially liked by the patient, as this would lead to a more pronounced secretion of acid. Probably the best diet in most instances consists of an egg beaten up in one half pint (250 c. c.) of milk, taken every two hours. If constipation results, liquid paraffin, when it does not cause retching and nausea, appears to be the best laxative for these cases.

Iron will hasten recovery from the anemia, but only one compound of it is suitable for these patients, the nucleide (nucleinate), which passes through the stomach unchanged, does not cause constipation or indigestion, and is readily absorbed in the duodenum. Ten grains (0.66 gram) of freshly dissolved iron nucleide may be given three times a day, its objectionable taste being largely covered with chloroform water or fluidextract of licorice.

**Treatment of Seborrhea of the Scalp.**—Sabbatard, in *Journal de médecine de Paris* for April 5, 1913, is credited with the following combination, to be diligently rubbed over the scalp every evening:

℞ Resorcinolis, .....	
Ichthyolis, .....	
Hydrargyri oxid. flavi, .....	āā gr. xv (1 gram);
Sulphuris precipitati, .....	
Pyrogallolis, .....	gr. viiiss-xv (0.5-1 gram);
Olei cadmi, .....	
Adipis lane hydrosi, .....	āā ʒiiss (10 grams).
Petrolati, .....	
M. Fiat unguentum	

Each morning the scalp should be washed with soap and water.



## NEW YORK MEDICAL JOURNAL

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## EDITORS

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NEW YORK, SATURDAY, DECEMBER 24, 1913

RADIUM IN THE TREATMENT OF  
CANCER.

Had it not been that the speakers were men of the type of Howard A. Kelly, of Baltimore, and Robert Abbe, of New York, at a meeting held last Monday night at the College of Physicians of Philadelphia, the positiveness with which they urged that radium could cure cancer when the neoplasm was so situated as to make it possible to place the radioactive substance into contact with it, would have inspired skepticism. Fortunately, there is no ground for any such spirit; the results obtained are in keeping with the observations of several others, Louis Wickham, of Paris, for instance, who has long preached that properly used, radium could master, not only cutaneous epitheliomata, but also grave cases of cancer situated in other accessible regions. Sarcoma in its various forms he found to yield to radiation even more quickly than epithelioma, while lymphadenomata and growths due to *Mycosis fungoides* proved also very susceptible to its effects.

In keeping also with Wickham's advice, however, the speakers advocated surgical removal whenever possible, the limited amount of radium available at the present time rendering a prolonged wait to receive its benefits dangerous in the ex-

treme—owing doubtless to the sudden exacerbation of growth and other complications which would thus be given time to develop. Fortunately, the dearth of radium will in time be remedied; the pitchblende mines and the carnotite fields to which we referred editorially in our issues for October 18 and November 8, 1913, not only afford a vast source of radioactive earths, but through the generosity of Mr. Coleman Dupont, Dr. Howard A. Kelly, and Dr. James Douglass, a prominent engineer of New York, all the radium derived from them will be used for philanthropic purposes.

Radium therapy has, like other valuable method, received its share of criticism owing to the wide field over which its virtues seem to be steadily extending. It is becoming increasingly evident, however, that successful results can be expected only when the operator is possessed of sufficient radium to obtain good results, and provided he has the considerable experience required to use it judiciously.

ACCURACY OF THE CLINICAL  
THERMOMETER.

One seldom hears a physician express any doubt as to the accuracy of his thermometer, which is, in fact, almost the only instrument of precision which is in well nigh universal use among the profession.

Possibly an explanation for this confidence lies in the fact that, whatever the price, the instrument is always accompanied with a certificate of accuracy. We have often been impressed by the fact that none of these certificates ever shows any variation of the tested instrument from the standard of absolute accuracy against which it is supposed to have been tested. In spite of this certificated accuracy of clinical thermometers, many physicians must have noticed that simultaneous observations on a single patient, made with two instruments, seldom give identical results. It has recently been pointed out by a correspondent in the *Lancet* (October 4, 1913, p. 1029) that low priced thermometers are far from accurate; he tested several batches of thermometers selling at from two dollars and a half to four dollars and quarter a dozen.

With three dozen of the cheaper of these instruments immersed simultaneously in a bath of warm water, the readings varied from 98.2° to 101.6°F.; a second similar batch in another bath varied between 98° and 105.4°F., these being the higher priced instruments; a third group of eighteen instruments of the same price (four dollars and a quarter a dozen) immersed in a bath at 98.4°F. as recorded by a Kew certified thermometer, varied between 95.4° and 97.2°F., not a single instrument rising to the actual temperature; these same instru-

ments subjected to a temperature of  $105.2^{\circ}\text{F}$ . read from  $101^{\circ}$  to  $103.6^{\circ}\text{F}$ .

These findings prompted the *Lancet* (November 8, 1913, p. 1342) to undertake observations with instruments varying in price from thirty-six cents to sixty cents each, all stated to be half minute thermometers. In this series of tests the individual variations were far smaller than in the previous group, but it is to be remarked that not over a dozen instruments were used for the entire series of observations. After immersion for half a minute, at temperatures from  $95.3^{\circ}$  to  $105.3^{\circ}\text{F}$ ., only seventeen out of forty-seven readings were within four tenths of a degree Fahrenheit of the actual temperature of the water. After immersion for two minutes, twenty-eight out of forty-seven readings were correct within two tenths of a degree. In the first group of readings the maximum variation recorded was one degree below the correct reading; in the two minute tests the maximum was six tenths of a degree below the actual temperature. Very few of the instruments in this series of tests read much above the actual temperature of the bath in which they were immersed.

From these findings it is obvious that the clinical thermometer of low or moderate price is not a trustworthy instrument—certainly is not one of precision. Just how the more costly thermometers would be found to tally with laboratory instruments of known accuracy cannot be predicted, but it is reasonable to suppose that a certified instrument for which two or three dollars is charged would be found to be fairly accurate. The findings of the *Lancet* laboratory with regard to the inaccuracy of the clinical thermometer after only half a minute's immersion support the common practice of today of letting the patient hold the instrument for at least two minutes.

While it may seem to some that variations of four tenths or six tenths of a degree are but a small matter, it must be borne in mind that just such a variation in an instrument might well cast doubt on the diagnosis in a case of incipient tuberculosis, in which accurate temperature observations are of prime importance, both for diagnosis and prognosis.

#### THE CARE OF THE EYES OF SCHOOL CHILDREN.

One way in which the growing interest in school hygiene is shown is the increasing demand that the eyes of the children shall be conserved by proper glasses, whenever they appear to be causing trouble. This is truly as it should be, but the decision to do the proper thing does not always include provision of the ways and means. It is one thing

to say that a child needs proper glasses; it is another to see that he gets them.

Thousands of children are directed each winter to have their eyes examined. Some of these consult specialists in their offices and receive adequate treatment. Others consult opticians or optometrists, who, for the sake of selling a pair of glasses, undertake to solve the intricate problems involved with a deftness and celerity which would be remarkable if successful. The majority, perhaps, arrive almost simultaneously at the eye clinics, which are overwhelmed by this sudden and temporary increase of the most difficult and time consuming part of their work. A certain number of these children, but a comparatively small one, are set aside for the purpose of teaching, and these receive proper attention, but in our large clinics the time of the expert is fully occupied by attending to the diseases and operative conditions of the eye that present themselves. The great majority of these refraction cases have to be intrusted to the junior assistants, who attend the clinics for other reasons than to devote their entire time to the correction of the tiresome, patience-trying errors of refraction, and seldom have the skill to cope successfully with the task, so that only a small proportion of these children receive the painstaking, accurate attention to which they are entitled. The appointment of a city ophthalmologist, who prescribes from a single examination after the eyes have been placed under atropine by a school nurse, gives no better results, if indeed as good.

The problem then that grows more and more perplexing with the increasing demand for the conservation of the eyes of school children, is how to secure a means by which they may be properly examined, and it may be well to consider the solution adopted in London, as detailed by Dr. Samuel Horton Brown in the *Ophthalmic Record* for October, 1913 (see this JOURNAL for December 6th, page 1135).

This plan may not be ideal; the first attempt to solve a problem of such magnitude seldom is; but it presents three salient features which, we believe, must form a part of any plan that is to prove successful; viz., employment of competent ophthalmologists with adequate facilities, reasonable payment for a reasonable amount of work, and protection against overcrowding. Nothing in this militates against the use of material for instruction; on the contrary, the junior assistants, who now often have to work out their problems unassisted, would then work under the direct, personal supervision of an expert and learn more quickly how to solve them accurately. Nothing except the prospect of some reward will keep the expert down to the grinding,

laborious, and usually thankless task of refraction work; he will leave it for the easier, more interesting, and indirectly more profitable branches of his specialty. No man can do more than a certain amount of work in a day and do it well. The crowds at the clinics at certain seasons are enough to make the most skillful despair; he cannot attend to all, often not to a majority, as they should be attended to, yet if a single patient complains of lack of attention an investigation is in order, and if the expert works overtime, he soon feels that he is not gaining the approbation of the authorities; hence, the limitation of the work given him to do each day to the amount that a skillful man can accomplish successfully in the prescribed time, enables him to perform it accurately and conscientiously.

Too much hurried, slipshod work is to be seen in the refraction rooms of our metropolitan clinics. Under the circumstances we cannot see how it could be otherwise, so, if the eyes of our school children are to be conserved, it would be well for the city authorities to take cognizance of the example set them by their confreres of London, and to institute measures to secure for the children adequate expert care and attention.

#### SOCIAL REFORM LEGISLATION.

Legislation with the view of bettering the human race, that is to say the physical and mental attributes of our breed, is going merrily on. We are unable to furnish a complete list of those States which have some eugenic law already on the statute book, but so far as it goes the following is exact. Among those who have made sterilization of defectives of various kinds a legal procedure are the following: Indiana, Washington, California, Connecticut, Nevada, Iowa, New Jersey, New York, Wisconsin, Michigan, and Kansas. With the well intentioned plan of preventing the spread of venereal disease through marriage, the following States have thrown certain impediments in the way of marriage license procurements: Michigan, Utah, Washington, North Dakota, Indiana, Pennsylvania, and Wisconsin. These impediments vary from simply requiring the affidavit of the candidates themselves that they are free from disease, as is the case in Washington, to the procurement of a physician's certificate of health based upon an examination which the doctor must swear he has made according to the recognized clinical and laboratory methods, as is the case in Wisconsin. Practically all the States which have so far legislated on either of these subjects, the sterilization of the unfit or the spread of venereal disease through marriage, have passed laws which are open to the most severe criticism. The most of them bear evidence of hasty preparation and construction. Legislation has ap-

parently outrun the findings of the eugenists themselves. In connection with this subject, it is well to remember that research is a basic function of the State. It would be wise economy to spend time and money to ascertain the exact nature of the principles which underlie the inheritance of good or bad germ plasma before attempting to correct evils by methods which anticipate the results of careful scientific investigation, and which may eventually be ascertained to rest upon entirely unsound conclusions. With her usual conservative custom, Massachusetts has recognized the fact that eugenic legislation should be undertaken with the greatest caution, if at all, and has empowered and directed her State Board of Insanity, acting jointly with the State Board of Health, to investigate the subject and report to the general court early in the coming year whether further impediments to marriage should be imposed in the Commonwealth. At the coming sessions of the various State legislatures it would be good policy to emulate the State of Massachusetts and provide for calm and deliberate investigation, rather than enter upon another winter of riotous eugenic legislation.

#### COCAINE RECORDS IN NEW YORK STATE.

The attorney general of the State of New York has rendered an opinion to the effect that the Walker cocaine law does not require the physician to furnish a certificate to patients to whom he administers the drug; but, where the physician hands the drug to the patient to be taken away and used later, it is necessary that he should furnish the certificate stating the amount of cocaine furnished, just as the druggist is required to do. Physicians, dentists, and veterinarians are not required to make any record of the cocaine administered to patients, but only of what is handed to the patient for later use. They are required, however, to make a record of the total amount of cocaine disposed of at least once in every six months in a special book kept for that purpose. This book must be preserved for at least five years, and be open to inspection by the legal authorities.

#### THE PSYCHOANALYTIC REVIEW.

A new quarterly, announced as a journal devoted to an understanding of human conduct, and entitled *The Psychoanalytic Review*, under the distinguished editorship of Dr. William A. White and Dr. Smith Ely Jelliffe, makes its bow with the November issue. It is a handsomely printed, wide margined volume of 120 pages, containing matter of the kind indicated in the title, and should be welcomed by a large clientele of physicians in our country, whose duty it is to familiarize themselves with the latest literature and teaching in the difficult and recondite field which it covers. The review is published simultaneously at Lancaster, Pa., and New York city by the Journal of Nervous and Mental Disease Publishing Company at five dollars per annum.



## News Items.

**Harvey Society Lectures.**—The next lecture in the course will be given on the evening of January 17th by Dr. Victor C. Vaughan, of the University of Michigan on the Etiology of the Infectious Diseases.

**Aftercare of the Insane.**—Funds have been allowed for the employment of a social worker at the Long Island State Hospital, Brooklyn, N. Y., for the purpose of the prevention of insanity and aftercare work among the insane in Brooklyn.

**Free Lectures at Harvard Medical School.**—The first of a series of nineteen public lectures on medical subjects, to be given at the Harvard Medical School on Sunday afternoons, at four o'clock, will be delivered on the afternoon of January 4th by Dr. W. B. Cannon, on Recent Studies of the Bodily Effects of Fear and Rage.

**Outbreak of Diphtheria in Nassau Hospital.**—The Mineola Board of Health, on December 14th, quarantined the Nassau Hospital upon discovering that several patients in a ward and twelve nurses were infected with the disease. The disease was brought to the hospital by a patient from Glen Cove, whose illness was diagnosed as typhoid fever.

**Formula Bill in the House.**—On December 4th, a bill was introduced in the House of Representatives by Congressman Lefferty, known as H. R. Bill No. 9832, which provides that it shall be illegal to transport from one State to another, or to export, or to sell in the District of Columbia, any package of food or medicine which does not bear a complete statement of the contents.

**Exhibit of the Department of Health.**—A permanent exhibit showing the activities of the Department of Health of the City of New York was opened on Wednesday afternoon, December 17th, in the exhibition hall of the Department of Health Building, 149 Centre Street. Five minute addresses were made by some of those who have rendered distinguished services in the cause of public health. Dr. Stephen Smith was the principal speaker.

**Portland, Me., Medical Club.**—At the thirty-seventh annual meeting of this organization, held on the evening of December 4th, under the presidency of Dr. Harold A. Pingree, the following officers were elected: President, Dr. Walter D. Williamson; vice-presidents, Dr. Alfred Mitchell, Jr., and Dr. Frank Y. Gilbert; secretary and treasurer, Dr. Roland B. Moore. The address of the evening was delivered by Dr. Owen P. Smith.

**Eradication of Malaria.**—At the third National Drainage Congress, held in St. Louis, Mo., April 10th, 11th, and 12th, a section on malaria eradication was organized, with the object of stimulating the study of the distribution, prevalence, and economic importance of malaria, and of devising ways and means to conduct a public campaign against this disease. The next meeting of the congress will be held in Savannah, Ga., in 1914, the exact date to be announced later, and at this meeting many interesting discussions on the question of malaria will probably be held.

**Army Medical School Building Recommended.**—Surgeon General Torney, of the United States Army, has submitted to the War Department estimates for the erection of a suitable building in Washington, D. C., for the Army Medical School and for a central infirmary at the Washington barracks. It is proposed to erect the Army Medical School building adjacent to the Walter Reed General Hospital so that the students may have the clinical advantages and the instruction in administration afforded by the hospital, and that the hospital may enjoy the laboratory conveniences of the school.

**Summit County, Ohio, Medical Society.**—At the seventy-first annual meeting of this society, held in Akron on December 2d, the following officers were elected: President, Dr. D. H. Morgan; vice-president, Dr. T. K. Moore; secretary, Dr. A. S. McCormick; treasurer, Dr. S. J. Metzger. Committees: Board of censors, Dr. H. S. Davidson, chairman, Dr. J. G. Grant, and Dr. G. M. Logan; health and legislation, Dr. W. S. Chase, chairman, Dr. F. C. Reed, and Dr. J. N. Weller; library, Dr. J. H. Seiler, chairman, and Dr. D. S. Bowman; delegates, Dr. M. D. Stevenson and Dr. J. N. Weller; State legislation, Dr. R. H. McKay; national legislation, Dr. W. A. Searl.

**Meetings of Medical Societies in Philadelphia during the Coming Week.**—Monday, December 22d, Neurological Society and the North and Commonwealth Branches of the County Society; Tuesday, December 23d, West Philadelphia Medical Association; Friday, December 26th, Northern Medical Association, South Branch of the County Society, and the board of directors of the Medical Club.

**Eastern Medical Society.**—At the annual meeting of the Eastern Medical Society of the City of New York, held on Friday evening, December 12th, under the presidency of Dr. Joseph Barsky, the following officers were elected to serve for the ensuing year: President, Dr. Joseph Bieber; first vice-president, Dr. I. Strauss; second vice-president, Dr. M. Keschner; recording secretary, Dr. Samuel J. Scadron; corresponding secretary, Dr. Harry E. Isaacs; treasurer, Dr. Herman Lerber; trustee, for three years, Dr. Joseph Barsky.

**National Red Cross Society.**—At the ninth annual meeting of this society, held in Washington, D. C., on Wednesday, December 10th, it was announced that Mr. Jacob Schiff, of New York, had made a special additional endowment of \$100,000, the income to be used for the nursing service of the Red Cross, and that Mrs. Whitelaw Reid had offered to contribute \$2,500 a year to the same fund. For service in the Balkan War, a medal was awarded, among others, to Major Clyde S. Ford, of the Medical Corps of the United States Army. For miscellaneous service in connection with the eruption of Taal Volcano, a medal was given to Major Charles Lynch, of the Medical Corps of the United States Army. President Wilson was reelected president of the society.

**Personal.**—Dr. William H. Jefferys, of St. Luke's Hospital, Shanghai, China, delivered an address in Philadelphia on the evening of December 9th, in which he spoke of China's great need of medical missionaries. Dr. W. W. Keen presided at the meeting.

Dr. Charles F. Sanborn, assistant superintendent of the Cook County Hospital, Chicago, will go to Cincinnati, Ohio, on January 1st, to assume charge of the new general hospital.

Dr. C. Ross Miller, assistant house physician at Ray Brook, N. Y., Tuberculosis Hospital, has been appointed assistant superintendent of the Ogdensburg State Hospital.

Dr. L. E. Burch has been appointed acting dean of the medical department of Vanderbilt University, Nashville, Tenn.

**Requirements for Admission to the Long Island College Hospital.**—Beginning with the session of 1914-1915, Long Island College Hospital, Brooklyn, will require one year of college work for admission to the freshman class. In order that students may advantageously prepare themselves for entrance, the college has established a medical preparatory course devoted to the subjects of physics, chemistry, biology, both didactic and laboratory, elementary physiology, French, and German. As many of the high school students in the neighborhood of New York graduate in February, a spring and summer course will be given, beginning February 3d, and continuing thirty-two weeks. The fees for this course will be \$155, and, upon its completion, the student will be granted a certificate which, with the presentation of the regents medical student certificate, will entitle the holder to admission to the freshman class of Long Island College Hospital.

**Travel Study Club of American Physicians.**—The physicians who made a study tour of Europe last year under the presidency of Dr. William B. De Garmo, of New York, have organized into a permanent body to be known as the Travel Study Club of American Physicians. A constitution and bylaws have been adopted and the following officers elected: President, Dr. Louis Livingston Seaman, of New York; vice-presidents, Dr. William B. De Garmo, of New York, Dr. Edward B. Heckel, of Pittsburgh, and Dr. Howard Van Rensselaer, of Albany; secretary-treasurer, Dr. Richard Kovacs, of New York; executive committee, Dr. F. H. Abce, Dr. S. Breitenfeld, of New York; Dr. A. J. Crowell, of Charlotte; Dr. H. F. Foss, of Philadelphia; Dr. J. P. Lord, of Omaha; Dr. J. F. Percy, of Galesburg, and Dr. John Punton, of Kansas City. The Travel Study Club plans for a tour in 1915 to the A. M. A. meeting, the San Francisco Exposition, Honolulu, the Philippines, China, and Japan.

**Examination for Anatomist in the Army Medical Museum.**—The United States Civil Service Commission announces an examination for anatomist, men only, on January 7, 1914, and from the list of eligible persons obtained from the examination it is intended to fill a vacancy in this position in the Army Medical Museum, office of the Surgeon General, United States Army, at a salary of \$1,600 a year. It is desired that the person appointed to this position shall be young, in good health, a graduate in medicine, having a thorough knowledge of pathological histology, pathology, and bacteriology, and be capable of making photomicrographs, understand microscopes, surgical instruments and appliances, and be able to prepare, index, and keep in order museum specimens. For further information regarding the scope of the examination and for the necessary application blanks, address the United States Civil Service Commission, Washington, D. C.

**Hospital Efficiency.**—At a conference held in Philadelphia on December 10th, which was attended by representatives of many of the hospitals of that city, an efficiency engineer laid before the conference a proposal to organize a central cooperative purchasing department through which should be obtained all the supplies for the hospitals subscribing to the movement. This engineer said that such a central bureau would make possible great economy in the operation of the hospitals. The bureau would also standardize various details in the operation of the various hospitals, thus effecting economy and bringing about a higher degree of efficiency. It was stated that the sum of \$7,000 would be required to make a preliminary survey. The following hospitals were pledged to cooperate in the movement: The Garretson, Samaritan, Presbyterian, Children's Homeopathic, Kensington, Jewish, Children's Hospital of Philadelphia, Howard, Mt. Sinai, Rush, University, and Gynecan.

**National Institute of Social Sciences.**—On December 2d, by petition of the American College of Surgeons, a gold medal of honorary membership, and the presentation medal of the National Institute, for notable service rendered to humanity, were presented to Sir Rickman J. Godlee, president of the Royal College of Surgeons, England. The following were elected to membership in the National Institute of Social Sciences: Dr. George E. Brewer, Dr. Philip van Ingen, Dr. Linsly R. Williams, Dr. William B. Coley, and Dr. Virgil P. Gibney, of New York; Dr. J. M. T. Finney, of Baltimore; Dr. C. F. Stokes, surgeon general, United States Navy, Washington, D. C.; Dr. G. E. Armstrong and Dr. Walter W. Chipman, of Montreal; Dr. Franklin H. Martin, of Chicago; Dr. George W. Crile, of Cleveland, and Messrs. B. Aymar Sands, of New York, and James C. Parrish, of Southampton, L. I. It was voted to include in the journal of the institute, the speech of Hon. Nelson T. Aldrich, and the address of Albert Shaw, Esq. The date of the general meeting was changed to the third Friday in March.

H. HOLBROOK CURTIS, secretary.

**Expectoration from Elevated Car Windows.**—Spitting in public places is now generally recognized to be insubstantial and in certain cases even dangerous to the community. It is prohibited by section 178 of the Sanitary Code, the provisions of which are very generally upheld by public opinion, and it can be confidently stated that the publicity from time to time given to this section by arrests for its violation has caused a very considerable diminution in what was at one time an exceedingly common practice. Occasionally, however, as in the case which follows, the department fails to secure the punishment of the offender. In this instance, the violation was of that portion of the section which prohibits spitting into the streets from the cars, stairs, or platforms of the elevated railroads. An officer in uniform, one of the sanitary squad of the department, while riding on a Third Avenue elevated train, noticed a man spitting from the car window into the street. He was cautioned not to repeat the offense. He then continued to spit in a newspaper and later again expectorated from the car window. He was thereupon served with a police summons. When the case was presented in the Magistrates' Court, however, the judge stated that he considered the arrest ridiculous and the offender was discharged. The records of the department showed that the man was suffering from tuberculosis of the lungs in the third stage, and that his sputum, previously examined by the department, contained tubercle bacilli.

## Jith of Progressive Literature.

### DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT

October 2, 1913.

**Sodium and Potassium Metabolism in Diabetes mellitus.**—S. Kohn asserts that in diabetes the amount of potassium in the organism is increased, and that of the sodium decreased. There is a strong resemblance of the symptoms of potassium poisoning to those of diabetes; glycosuria is observed in increased potassium and decreased sodium administration. The cause of this metabolic disturbance lies in faulty gland functioning of the pancreas. The oatmeal cure now in vogue is justified by this theory.

**Chloroform and Ether Narcosis, the Value of Narcosis Apparatus, and the Support of Inhalation Narcosis by Morphine, Scopolamine and Certain Soporifics.**—M. Kochmann says that narcotic experiments in animals with chloroform and ether have in all essential points confirmed the practical experiences of the surgeons. The author has discarded all inhalation apparatus. When chloroform and ether are mixed in the proportion of one to six or seven, a strong narcotic action is observed; all other proportions of the mixture only add a secondary effect. A previous dose of morphine increases the narcotizing action of chloroform in the proportion of 100 to 163, in ether in the proportion of 100 to 150, by diminishing the concentration of the drug necessary for narcosis. The combination of chloralhydrate and veronal with chloroform is slightly unfavorable, somewhat less than with ether; paraldehyde appears to be the least harmless.

**Treatment of Cardiac Failure in Pneumonia with Venesection and Adrenalin Sodium Chloride Solution.**—Lonhard reports the recovery of an almost fatal case of asthenic wandering pneumonia (commencing pulmonary edema; temperature, 41° C.; pulse, 140; respirations, 58) after a venesection of 300 c. c. and three injections of sodium chloride adrenalin infusion.

**Cymarin in Chronic Myocarditis with Decompensation.**—R. Kolb found that intravenous injections of cymarin (ampoules containing 1.2 c. c. of the solution, equivalent to 1.2 milligrammes cymarin) produced gratifying results in severe cardiac insufficiency with chronic interstitial nephritis which had resisted treatment with digitalis, camphor, and caffeine.

**Experiences with Kordalen Injections.**—Koebel reports that the action of kordalen in failing compensation resembles closely that of digitalis. But its subcutaneous injection is not as painless as the pharmaceutical firms would have us believe. The author had a case in which four weeks after injection a large, very painful infiltrate still existed.

October 9, 1913.

**Fourth Report on Behring's Diphtheria Vaccine.**—Kleinschmidt and Viereck report that the best method of administering Behring's diphtheria vaccine is the intracutaneous injection, for which purpose 20 to 25 milligrammes, in a two per cent. solution, are sufficient. In the beginning of the reaction four stages are to be distinguished: 1, mod-

erate redness and infiltration (diameter from one to two centimetres); 2, marked redness and infiltration (diameter over two centimetres), with pain and then abeyance of it; 3, inflammation of the neighboring lymph apparatus; 4, general symptoms, as fever, etc. The result of the immunity is judged by the diphtheria antitoxin in the blood which should be repeatedly controlled by Römors or Schick's method on the guinea-pig. The presence of an antitoxin of 1/20  $\text{\AA}$  in one c. c. of blood is a sufficient protection even in severe infections. The effect of the active immunization begins at the very earliest on the eighth day after the injection.

**Experiences with Radium Therapy in Internal Disease.**—F. Kraus says that the best results with radium therapy were obtained in sciatica, subacute, and chronic; cases of rheumatism also showed marked improvement; the same could be said of gout, arteriosclerotic manifestations and, at times, the results of brain hemorrhage. The intramuscular injections gave the best results; in many selected cases their combination with diathermia seemed to be of particular advantage.

**Protein Content in the Sputum of the Tuberculous.**—E. Gelderblom asserts that the presence of protein in the sputum of tuberculous patients is proof of the presence of a fresh process in the lung; an increase or decrease of the protein amount indicates the spreading or improvement of the process. The amount is determined after the Pindborg method with the aid of Aufrecht's albuminimeter.

**Ischias cyphotica.**—Johann Hnáték describes a case of typical right sided ischias which accompanied a cyphosis of  $120^\circ$ ; it disappeared with the primary condition. The rare occurrence of a cyphotic sciatica, there being only three similar cases in the literature, is accounted for by a diseased sensory branch of the sciatic nerve in the sacrolumbar muscle, the latter also pressing on the nerve by its contraction.

**The Rupture of an Aortic Aneurysm into the Upper Vena cava.**—A. Klein reports that sudden death was preceded by a high grade of dyspnea, edema, and cyanosis of the head, neck, the upper extremities, and of the upper portion of the thorax to the height of the xiphoid process. In the literature seventeen similar cases are found.

**Progress of the Silver Treatment in Gonorrhea of the Male.**—E. Rosenfeld recommends for the abortive treatment of gonorrhea three injections of a 1.4 per cent. solution of hegonon, retaining each for five minutes; these injections are repeated at intervals of from three to five days, each combined with a Janet's irrigation with a solution of from one in 3,000 to one in 1,000 for the same length of time. Advanced cases require from four to six injections daily. When complications are present, besides the treatment with hegonon solution, an active immunization is urged by injections of polyvalent gonococcus vaccine, or by arthigons. The results are excellent. Hegonon is a compound silver nitrate-ammoniac-albumen, and it differs from other silver preparations in its extraordinary nonirritating quality.

October 16, 1913

**Present Status of the Lyssa Investigations.**—Jos. Koch concludes by saying that lyssa in his part

of the country may be considered a rare occurrence. There are without doubt cases of abortive lyssa chiefly of the spinal and cerebral type which end favorably. The characteristic finding in true lyssa are Negri's bodies in Ammon's horn, having an intracellular position and peculiar inner bodies, and the smallest cocci-like forms in all of the gray matter, and in the ganglion cells of the spinal cord and brain situated in the gray matter. Noguchi, it is claimed, has recently grown the latter cocci-like bodies anaerobically. There are, in all probability, latent lyssa infections in which the virus remains latent in the central nervous system—incubation period—and is aroused to its fatal activity by some contributory cause as trauma, etc. For these cases medicinal therapy is indicated. Iodine in the form of solution of potassium iodide four in 200. Vaccination, however, remains the *conditio sine qua non*.

**Abderhalden's Dialysis in Psychiatry.**—Bundschuh and Roemer examined the brain cortex, thyroid, and genital organs, and sometimes the kidneys with the usual controls; serum alone, and organ substratum plus inactivated serum were all negative. Nine normal subjects reacted negatively, and also nine manic depressives. Forty-one cases of dementia praecox split up brain cortex thirty-five times, genital organs thirty-four times, thyroid fourteen times. Thirteen paralytics gave positive reactions, fourteen times with brain cortex, twice with testicle; and negative reactions, twice with brain cortex, ten times with testicle, and in every case with thyroid.

**Tubercle bacilli in Blood.**—C. Moeves and Bräutigam have shown that the various staining methods for blood smears now in vogue are not reliable. Animal experiments with the blood of fifty patients suffering from tuberculosis did not reveal in a single case the presence of tubercle bacilli. It may be assumed that in milary tuberculosis bacilli circulate in the blood only temporarily.

**Animal Experiments on the Presence of Tubercle bacilli in Tuberculosis of the Skin, Particularly of the Face.**—K. Stern found in 68.7 per cent. of the cases the presence of virulent tubercle bacilli in the excretions of ulcerating lupus (by animal experiments). It follows that a patient with ulcerating lupus is a source of infection for himself and others; he should for this reason be isolated.

**Zone Degeneration in the Liver of Pregnancy.**—P. Heinrichsdorff considers with Opie under this term a uniform toxic affection producing a uniform necrosis in certain parts of the whole liver, the central or peripheral, or central and the intermediary zones of the liver lobes. They report a puerperal case in which the microscopical examination of the liver revealed a high grade of degeneration in the central and intermediary zones. In each case we must decide what relation exists between these areas of necrosis in the liver and a concomitant or ended pregnancy.

**Three Cases of Patent Ductus Arteriosus Botalli.**—Motsfeld's three post mortem examinations of two men, aged thirty-two years and thirty-five, and on one woman, aged fifty-five, showed a patent ductus, although in life they had so few



symptoms that a positive diagnosis of this condition could not be made.

October 25, 1913.

**New Therapeutic and Prophylactic Experiments in Gonorrhea.**—C. Brück recommends the use of caviblen rods, made by melting the tube-like shells which contain uranoblen in powder form. Uranoblen is a forty per cent. combination of silver with uranin. Although uranoblen is almost non-irritative, in its use it is best to await the cessation of all acute manifestations. After treatment lasting fourteen days, the patients were permanently free of gonococci.

**Practical Results with Caviblen Therapy.**—A. Sommer says, in the application of caviblen therapy in male and female urethral gonorrhea, in cervical gonorrhea, and the gonorrheal vulvovaginitis of small girls, the excellent results of the method are enhanced by its simplicity. The gonococci frequently disappear from the microscopic field after one application and almost always after a few insertions of the rods. For anterior treatment a straight rod twice daily is introduced; for posterior treatment every third or fourth day a longer, specially curved rod is introduced. Patients should be warned that the preparation stains.

**Biological Studies of Gonococci, with Special Attention to Uranoblen.**—A. Gluck asserts that uranoblen is an uncommonly safe means of killing gonococci; it has this property in a concentration which is ten times weaker than the therapeutic dose.

**Benzol Therapy in Leucemia.**—E. Mühlmann reports the case of a man, thirty-seven years old, with lymphatic leucemia, which was favorably influenced at certain times by combining treatment with benzol and thorium x therapy. Death ensued after six months, and the autopsy revealed wide spread liver necroses.

October 25, 1913.

**Further Experiments with Aberdalden's Dialysis in the Insane.**—J. Fischer found in those suffering from dementia præcox that the genital glands were split up without exception, more specifically the testicle in men, and the ovary in women; the brain cortex was almost constantly split up. In sixteen cases of genuine epilepsy the brain cortex was reduced only once. In examining ten paralytics he found that the brain cortex was invariably split up, the other organs less frequently, and the genital organs never. The author suggests that it would be well in the future to make a note of the mental state of the patient in the history, at the time of making the blood test, particularly a note as to the mood.

**Thymin and Its Action in the Treatment of Basedow's Disease; and Thymin as a Soporific.**—R. Hirsch reports that thymin tablets are made from the thymus gland of the calf. Two tablets (0.5 gramme) daily were given under the supposition that the thymus effects hyperfunction or painful function of the thyroid. The results, consisting of an improvement in restlessness and sleeplessness, regression of the struma, exophthalmus, and cardiac disturbances were marked; an improvement was noticed in two cases in which operation had been without effect. As a soporific, thymin

given in doses of one or two tablets in certain cases of diabetes insipidus, neurasthenia, arteriosclerosis, and dyspepsia, has also produced good effects. No untoward action was noticed. In animal experimentation, two doses of thymin of 0.5 gramme each, daily, produced an increase of the nitrogen metabolism and the calory production.

## PARIS MÉDICAL.

November 22, 1912.

**Aseptic Empyema.**—C. Dopfer reports a case of croupous pneumonia and another of bronchopneumonia complicated by pleural exudate, in which exploratory puncture yielded a seropurulent fluid containing numerous well preserved leucocytes and a few endothelial cells, but no bacteria. Cultures and inoculations of rats gave negative results. A third case was one of acute lung congestion in a frankly tuberculous patient, complicated by empyema, with thick grayish pus containing, however, neither tubercle bacilli nor other organisms. In a fourth case, an attack of grippe was followed by pulmonary congestion, aural pain, and mastoid tenderness, serosanguineous discharge containing pneumococci from the ear, and a septicemic temperature curve; intrapleural exudation was soon noted, but the pus proved sterile. In none of these cases was surgical intervention resorted to as regards the chest; yet recovery always promptly followed—after a mastoid operation in the last case. Discussing aseptic empyema in general, Dopfer points out that while the leucocytes in the pus may finally show evidences of senescence, there is never the total degeneration and nuclear deformation and pallor of these cells that is seen in septic pleural exudates. The advisability of recognizing these aseptic purulent exudates lies in the fact that their evacuation is contraindicated, unless they are extensive.

**Vaccine Treatment of Complications of Gonorrhea.**—P. Remlinger reports excellent results from the use of an atoxic antigonococcal vaccine recently described by C. Nicolle and L. Blaizot. Fifteen cases were treated, and a detailed history of six of these is given. The vaccine was injected under the abdominal skin daily or on alternate days in doses of three to fifteen drops, diluted with from two to five c. c. of normal saline solution. Pain in gonococcal orchitis and rheumatism, even where previously unrelieved by morphine, was not infrequently controlled within a few hours after the first injection, disappearing entirely after the second or third. Fever subsided almost as promptly, and the general condition showed rapid betterment. Joint swellings, thickening of the ends of the bones, epididymal enlargement and induration, and purulent processes in the urethra or bladder were the last manifestations to disappear. The treatment seemed equally effective whether begun at the commencement of the disease or some time after. Even ten or fifteen drop doses caused no general reaction, and the local reaction, consisting of slight redness and pain, was so insignificant, compared to the testicular or joint pains, as usually to pass unnoticed by the patients. Keeping the vaccine for two months on ice did not seem in the least to impair its therapeutic activity.

## PRESSE MÉDICALE.

November 13, 1913.

**Erythema nodosum and Tuberculous Septicæmia.**—L. Landouzy has maintained for some time that erythema nodosum is the result of a tubercle bacillus septicæmia, basing this conclusion on the frequency with which tuberculous manifestations precede, accompany, or follow the eruption, but not being able to supply bacteriological proof of his assertion. He now reports the case of a female servant aged twenty-seven years with typical erythema nodosum, arthralgia in the lower limbs, fever, gradually increasing mitral insufficiency (endocarditis), signs of congestion at the right pulmonary apex, and a positive tuberculin reaction, in which a typical tubercle bacillus, with diffuse inflammatory lesions, especially of and around the vessels, was discovered in a nodule taken from the forearm. Injection of part of the same nodule into a guineapig gave positive results.

## SEMAINE MÉDICALE.

November 20, 1913.

**Mistaken Diagnoses of Cholelithiasis.**—F. Lejars cites a case of cancer of the prepyloric portion of the stomach in a man fifty-three years of age, in whom symptoms of gallstone disease had existed for some years before operation revealed the actual condition; there had been pain in the liver region, radiating to the right shoulder, every evening at 11 o'clock, followed by bilious vomiting, and an ovoid, hard, rather movable mass had been palpable below the right costal margin. On the other hand, as recently illustrated in a case reported by Tilton, exclusively gastric functional disturbances may alone be present in cases of true cholelithiasis. Ulcer and perigastritis are other conditions that may simulate gallbladder enlargement. In a case of the author's, repeated nocturnal attacks of "hepatic colic," with shoulder pain and vomiting, followed by jaundice, and apparently with a tense and enlarged gallbladder, proved to have been due to cirrhosis of the liver alone, the gallbladder being quite normal. Cases of acute hepatic enlargement with symptoms and signs simulating cholelithiasis, due to heart weakness, have recently been reported by Ortnér. Lejars has seen in the last few years three cases of noncalculous chronic cholecystitis presenting a typical gallstone history; likewise cases of paravesicular hydatid cyst (sometimes calcified), and of gumma of the liver simulating cholelithiasis. To avoid mistakes such as these in so far as is possible, Lejars recommends particular attention to the shape and size of right subcostal tumors; repeated palpation will usually reveal differences from the ordinary type of cystic enlargement, where the gallbladder is not involved. Unusually large gallbladders are not likely to present the negative previous history that is often given in cases with other types of subcostal tumor. The Wassermann reaction will often prove of diagnostic value. In general, careful inquiry into the history, a period of close observation of the patient, and more painstaking examination of the stools for calculi than is now practised, are the chief indications.

## BRITISH MEDICAL JOURNAL.

November 29, 1913.

**Paroxysmal Dyspnea in Cardiorenal Patients.**—Thomas Lewis, through his work on cardiac cases, has had his attention drawn to the frequent occurrence of severe dyspnea in many patients, in whom there has been little or no cyanosis and often only very slight cardiac disturbance. A searching study of these patients, by him and his coworkers, has led to the discovery of the cause of the dyspnea, which has been found to be due to a relative acidosis of the blood. The special clinical associations of this relative acidosis are given. While these are the most constant clinical manifestations, they are usually complicated to a greater or less extent by the simultaneous association of cardiac or renal symptoms, or even by symptoms of uremia. The types encountered are, therefore protean, and in many cases there is, in addition to the dyspnea of acidosis, a dyspnea due to deficient aeration of the blood. The mechanism of the heart may be disturbed in any of the known ways, and the urine may show signs of the most severe grade of nephritis. In all of these cases, whether complicated by deficient aeration of the blood or not, it has been found that there is a greater or less degree of relative acidosis. The test of the acidosis is the degree of saturation of the hemoglobin with oxygen when it is exposed to a known and definite oxygen pressure. Physiologists have long known that the introduction of acids into the blood causes hyperpnea, whereas alkalis cause apnea. Deficient aeration produces dyspnea through the accumulation of carbonic acid; violent exercise by the accumulation of lactic acid; diabetes through the presence of beta oxybutyric and allied acids. The acids which accumulated in the blood of the patients studied by Lewis have not been identified as yet, but their presence is demonstrable, and their discovery clears up a problem long unsolved. It is no longer justifiable to use the terms, cardiac, renal, or uremic asthma. The condition in each case is due to acidosis, and should be spoken of as "asthma of acidosis." It is possible to subdivide asthma of acidosis into different etiological groups, depending upon the acid present. In the types of case studied the ultimate outcome of the condition has been more or less rapid progression to death. It is possible, through diet and other measures of treatment directed to the relief of the associated conditions, to prolong life and ameliorate the dyspnea in many of the cases. The use of carbonates seemed to offer a hopeful means of treatment, but actual experience has shown them to be of little value. The treatment is only palliative at best.

**Clinical and Bacteriological Aspects of Leprosy.**—H. Bayon cites the growing belief in the absence of contagious properties of leprosy and relates the following substantiated observations as establishing its contagiousness: 1. It is due to a definite microorganism. 2. In regions previously free from leprosy it was found to spread concentrically from the first imported cases. 3. Practically all the cases originate in countries in which the dis-

ease is common. 4. Rare cases occurring in countries in which the disease is not indigenous can in every instance be shown to have been in more or less prolonged contact with lepers, or to have occurred in leprosy regions. 5. The disease is found to be limited to families, or to small foci, in countries where there is little leprosy. 6. The disease has gradually and constantly diminished in those countries in which there has been universal segregation of lepers. 7. On the other hand, where segregation has not been adequately carried out there has been a continual increase in the disease. It has also been conclusively proved that the incidence of the disease in families is greater by far than in the general population. The belief that doctors and nurses who have been in charge of lepers for many years never contract the disease is ill founded, for there are not a few such persons who have become leprosy. Animals can be infected. In the face of this evidence it is impossible to believe that the disease is not contagious, and there is no evidence to suggest the probable transmission of the disease from man to man by means of any insect carrier. The disease is, however, not very readily transmissible, and it is probable that more or less prolonged and intimate contact is usually required for infection. In the face of these facts the need for segregation of lepers becomes absolute, particularly as there is, as yet, no known treatment of the disease which can be regarded as offering much hope.

## LANCET.

November 20, 1913.

**Tuberculous Meningitis in an Infant.**—George A. Allan's patient died when just twelve weeks old. The infant was apparently normal at birth, was nursed by his mother, and thrived for the first six weeks. At about this time he was given two feedings of diluted cow's milk daily to supplement the mother's nursings because he was not progressing well. Two weeks later a cough developed and moist râles at the bases of his lungs, both of which disappeared after simple treatment. Cow's milk was discontinued. At the age of eleven weeks he was only about the same weight as at birth, he was pale and irritable, and he had an eruption on the legs simulating lichen. His head became retracted two days later, and from then till the end, five days later, he showed typical signs of meningitis of a subacute type. A post mortem examination showed the presence of generalized miliary tuberculosis, involving particularly the spleen and liver, and a tuberculous meningitis. From both spleen and the spinal fluid tubercle bacilli were isolated and cultured. They were determined to have been of the bovine type, and animal tests confirmed this finding. Allan is of the opinion that the infant did not become infected from the two week's use of cow's milk, but rather from contact with his brother, who was the subject of tuberculous adenitis, and who may have had an open focus in his mouth.

**Free Air Treatment of Skin Grafts.**—A. Rodyn Jones reports excellent results with this method in a series of twenty-six consecutive cases, only two requiring a repetition of the operation. The average time required for healing is about three weeks, and no local application whatever is made to the

grafted area during this time. The only attention given the region, besides its protection under a sterile wire cage and light cotton dressing, is the occasional removal by forceps of the hard, black crusts which form between the grafts.

### Eye Coloration in Relation to the Incidence and Severity of Scarlet Fever and Diphtheria.

A. L. Dykes cites Biernacki as believing that children with light eyes are more susceptible to severe diphtheria than are others, and that the disease is more fatal in them. Others have also shown that there is a relation between pigmentation and susceptibility to disease. Epilepsy and skin diseases seem to be commoner in the brown eyed, while light eyed persons are more susceptible to rheumatism. As a means of classification of eyes, Dykes accepts three types: 1. The simplex, in which the eyes are blue and gray with no stroma pigment visible. 2. Duplex medium, in which the eyes show variable amounts of visible stroma pigment on a background of blue or gray. 3. Duplex dark, showing a large amount of stroma pigment, the iris being brown. For comparison the color of the eyes has been recorded in 1,163 school children from four to twelve years of age. Roughly, there were thirty per cent. in the simplex group and thirty-six per cent. in the dark duplex, with the duplex medium numbering about thirty-four per cent. In 679 cases of scarlet fever the proportions were about thirty-two per cent. simplex and thirty-eight and a half per cent. duplex medium, with the duplex dark numbering only a trifle more than twenty-nine per cent. The proportion of severe cases and of deaths stood highest among the light eyed group, decreasing to its lowest among the duplex dark group. The same findings were obtained in a study of diphtheria, the greatest morbidity, severity, and mortality occurring among the simplex and the lowest among the dark duplex groups.

## JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

December 6, 1913.

**Certified Milk,** by T. C. McCleave.—See this JOURNAL for July 5th, p. 41.

**Pathology of the Prostate,** by E. O. Smith.—See this JOURNAL for July 5th, p. 48.

**Chronic Cystitis in Women Not a Disease,** by G. G. Smith.—See this JOURNAL for July 5th, p. 48.

**Tuberculosis of the Genital Organs in Children,** by Oliver Lyons.—See this JOURNAL for July 5th, p. 49.

**The Probable Embryonic Origin of Mixed Tumors of the Testicle.**—See this JOURNAL for July 5th, p. 49.

**Operative Treatment of Genital Tuberculosis,** by H. Cabot and J. D. Barney.—See this JOURNAL for July 5th, p. 49.

**Shock.**—G. W. Crile says there is a group of organs whose function is the conversion of potential into kinetic energy. These organs form a kinetic system, and among them are the brain, the thyroid, the adrenals, and the muscles. The kinetic system converts latent energy into motion or heat in response to adequate stimuli. If the stimuli are overwhelmingly intense the kinetic system—especially the brain—is exhausted, even permanently injured. This condition is acute shock. If the



stimulation extends over a period of time, and is not so intense as to cause an immediate breakdown or acute shock, its repetition may cause the gradual exhaustion of the kinetic system, and this condition may be called chronic shock. Either acute or chronic shock may be measurably controlled by weakening or breaking the kinetic chain at any point. This has already given us the shockless operation, and it opens a possibility of controlling certain chronic diseases of that intensely kinetic organism, civilized man.

**Note on a Mould, *Coccidioides immitis*, Found in a Case of Generalized Infection in Man.**—W. J. MacNeal and C. E. Hjelm report that in a case of systemic blastomycosis described by R. T. Morris in this issue of the JOURNAL plate cultures on as-etic fluid agar of pus obtained from an incised subcutaneous abscess, brought to development, after incubation for forty-eight hours, numerous colonies of radiating mycelial threads, the appearance of which suggested the possibility of oidiomycosis. On the plate cultures of a second specimen of pus, obtained two days later, by aspiration from a closed subcutaneous abscess, many colonies of mould developed, apparently in pure culture. From the characteristics shown by this mould the authors regard the organism as identical with that discovered by Posada and Wernicke and first described in this country by Rixford; in two cases, and subsequently studied by Rixford and Gilchrist, who gave it the name of *Coccidioides immitis*.

**Some Intraabdominal Complications Following Laparotomies.**—A. E. Benjamin refers first to preexisting derangement of the functions of the alimentary canal, and speaks of the importance of a prolapsed stomach and colon. With adhesions around the pylorus, there may result dilatation of the stomach which interferes with the large and small bowel action. In such cases the outcome may be general intraabdominal tension, which forces the coils of intestine into close contact, and, in the presence of infection or of any raw or denuded surfaces, adhesions necessarily follow which may be temporary or permanent according to the circumstances present. He then takes up the following points: Mucous colitis and membranous pericolicitis; state of the muscle tone of the abdominal wall; character of infection; raw surfaces or denuded areas left within the abdomen after operation; removal of appendix; operative traumatism; undue exposure of the viscera; foreign substances; drainage; closure of the peritoneum and of the abdominal wall. In speaking of postoperative management the author says that in acute gastric dilatation the stomach tube should be used at the earliest possible moment; a procedure which will save many lives and go a long way toward preventing the adhesions which follow in the wake of operations. Great care should be observed in the regulation of the diet, and the position of the patient should also be considered. If there has been extensive pelvic work done not requiring drainage, and especially if there has been a prolapsed stomach, elevating the foot of the bed will assist restoration of position and function of the stomach and intestines; often obviating the possibility of adhesions within the pelvis.

**Erysipelas—Clinical Observations on 800 Cases, Including Ninety-five Treated by Bacterial Vaccine and Twenty Treated by Phylacogen.**—S. Erdman reports that in this series there were ninety-three deaths, or 11.625 per cent. His experience with vaccines shows that the duration of the disease was not at all shortened, the mortality remained at the same level, and there was no immunity guaranteed against recurrence or against spreading of the lesion; nor were complications, such as cellulitis and abscesses, prevented. From the statements furnished by the patients, moreover, he could not gather that there was any amelioration of the subjective symptoms. The same facts were true as regards the use of phylacogen.

#### MEDICAL RECORD.

December 6, 1911

#### The Serological Tests in Cerebral Hemiplegia.

—C. L. Dana states that for two years he has been having patients at Bellevue Hospital with cerebral hemiplegia submitted to serological tests, in order to determine whether there was a syphilitic or inflammatory element in the case. The attempt was made to have four tests in each case: A Wassermann test of the blood serum and of the cerebrospinal fluid, a globulin test of the spinal fluid, and a cell count of this fluid. Either complete or partial tests were made in twenty-eight cases of acute hemiplegia and in twenty-six cases of old hemiplegia—of at least six months' standing. The conclusion reached was that in the hospital cases of acute cerebral hemiplegia there was a luetic infection in about fifty per cent. This proportion of lues in hemorrhage of the brain was surely much higher than in the nonhospital classes, and the figures were not extensive enough to justify final conclusions. Probably in some instances the infection was incidental, and had nothing to do with the lesion. In the chronic cases the reactions were much less marked than in the acute, and this might be due in part to the fact that nearly all such patients received iodides and mercury after their seizures. It would not be unfair to conclude from a study of thirty-seven consecutive cases in which the Wassermann test was employed that in nearly half of hospital hemiplegia there was a luetic infection present.

#### Colds and Their Relation to the Physics of the Atmosphere.

—From his study of this subject C. M. Richter concludes: 1. Acute coryza, commonly called a "cold," depends for its development primarily on an excess of moisture in the air we inhale. 2. It develops, therefore, principally during the cyclonic weather condition called low, especially when a period of very dry weather has preceded this and when, in consequence, the change to the incoming very moist air is most rapid. 3. The excessive and more or less continuous nasal secretion at the beginning of an acute coryza relieves the respiratory apparatus from the otherwise damaging effect of an overcharge of moisture. 4. A child's nasal mucosa and the hyperesthetic ones are especially prone to suffer. 5. The running of the nose constitutes in part a physiological vasomotor action analogous to the profuse and more or

less continuous perspiration of the outer skin which sets in whenever air temperature and relative humidity overstep certain limits and which forces thereby better conditions for evaporation. 6. Latent microbism becomes active on the mucosa only after these air conditions have favored its development for some time. Microbism is very rarely the primary cause of an acute coryza.

**Gumma of Prostate and Bladder; Six Intravenous Injections and One Intramuscular Injection of Salvarsan and Twenty-six Intravenous Injections of Neosalvarsan to Patient Sixty-six Years Old.**—J. O. Rush reports this case. The results were gratifying, and the disappearance of albuminuria and edema under the treatment leads him to think that, in addition to the involvement of the prostate, there was considerable damage to the kidney, due to syphilis. His conclusions are as follows: 1. Neosalvarsan should be given in larger doses and at shorter intervals, covering a period of at least one year in all cases of tertiary syphilis. 2. In cases of gummata, neosalvarsan, alternated with mercury hypodermically, should be given for a period of not less than one year; the neosalvarsan injections should be given, if possible, not more than seven days apart. 3. The negative Wassermann reaction should not prevent the continuation of treatment in cases in which benefit is noted from its continuation. 4. In cases of gummata the Wassermann reaction may often be faintly positive or negative when the lesion is of a serious nature and demands prolonged and consistent treatment.

**Tuberculosis and the von Pirquet Test in Children.**—L. Shalet holds that a persistent negative von Pirquet test in a child, excepting those in whom the test is negative even in the presence of tuberculosis infection, just as surely excludes the diagnosis of tuberculosis as a positive sputum confirms it. He has come across a considerable number of cases in children which have been definitely diagnosed as tuberculous, on the presence of a few physical signs accompanied by some temporary fever, so common in children; on the strength of which diagnosis these children have been sent to the same public sanatorium. On their return, however, usually in about six months, the von Pirquet test, done as a routine measure, has been found to be negative. He therefore suggests that a rule be laid down that no ambulant case of possible tuberculosis in a child under sixteen years be diagnosed as such unless the patient reacts positively to the von Pirquet test.

#### JOURNAL OF MEDICAL RESEARCH

October, 1915.

**Experimental Streptococcic Arthritis in Monkeys.**—Schloss and Foster, instead of using rabbits, made their experiments on Rhesus monkeys because they are larger and more resistant animals and the effect of repeated injections could be observed. They used a strain of *Streptococcus pyogenes hemolyticus*, which had been grown from the tonsils of a patient with acute arthritis. In four monkeys it induced a polyarthritis, suggestive in certain respects of "rheumatic fever" in man. The infecting organism could be recovered from

the blood stream at the onset of symptoms, but not afterward. This fact possibly has some bearing on the failure to isolate organisms from the blood of man with rheumatic fever. Repeated inoculations of streptococci induced a chronic arthritis in two cases, which was manifested by limitation of motion and contracture.

**The Presence of Tubercle Bacilli in the Feces.**—Laird, Kite, and Stewart review briefly the work that has been done along this line. They then report the result of their examinations. They found that of the one hundred and one specimens of feces from patients with tubercle bacilli in the sputum, sixty (or fifty-nine per cent.) showed the presence of acidfast bacilli. Of the forty specimens which did not show them, seventeen were from patients who had no tubercle bacilli in the sputum at the last examination previous to the test or else had ceased to have expectoration. Of the fifty-four specimens of feces from patients without tubercle bacilli all but two (or ninety-six per cent.) were from from acidfast bacilli. Inoculations of feces containing acidfast organisms were made into guineapigs. Out of sixty cases in which the guineapigs lived long enough for tuberculosis to develop, forty-eight (or seventy-seven per cent.) showed positive macroscopic lesions at autopsy. Of guineapigs inoculated with feces free from acidfast bacilli ninety-five per cent. showed no tuberculous lesions. It is, therefore, evident that nearly all patients with tubercle bacilli in the sputum also have virulent tubercle bacilli in the feces; also that very few persons who do not have tubercle bacilli in the sputum have acidfast bacilli in the feces.

#### SOUTHERN MEDICAL JOURNAL

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**Epitheliolysis against Carcinoma; Preliminary Note.**—A. E. Thayer relates the history of his experimental work, begun in 1906, and reports a case of inoperable carcinoma of the cervix treated with remarkable results during the past summer. While it is too soon, of course, to announce that this case has been cured, though the patient's response to treatment has been so rapid and apparently successful, he regards as proved the working hypothesis that the serum may be rendered lytic by repeated injections of an autolysate of epithelia, and, what was expected as the result, namely, that the intimate microscopical medication of cancer cells from within by an all pervading, ever present chemical agency, not injurious or but slightly injurious to the body's normal epithelia, would affect favorably both the main tumor and also its metastases, however minute, has seemingly taken place in this case. All that may safely be asserted on the basis of this one case, the author says, is that there has been a prompt and so far very encouraging response; but if the time arrives when the patient may be discharged as cured, and other cases show improvement of varying degrees, then he believes the problem will have to be restated and worked out again for the sarcomas, which, in his opinion, is a far more difficult and complicated task. Beyond these there is a group of other pathological conditions, such as Hodgkin's disease, with abnormal hyperplasias as an important element in the

lesion, where a somewhat similar line of reasoning may perhaps be employed to advantage.

**The Nonmedical Treatment of Chronic Constipation.**—F. W. Wilkinson, as an aid in the treatment, reviews the etiology, only the nonmechanical factors being considered. These may be classified as: 1. Heredity; 2. age, occupation and sex; 3. intestinal atony and loss of tone in the abdominal muscles; 4. irregular habits of going to stool; 5. improper diet; 6. inflammations of the bowels, more particularly the cecum, sigmoid, and rectum; 7. affections of the nervous system, lead poisoning, tabes, and psychic influences. The nonmedical treatment resolves itself into two varieties—the educational and prophylactic and the treatment of the condition after it has become established. In the latter the diet is one of the most important factors, and many cases can be cured by a properly selected dietary alone. Having given a list of the permitted foods, the author says that of all the articles named, those having the most marked laxative effect are water, cracked wheat, bran biscuit, coffee (for some), fruits, green vegetables, and oils. The principal other agencies to which he refers are exercise (especially in the open air), hydrotherapy in its various forms, and abdominal massage. Mechanical vibration is often helpful, though not so useful as manual massage. Psychic treatment alone will cure certain cases due to hysteria, and in all cases we should use the power of suggestion to keep the patient in a hopeful frame of mind. The first requisite in the successful treatment of chronic constipation is a correct diagnosis; this having been made, persistence in the following of some or all of the measures outlined will be crowned with success in the majority of instances.

**A Description of Ainhum as Seen in the Canal Zone, with Report of Interesting Cases Occurring in One Family.**—Henry Weinstein defines ainhum (*Dactyolysis spontanea*) as a tropical disease of great chronicity, generally limited to African and East Indian peoples, which is characterized by spontaneous amputation of the little toe of one or both feet, although very rarely other toes may be involved. A most characteristic feature, and, indeed, a pathognomonic sign of the affection, is a peculiar constricting ring formed over the affected toe or toes. Pathologically ainhum presents marked trophic changes in the diseased parts. The constricting ring is made up of dense fibrous connective tissue covered by a layer of epidermis. The subcutaneous tissue is increased at the expense of muscle, tendon, and soft parts; while here and there may be seen islands of fat cells. Bloodvessels are everywhere numerous, and in the bone there is a condition of rarefying osteitis. Eventually, the highly organized tissues such as sweat glands, blood vessels, muscles, and bone are changed into connective tissue, and in all there are evidences of impaired nutrition, due to pressure, and vasomotor and trophic manifestations. Although in some respects it resembles scleroderma and leprosy, one must conclude that ainhum is a distinct disease—a special trophoneurosis. In the cases described by the author the family history revealed a strong hereditary tendency affecting all females in three

generations and apparently transmitted by the male progeny.

#### SURGERY, GYNECOLOGY, AND OBSTETRICS.

**Congenital Atresia of the Esophagus; An Operation Designed for Its Cure.**—H. M. Richter states that the site of the atresia is on a level with the bifurcation of the trachea. There is a complete separation of the two segments of the gullet. The upper segment ends below as a dilated blind pouch, behind and just above the tracheal bifurcation. The lower segment joins the stomach at the cardia in the usual manner. The essentially fatal factor in the anatomy consists in a communication between the upper end of the distal segment and the trachea or bronchus, allowing a free communication between lungs, gullet, and stomach; forced respiration, as in crying, etc., distends the stomach; attempts at vomiting fill the air passages with stomach contents (secretions), resulting in drowning (cyanosis). The symptoms begin immediately after birth and may be summarized as follows: 1. Everything taken regurgitated at once, beginning with the first attempt at feeding; 2. continuous discharge of saliva and mucus from mouth; 3. spells of cyanosis at frequent intervals, especially brought on by feeding; 4. the abdomen distended by crying and coughing; 5. difficult respiration, marked inspiratory retraction of chest and abdomen; 6. passing catheter into the esophagus discloses a complete block at from ten to twelve centimetres from the gums, at the bifurcation of the trachea; 7. an early rise of temperature with cough usually indicates the development of pulmonary involvement from the constant regurgitation of fluids from below. The plan of operation is closure of gullet at the tracheal junction by the transthoracic route and gastrostomy. The technic consists of a preliminary gastrostomy under ether; intubation of the lower segment of the gullet from below with a metal sound; change to positive pressure, using ether anesthesia; incision into the right sixth intercostal space about two inches long, the posterior end carried upward and the sixth, fifth, and fourth ribs cut across near their angles; retraction of the ribs gives a perfect view of the field of operation; a silk ligature carried around the gullet, using the sound as a guide; intrapulmonary tension raised until lung came to chest wall, when remainder of wound was closed. Senn's gastrostomy is now completed and water is immediately given through the tube.

**Tuberculin in the Treatment of Surgical Tuberculosis.**—C. G. Swenson proposes as a result of his experience with many patients having surgical tuberculosis and being treated with tuberculin, the following conclusions: 1. Tuberculous gland infections that have not entered the stage of caseous degeneration have yielded to tuberculin treatment. 2. Almost all local tuberculosis may be cured under persistent, skillful, surgical treatment, assisted by tuberculin injections properly given. 3. Tuberculin injections may be safely given every tenth or twelfth day without opsonic work; it is preferred, naturally, that one be guided by occasional blood tests. 4. All tuberculin injections should be given



by a reliable, clean person, and the best place for the injection is on the anterior part of the chest. 5. Duration of tuberculin treatment should be from six months to two years. 6. All hygienic treatment such as fresh air, good food, and attention to digestive organs, is of vital importance. 7. For tuberculous sinuses extending into the urinary bladder the bismuth paste injections are usually contra-indicated.

#### Infantile Type of Uterus with Dysmenorrhea.

—T. J. Watkins, after a study of sixty cases, emphasizes the following statements: Dysmenorrhea is most often due to imperfect development of the uterus. Pain is chiefly caused by contractions of the uterus, which soften and dilate the cervix and are much like the pains of the first stage of labor. In cases of infantile uterus causing dysmenorrhea the logical treatment consists in the use of remedies to promote development. The use of the intra-uterine stem is useful in such cases. The patient should be kept under supervision for months after the use of the stem pessary. The cervix should be dilated if possible before each period for some months. The stem pessary should be reinserted after one or two months if necessary. This treatment is indicated only in cases of severe type. It is, however, a poor substitute for marriage and pregnancy. In cases of excessive menstruation with clots and severe pain relief may be obtained from the use of suprarenal gland, which has lately been recommended. Suprarenal gland diminishes the action of the ovarian secretion. One three grain tablet of the dessicated gland is given three or four times daily, for three days just before, or during the early part of the menstrual period.

**The Technic of Insertion of Intratracheal Insufflation Tubes.**—C. Jackson asserts that practically all authorities are now agreed that the larynx should be inspected before the insertion of the insufflation catheter or tube, for the purpose of ascertaining whether or not disease is present in the larynx, and also to determine the size of the larynx so that the size of the insufflation tube may be selected accordingly, in order to make sure that there is ample laryngeal lumen around the tube for the return flow. No one capable of giving an anesthetic should hesitate for one moment about this procedure, if he will take the trouble to observe the following points: 1. The patient should be fully under the anesthetic by the open method so as to get full relaxation of the muscles of the neck. 2. The patient's head must be in full extension with the vertex firmly pushed down toward the feet of the patient, so as to throw the neck upward and bring the occiput down as close as possible beneath the cervical vertebra. 3. No gag should be used, because the patient should be sufficiently anesthetized not to need a gag, and because wide gagging defeats the exposure of the larynx by jamming down the mandible. 4. The epiglottis must be identified before it is passed. 5. The speculum must pass sufficiently far below the tip of the epiglottis that the latter will not slip. 6. Too deep insertion must be avoided, because the speculum goes posterior to the cricoid which is lifted, exposing the mouth of the esophagus, which is bewildering until sufficient education of the eye enables the operator to recognize the landmarks.

## Proceedings of Societies.

### NEW YORK NEUROLOGICAL SOCIETY.

*Regular Meeting, Held at the New York Academy of Medicine, October 7, 1913.*

The President, Dr. SMITH ELY JELLIFFE, in the Chair.

(Continued from page 1190.)

Dr. WILLIAM B. NOYES said it was rather difficult definitely to classify a case of this kind without a better understanding of the various gradations of mental depression or excitement associated with mental changes that were not uncommonly observed about the age of puberty. The exaggeration of the normal changes frequently observed in the child at that period of life resembled certain psychoses of later life. In some children, these changes were entirely physiological; in others they were slightly exaggerated, or again we might have the extreme type, as evidenced in this case, although the symptoms might not be so sharply defined. This, perhaps, might be accounted for by the fact that here we had a child of foreign parents, transplanted to a new environment, with poor surroundings and possibly influenced by the strain of overstudy. Although the case presented by Doctor Gregory appeared to present clear cut symptoms of manic depressive insanity, in the opinion of many who frequently see pathological nervous and mental conditions during childhood, it was better explained as one of a series of mental variations, not so easily classified as Doctor Gregory stated.

Dr. L. PIERCE CLARK said that an accurate knowledge of the family history in a case of this character might prove a very important factor in making more definite the diagnosis here. Undoubtedly the case was rare in literature only. He had seen two similar cases, though less severe and definite. The case furnished a sad commentary upon our insufficient studies of the psychopathy of childhood. What they really ought to have was an intensive analysis of the development of physical and mental habits, the personality and character of childhood, both in normal adjustments and abnormal adaptations to psychic shocks and crises. Often enough in the past all concerned had been quite content to put even as severe a mental depression as shown in Doctor Gregory's case into a class of physical ailments of childhood, but here a fairly defined psychotic disorder was too evident to be disproved in such manner. He saw no good reason, however, why they should strive so hard to fit adult psychoses upon such young shoulders. Would it not be better to develop their types of psychoses of childhood upon the basis of symptom complexes as they presented themselves, and gradually make disease entities as they came into a well rounded type largely independent of the nosological designations of adult psychoses? This had been one of the greatest contentions of Meyer, he believed, in his studies upon the nature of dementia præcox, and appeared to be the excellent purpose of Hoch's studies in the development of the shut in and open personalities of the same group. No doubt psychopathic clinics in connection with the public schools, now being established in this country and abroad, would soon furnish them with a definite material

and a better knowledge of just such cases as Doctor Gregory here presented.

Dr. A. A. BRILL said he could recall two cases of this type, one a girl of about seven years whom he saw at the Vanderbilt Clinic and later referred to Doctor Gregory, and the other a boy of about ten whom he saw in Doctor Gregory's outpatient department. This boy was in a very excited and maniacal state; he constantly talked about blood, which his mother attributed to the fact that he had seen some chickens slaughtered. The whole picture presented, besides the maniacal state, a certain phase of obsession of the compulsion neurosis type. The little girl, although evincing an unmistakable maniacal phase, also presented some hysterical features, and suffered besides from a somewhat severe gonorrheal infection. Doctor Brill asked whether there was any question of hysteria in these cases.

Dr. B. ONUF said that in cases of this kind the question of heredity was a very interesting one to follow up. His own observations had led him to believe that in psychoses of this character, particularly in the circular cases, they not infrequently found a history of manic depressive heredity.

DOCTOR GREGORY, in closing, replying to Doctor Brill, said he saw no grounds for calling this a case of hysteria. The child showed no evidences of that condition—no sensory disturbances nor hysterical stigmata. On the contrary, she showed all the symptoms of a manic depressive psychosis. She was very active and restless. It was of course true that these conditions, especially the mild or excited types, were apt to be mistaken for hysteria. The speaker said he agreed with Doctor Noyes that they not infrequently saw children about this age with symptoms that were merely an exaggeration of the natural moods, but here they had a child with sharply defined symptoms coming on rather suddenly. The symptoms were those of a manic depressive psychosis, and he did not see why they should not call it by that name. This girl, formerly very cheerful, met with a disappointment and became depressed and remained in this stupid condition for several weeks. Normal children would not show the effects of such a disappointment for such a length of time, and upon analyzing the case they found psychic retardation and complaints of various ailments, in spite of the fact that she was perfectly healthy. She lacked initiative, and the symptoms were typical of manic depressive insanity.

**Intraspinal Treatment (Swift-Ellis) for General Paresis.**—Dr. S. E. JELLIFFE, in introducing a general discussion on this subject, said the year 1913 promised to be a memorable one in the history of general paresis. It was early in the year that Moore and Noguchi announced the finding of *Treponema pallidum* in the brains of paretics. It was demonstrated before this society at their March meeting. It was before this society, at the April meeting, that Doctor Swift and Doctor Ellis presented the details of their treatment by the intraspinal method; it was in the early part of this year that Doctor Nichol and Doctor Hough of Washington, announced the successful cultivation of the treponema from the cerebrospinal fluid in cerebrospinal syphilis, which cultivation experiments were also successfully carried out by Noguchi and others. The findings of Moore and Noguchi

were verified in various quarters; they were seen in the dead and living condition, and in the dead and living tissue; the latter first by Foster, of Berlin, who obtained them from brain punctures of the living patients. Successful inoculation experiments on rabbits had been made with living brain tissue of paretics, and the results of these successful experiments had been passed on to other rabbits and the organism isolated; and the chain of evidence had practically been made complete. All this had been done within the twelve months preceding, and as a result the problem of the treatment of general paresis resolved itself down to the treatment of syphilis in a particular organ of the body, and how best could this be accomplished.

Doctor Jelliffe said that his purpose in bringing this subject to the attention of this society again, after the lapse of so short a time as six months, had been determined by a number of reasons. In the first place, it had always seemed to him that perhaps the most important function of a society of this kind, consisting for the most part of active specialistic workers, should be to be on the firing line, as it were, of advance in that branch which the society represented, that subjects brought up for discussion, which had reached a fairly final state of solution, were already the property of most of the members of such a society; that when the final word had been said everybody knew it, and therefore the material presented before ceased to have that quickening and stimulating value which would come from the consideration of questions which were as yet in the state of being born. Therefore, the discussion which he had planned for the evening, and thanks for which he gave to those about to participate in it, was presented as a more or less nascent problem. If it was somewhat nebulous, if it contained more hopes and aspirations than definite records of positive acquisition, the position already outlined would be sufficient reason for bringing the matter up again. He had thought, more or less, to narrow the discussion to the treatment of paresis, because it seemed to him that here was an avenue in which a great work might possibly be accomplished, and that if attention were boldly and boldly directed toward a problem which in the past had been unconquerable, even an expression of their hope might be of value to the paretic. Certainly the valuable hints that were received at a former session of this society, in which the outlines of the Swift-Ellis method of treatment of syphilis of the nervous system has been given, should not be laid aside while there was any possibility that a turning over of the same might result in profit. Even if it was granted that the time was as yet short, that the material as yet was but inconclusive, yet certainly in the experience of some of those about to discuss the paper of the evening, and in that of others who he hoped would discuss it, certain questions would arise which might be worthy of discussion. In the first place, what were some of the accidents which had accompanied spinal puncture, and the free utilization of the spinal canal? Had they been sufficiently serious to constitute a bar to its further use? Had they been sufficiently painful and disappointing to the patient to prevent their use? In other words, had they gained enough information

concerning possibilities to enable them to outline a position? On the other hand, to what source must the advantages be attributed? What was the psychic factor of a new hope, of a new method of treatment? What reliance could be placed upon the unquestionable biological improvement? How did it coincide with the clinical manifestations? How long must one wait before a clinical observation lagged behind biological suggestions, and how far did the biological data enable one to extend one's hopes of positive results? Was the optimistic attitude a justifiable one, further than the general philosophical value of all optimistic attitudes in contradistinction to all pessimistic ones? These were the questions which were of interest and which would enter into the remarks of those about to speak.

Dr. WILLIAM H. HOUGH, clinical pathologist to the Government Hospital for the Insane at Washington, D. C., said it had now been definitely established, chiefly through serological investigation and through the finding of *Treponema pallidum* in the disease process by Noguchi and Moore, Levaditi, Foster, and others, that syphilis was an essential factor in the production of paresis, and although it was quite apparent that it was not the only factor entering into the etiology of the disease, yet their object of treatment, as in all infections, was to relieve the patient of the infectious organism. Therefore, any light that might be thrown upon the nature of the action of the infective virus might be of assistance in the treatment of the disease. This seemed especially important in the consideration of such a protean disease as syphilis. Concerning the treatment of paresis, the speaker would consider only the intraspinal injection of salvarsanized serum, as recommended by Doctor Swift and Doctor Ellis. They should bear in mind that they were dealing with a general constitutional disease which involved the nervous system especially, and not a disease confined to the brain alone. They were dealing with a disease process which involved a vital and inaccessible part of the body, the infective agent being *Treponema pallidum*, probably in an especially virulent form. From his own experience with this method of treatment, which included three cases of paresis and one of cerebral lues he could make no statements as to the final results, and his object in making this report was to show that they had already obtained results which could only be interpreted as evidence of the efficiency of the treatment for the inflammatory syphilitic process, but whether they could arrest the entire parietic process permanently was still undetermined, although from the clinical improvement obtained in some cases and from a theoretical standpoint the outlook certainly seemed promising. The uniformity of the results obtained thus far indicated to him that it was the most efficient treatment for paresis that had thus far been recommended. The all important point was to institute treatment early in the disease, and this they were now enabled to do with their improved method of diagnosis. This was perhaps more important in paresis than in tabes, inasmuch as a more vital and inaccessible part of the nervous system was affected. For this reason they naturally expected, and,

judging from reports, were obtaining more favorable results in the latter disease than in the former. For syphilis of the central nervous system occurring in the early stage of the disease the speaker said he believed the intraspinal injections were to be recommended, although good results could be obtained in this condition by the proper use of mercury and salvarsan intravenously. Doctor Hough said the technic he had employed was the same as that originally recommended by Swift and Ellis, excepting that after the first few injections he used forty cubic centimetres of a fifty per cent. serum, instead of thirty cubic centimetres of a forty per cent. serum. As to after effects, he had observed none of any consequence, although there was sometimes a slight elevation of temperature, and in one case there was on several occasions a marked reduction of the pulse rate. The urine had remained normal in all cases. Thus far he had given thirty-one treatments. Doctor Hough then briefly reported three cases of paresis and one of cerebral syphilis in which he had employed this method of treatment. All of these patients were still under observation, and while he could make no statement as to the final results, he was convinced that it marked a distinct advance in the treatment of this hitherto almost invariably fatal disease. Judging from the effect that salvarsan had upon other similar spirochete diseases, especially yaws and other protozoan affections, and from the rapid advancement in chemotherapeutics as particularly indicated in the recent article by Ehrlich, he anticipated that in the near future the chemotherapy of syphilis would be so perfected as to prevent the development of the late nervous manifestations, which now showed such resistance to treatment.

Dr. H. S. OGLIVIE, speaking for Dr. John A. Fordyce, who was detained at home by illness, reported the case of a man who was taken to the Riverdale Hospital on June 12, 1913. He was extremely loquacious and made numerous unreasonable demands and suggestions. The following night he became very noisy and fought his attendants violently. He was disoriented, and his delusions, both visual and auditory, were very pronounced. He was fearful lest his attendants should kill him, and insisted that his brother and other members of his family were plotting against him. He boasted of his vast wealth and power. On June 19th he was transferred to Sandford Hall at Flushing, L. I., where his condition remained unchanged for the following three weeks. At times he was quiet and would take a small quantity of food, but for the most part he was extremely noisy and at times violent, and it was necessary to keep him almost constantly under the influence of hyoscine and morphine. On July 16, 1913, the patient was given an intraspinal injection of thirty cubic centimetres of a forty per cent. solution of salvarsanized serum, after the method of Swift and Ellis, the serum being prepared from blood taken from another patient one hour after a full dose of salvarsan. No change in his condition was noted during the following ten days. During this period it was found necessary to catheterize him daily. He was practically confined to bed, as otherwise it was ex-



tremely difficult to control him. His delusions and grandiose ideas still persisted. His memory had apparently slightly improved and orientation was better. On July 26th, and again on August 4th, the intraspinal injection was repeated. Following these treatments he was quieter, took his food well and slept better. His grandiose ideas were less marked and he seemed to have a better insight into his condition. His delusions of persecution, however, persisted, although not so marked as before. On August 14th, about thirty minutes after an intraspinal injection, he had a mild convulsion. The nurse reported that his whole body suddenly became rigid and trembled for a few seconds, when he seemed to awaken with a start and looked about the room as though dazed. During the following week he steadily improved and sometimes it was almost impossible to detect any evidence of his psychosis. On August 22d he was given another intraspinal injection, which produced no reaction. The patient now seemed so much better that he was permitted to see his wife. He behaved well for the first fifteen or twenty minutes, but when the question of his leaving the sanatorium came up and he was told that he had better remain a few weeks longer he became very much excited and said that his family had no right to deprive him of his liberty. He agreed to return to the hospital, however, where he was now allowed to take long walks in the country and receive daily visits from his wife. He behaved well and showed but little evidence of his trouble. This was chiefly a tendency to be aggressive and sometimes unreasonable toward his attendants and physicians. On August 29th, he received another intraspinal injection. As there had not been much change in his condition during the two previous weeks, it was decided to treat him with serum from his own blood. On September 4th, he was given 0.45 gramme of salvarsan intravenously, and fifty minutes later about fifty cubic centimetres of blood was taken from the opposite arm. From this a forty per cent. serum was prepared, and on the following day he was treated intraspinaly. He had no reaction from the salvarsan nor from the intraspinal treatment, and following this there was a very definite improvement in every way. The patient was brighter, he had a splendid insight into his condition, his grandiose ideas had practically entirely disappeared and he spoke kindly of his brother and his wife. He was so well that he was permitted to go home for two days, and upon his return to the hospital he seemed to be normal in every way. His last treatment was on September 11th, when he was again given salvarsan, followed by an intraspinal injection with a solution of his own serum.

Dr. H. A. COTTON, of Trenton, N. J., presented a young man of eighteen years who first came under his observation April 29, 1912, with the history of convulsions, the first attack in December, 1911, the second the following April, and after that occurring with greater frequency. He was then attending school, but had to give up his studies on account of increasing irritability and dullness. The patient had a specific history, and a lumbar puncture, made in April, 1912, gave a positive reaction. He received several doses of salvarsan, and in April, 1913, after a consultation with Doctor Swift

at the Rockefeller Institute, the intraspinal treatment with salvarsanized serum was commenced. The injections were repeated every two weeks up to June 2nd, and the patient, who was now living on a farm, was still under Doctor Cotton's observation. The cytological findings were now practically negative, the patient had gained thirty pounds in weight and showed no mental abnormalities at the present time. He still had stiff pupils and an occasional convulsion, but he was able to travel about by himself, and the improvement in his general condition had been very marked under this new method of treatment. In connection with this case, Doctor Cotton briefly reviewed the findings in eight additional cases of general paresis in which the intraspinal method of treatment had been employed by him. In two of these cases that came to autopsy, salvarsan was found in the ventricular fluid, which seemed effectually to answer the query whether the remedy was carried to the brain after the intraspinal injection, or was limited to the cord. Doctor Cotton said that while these reports were only preliminary, the results obtained thus far had convinced him that this method would prove efficient, providing it was undertaken in the early stages of the disease. In his early cases, the clinical symptoms had undoubtedly improved, together with the biological findings. This did not hold good in the late cases. He had, however, seen no bad effects follow the treatment in the late cases; he knew of no contraindications to the method, and expected to continue to employ it, especially in the early cases. He regarded it as a step in the right direction, and said that in the intraspinal method of treatment we had something that promised well in general paresis. They all understood, of course, that there was no possibility of curing these patients in the end stage. Just how far a case of paresis could go before the treatment had lost its effect on the process they could not say. They should not expect to regenerate a paretic brain, but the results thus far obtained led to the hope that they might be able to arrest the process during the early stages of the disease. The extent of recovery would depend on the amount of destruction of the brain that had already taken place. At the Trenton State Hospital the treatment had been resorted to in nine cases, including the juvenile case shown tonight. In all of these, the pupils had remained stiff. The knee jerks had returned in one case. All the early cases had shown marked improvement, but in that connection they should take into consideration the normal proportion of remissions that were frequently seen in general paresis, as well as their own optimism in taking up a new method of treatment.

Dr. BURT ASPER, of the Sheppard and Enoch Pratt Hospital at Towson, Md., said there was practically nothing to add to this excellent presentation of this subject. At the institution with which he was connected they had injected ten cases of general paresis and one case of tabes by the intraspinal method, and their results closely paralleled those reported by Doctor Hough and Doctor Cotton. At this hospital they were fortunate in having had two early cases. One was a stone cutter, thirty-nine years old, who gave a history of specific infection dating back twenty-one

years and in whom developed mental symptoms some two months before coming to the hospital. The case was unquestionably one of general paresis of the grandiose type, and the symptoms were typical. Following the first intraspinal injection the symptoms were aggravated, but after the second injection they moderated somewhat, and after the third one his mental condition cleared up entirely, although his physical signs remained unchanged. His memory defect had disappeared and he was permitted to return to his occupation, at which he was still engaged. Thus far he had shown no evidence of a relapse. He was still under observation and treatment. The second early case was that of a cigarmaker, forty-five years old, whose mental symptoms dated back six months. They were of the maniacal type and cleared up entirely under the intraspinal method of treatment. This patient was still under observation. Doctor Asper expressed the opinion that in the intraspinal injection of salvarsanized serum they had a very valuable method of treating general paresis—something which they had never had before.

Dr. HOMER F. SWIFT, of the Rockefeller Institute, said that their experience with the treatment of general paresis by the intraspinal method was comparatively limited, and he would restrict himself to a few points in regard to the method. He was interested in the statement made by Doctor Cotton that after an intraspinal injection, the fluid taken from the ventricle of the patient was found to contain arsenic. This finding was in line with some work done in Dr. John Howland's clinic in Baltimore, where phthalein was introduced by lumbar puncture into the subarachnoid space and two hours later fluid obtained from the ventricles was shown to contain phthalein—fifty per cent. of phthalein compared with one hundred per cent. in fluid obtained at the same time from lumbar puncture. In cases where the phthalein was introduced intravenously, however, there was no excretion into the fluid of either the ventricles or subarachnoid space. It was fair to assume, therefore, that arsenic or other drugs introduced into the spinal canal by means of lumbar puncture reached all points of the cerebrospinal system (at least the larger cavities) which were bathed by the cerebrospinal fluid. Uhlmann had shown that after intravenous injection arsenic was not present in the tissue of the nervous system in the same proportion as in other parenchymatous organs. Doctor Swift said that the experience with the direct introduction of neosalvarsan into the spinal canal had shown that severe, unpleasant symptoms followed the use of the drug in this way. Both from a practical and experimental standpoint, the direct introduction of salvarsan into the cerebrospinal fluid was inadvisable. Contrary to the experience of some of those who preceded him, no catheterization had been necessary after the introduction of salvarsanized serum into the spinal canal except where the patient had previously suffered from retention. In most of the cases the bladder symptoms had improved following intraspinal injections. Doctor Swift said that he wished to call attention to the value of the titration method in making the Wassermann test of the cere-

brospinal fluid, and the importance of using a large quantity of the fluid. In making the test, they employed up to five volumes, compared with blood serum, and by using these larger quantities, the negative reactions became less numerous. The speaker also mentioned the value of making control tests, continuing either intraspinal or intravenous treatment until a negative reaction was obtained. In their own cases the improvement in the reaction usually went hand in hand with clinical improvement. In some of the cases the fluid had remained negative for a year and a half after cessation of treatment, and there had been no advance in the tabetic symptoms. They had found that the pleocytosis was the first to disappear, the Wassermann was more likely to disappear next, and, finally, the globulin excess. In the four patients with paresis or tabetoparesis the clinical improvement had not been very marked. One of the patients, however, was showing very distinct improvement. Patients with an initial, intensely strong Wassermann reaction in the cerebrospinal fluid usually required much more treatment than those with a weaker reaction. Of twenty-seven cases of tabes that were under treatment with the combined method, fifty per cent. showed an entirely negative Wassermann in the fluid; thirty per cent. required the largest quantity of fluid to show a reaction. If tabes and general paralysis were similar diseases involving different portions of the central nervous system, then the results obtained in tabes certainly offered an encouraging outlook in paresis.

Dr. H. LEBARON PETERS, of Bridgeport, Conn., said he had at the present time six cases under treatment by the intraspinal injection method, of which none had received more than four treatments. Two of these were cases of general paresis, two of tabes and two of cerebrospinal syphilis. The two paretics had shown considerable improvement from the biological point of view, and in one of them, particularly, there was a marked clearing of the mental condition. Of the others it was too early to speak definitely. No untoward symptoms following the treatments were noted, except in the case of one of the tabetics. Here, however, there was for several hours after the treatments a marked exacerbation of lightning pains.

Dr. WILLIAM M. LESZYNSKY said that it was not at all surprising that salvarsan should be found in the fluid in the lateral ventricles after injections into the spinal canal. During the epidemic of cerebrospinal meningitis several years ago, it was noted by the late Dr. H. P. Loomis that after argyrol was introduced into the spinal subarachnoid space, it was found at the autopsy distributed over the cerebral cortex.

## Letters to the Editor.

### PENNSYLVANIA'S INSANE ASYLUMS.

PHILADELPHIA, December 8, 1913.

To the Editors:

May I beg the favor of sufficient space in the JOURNAL to say just a word or two on behalf of Pennsylvania's insane asylums, the management of which is so severely arraigned in the editorial article appearing in your issue for October 4, 1913?

I beg leave to say that such a condition of affairs as therein described could not possibly exist in either the

public or private hospitals for the insane of this Commonwealth without being known to the committee on lunacy, and I affirm that, as a matter of fact, these charges have never been brought to the notice of this committee. Placards are posted in the hospitals informing patients that they have the right to correspond with the committee, under seal, once each month, and stationery and postage stamps are supplied by the institutions. The friends of patients also can write to the committee without restriction.

When complaints of this character are brought before the committee, they are always promptly investigated, and the fault, if any, is corrected. It is to be expected that regrettable accidents will happen occasionally, and when they do occur, the committee is thankful to the persons who report them, so that steps may be taken to prevent their recurrence if possible and to reduce their number to the minimum.

I have written to Doctor Walker about the serious charges against Pennsylvania's care of the insane referred to in your editorial article, which has been widely circulated in this State, and has caused much distress of mind among families who have relatives in our hospitals, and I was very much astonished to find that he denies positively that he had made any such charges, or used the language that has been attributed to him. He has sent me a copy of his paper which he read before to State medical society, and upon reading this paper carefully, I cannot find any support for the words in your article, as he does not even mention Pennsylvania. When asked at the meeting if he referred to any particular institution, he replied, "I prefer not to specify."

As Doctor Walker has repudiated the statements credited to him, and although repeatedly invited, has not made to this committee any charge reflecting upon any institution in Pennsylvania, it would seem that your article must have been written under a misapprehension of the true facts in the premises. In the opinion of those familiar with the situation, it casts an unwarranted slur upon the good name of the Commonwealth of Pennsylvania, as well as upon all who are directly interested in the administration of her great charities to the indigent insane, in the eight large State institutions, specifically devoted to their care.

FRANK WOODBURY, M.D., *Secretary.*

## Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*A Manual of Surgery.* For Students and Physicians. By FRANCIS T. STEWART, M.D., Professor of Clinical Surgery, Jefferson Medical College, Surgeon to the Germantown Hospital, etc. Third Edition. With 571 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. xi-742. (Price, \$4.)

This work represents a skillful choice of information taken from many authorities and combined in a systematic manner, so that it becomes an excellent manual for students and beginners in surgery. The text is unusually well written and the facts are presented in a most concise and clear manner. Originality is absent, but this in no way interferes with the usefulness of the volume as a textbook. All history, bibliography, and unnecessary details have been eliminated so as to make the book definite and practical. There is some doubt as to the necessity of a new book of this sort, on account of the very excellent ones that have been written of late, notably by English authors, covering this field. At the same time this book will rank well above others of the same purpose, although distinctly less successful both in manner and form. The print unfortunately is small and difficult to read, and the illustrations in general are poorly executed. This seems inexcusable at the present time when so much attention is given to the perfection of print and elaboration of the illustrator's art. These comparatively minor defects, however, could be easily corrected in a subsequent edition. The author gives full credit to the various authors from whom he has taken his information and method of classification.

*Minor and Operative Surgery. Including Bandaging.* By HENRY R. WHARTON, M.D., Surgeon to the Presbyterian Hospital and the Children's Hospital, Philadelphia, etc. Eighth Edition, Enlarged and Thoroughly Revised. With 570 Illustrations. Philadelphia and New York: Lea & Febiger, 1913. Pp. 700. (Price, \$3.)

The appearance of an eighth edition of this well known book demonstrates its popularity as a textbook for medical students. The present edition has eliminated much that was obsolete in earlier volumes and one meets with considerable new matter and illustrations. In the chapters devoted to operative surgery a number of the more recent procedures have been introduced. The book has retained its previous size and form and confines itself chiefly to the wants of the student. It remains essentially a practical treatise intended to give the student the necessary information on the technic of bandaging, x ray, aseptic and antiseptic preparation for operation and operative surgery. In addition, the subject of fractures and dislocations, particularly the use of the various splints, receives a brief consideration. The book in its present improved form will doubtless continue to be widely recommended as a textbook for students when taking up these important and practical subjects.

*Diagnosis of Bacteria and Blood Parasites.* By E. P. MINETT, M.D., D. P. H., D. T. N. & H., M. R. C. S., L. R. C. P., Assistant Government Medical Officer of Health and Bacteriologist, British Guiana, Late Assistant Bacteriologist to Guy's Hospital, London, etc. Second Edition. New York: Paul B. Hoeber, 1913. Pp. viii-80. (Price, \$1.)

As an outline of the general methods employed in the identification of bacteria this small book might be of some value. It deals with the subject so briefly, however, that it would not be of much use to the inexperienced student, while the advanced student will wish something more extensive.

*Pathology, General and Special.* A Manual for Students and Practitioners. By JOHN STENHOUSE, M.A., B. Sc. (Edin.), M. B. (Tor.), Formerly Demonstrator of Pathology, University of Toronto, Toronto, Canada. Second Edition, Revised and Enlarged, Including a Selected List of State Board Examination Questions. Illustrated with Twenty-nine Engravings and a Colored Plate. Philadelphia and New York: Lea & Febiger, 1913. Pp. vii-278. (Price, \$1.)

This epitome, like others of its kind, is supposed to give a bird's eye view of some particular branch of medicine, and the reader is expected to consult the detailed maps for further information. Unfortunately the great majority of students will content themselves with a very fleeting glance and trust that they will not go astray. For that reason we feel that such attempts to lighten the students' labors are ill directed. In discussing tumors the author states that in doubtful cases the examination of a small portion of the growth for the number of chromosomes would decide its malignancy or otherwise. The work of Farmer, Moore, and Walker on which that statement rests has not been substantiated; nor is it accepted that the cancer cell is not derived from preexisting epithelium, but is itself a parasite introduced from without. This volume does not seem to be entitled to much praise.

## Interclinical Notes.

It is rarely given to any layman to be received with hearty acclaim by a gathering of distinguished physicians and surgeons. Mr. Samuel Hopkins Adams, therefore, is to be congratulated upon the enthusiastic reception accorded him when he appeared on the floor at the recent meeting of the Clinical Congress of Surgeons of North America in Chicago. The applause with which he was received showed that the medical profession appreciate the work which he has done within the past few years in exposing the fraudulent character of patent medicines and warning the public against them. Mr. Adams carries on the work in a recently published volume, *The Health Master* (Boston and New York, Houghton, Mifflin, & Co.,



1913) in which he tells in an interesting way of the work of a physician who becomes the "health master" in the family of a wealthy citizen, teaching the members of the family and eventually the community at large the laws of sanitation and hygiene. There is just enough of a story to prevent the book from being classified as a tract, but hardly enough to justify calling it a novel. While the doctor is the central character, probably the most cleverly drawn and interesting personage in the book is that of Grandmother Sharpless, a clever, alert, intelligent old lady gifted with that power of observation and deduction which is an essential part of the equipment of the diagnostician. The book would be a good one to put into the hands of the intelligent head of any family, as the lessons it teaches are sound and much more interesting than is usual in such books.

\* \* \*

For several weeks the *Outlook* has been delighting its readers with a handsome new makeup, which includes well chosen illustrations, and apparently gives more space for the typical wit and wisdom of its editors and contributors. In the issue for December 6th, there is an ironical comparison between the attendance at the Fifth National Conservation Congress at Washington and that at the Baby Saving Congress in the same town. The impression prevails that any fool can raise a child, the ancient confusion of mind between begetting and training the offspring still persisting, the ease of the former leading to general misapprehension of the difficulties of the latter. The *Outlook* also discusses the true mission of the milk station and the status of the midwife. There is a picture of the open air school for girls at Bryn Mawr and another of the strange looking fish that come from the depths of the sea; whence we came, too, brethren, it is now some aeons since.

\* \* \*

*Wayside Experiences*, by C. Elton Blanchard, M.D. (Physicians Drug News Company, Newark, N. J., \$1.25 net), is a collection of tales and reminiscences which scarcely needs the apology the author makes for its publication in his preface, for it is interesting and by no means shocking. We should have thought, however, that a writer of Doctor Blanchard's experience would have known better than to offer as a *raison d'être* for a book the mere reality and sincerity of its contents. Nothing can excuse the lack of art in any work of art. There are some inaccuracies and inelegances in the book; "widow lady" is one of the latter and referring to Susan as a cognomen is inaccurate. Marvin was the cognomen of the woman in question. The style, however, is simple and unaffected, the stories are interesting, and our friends, after reading them, will easily find patients who will be thankful for an opportunity to be amused and instructed thereby.

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Among the articles in the *Popular Science Monthly* for December, 1913, that the busy practitioner will probably read, with simultaneous regret that he has not time for all, are the sketch of Alfred Russell Wallace, by Dr. Henry Fairfield Osborn, and the second part of Alcohol from a Scientific Point of View, by Dr. J. Frank Daniel. We recommend highly the ironical and forceful article by Dr. P. H. Churchman, The Place of Study in the College Curriculum.

### Meetings of Local Medical Societies.

MONDAY, December 22d.—Medical Society of the County of New York.

TUESDAY, December 23d.—New York Dermatological Society; New York Psychoanalytic Society; Metropolitan Medical Society of New York (annual); New York Medical Union; New York City Riverside Practitioners' Society; Valentine Mott Medical Society, New York; Washington Heights Medical Society, New York; Woman's Hospital Society, New York; Alumni Association of Seney Hospital, Brooklyn; Rome Medical Society; Buffalo Academy of Medicine (Section in Pathology).

WEDNESDAY, December 24th.—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; Medical Union, Buffalo; New York Society of Internal Medicine.

THURSDAY, December 25th.—Bronx Medical Association; Hospital Graduates' Club, New York; New York Celtic Medical Society.

FRIDAY, December 26th.—New York Academy of Medicine (Section in Public Health); Academy of Pathological Science; New York Society of German Physicians; Italian Medical Society of New York; New York Clinical Society; Manhattan Medical Society; Hospital Graduates' Club, Brooklyn; Audubon Medical Society.

SATURDAY, December 27th.—West End Medical Society; New York Medical and Surgical Society; Harvard Medical Society; Lenox Medical and Surgical Society.

### Official News.

#### United States Army Intelligence:

*Official list of changes in the stations and duties of officers serving in the Medical Department of the United States Army for the week ending December 13, 1913:*

**Billingslea**, C. C., Captain, Medical Corps. Granted leave of absence for seven days. **Eastman**, William R., Major, Medical Corps. Relieved from further temporary duty in the Southern Department, to take effect on the expiration of leave of absence, and will return to proper station, Fort Riley, Kansas. **Ebert**, R. G., Colonel, Medical Corps. Ordered to Fort George Wright to investigate matters relating to Major B. J. Edgar, Jr., Medical Corps. **Foucar**, Frederick H., First Lieutenant, Medical Corps. Granted leave of absence for two months, effective at such time after the completion of his examination for promotion as his services can be spared by his commanding officer. **Kramer**, Floyd, Captain, Medical Corps. Granted leave of absence for two months.

### Births, Marriages, and Deaths.

#### Died.

**Bennett**.—In Clearfield, Pa., on Saturday, November 29th, Dr. Ashley D. Bennett, aged seventy-seven years. **Cleveland**.—In Canton, Pa., on Saturday, December 6th, Dr. J. E. Cleveland, aged eighty-four years. **Cornell**.—In Copemish, Mich., on Tuesday, December 2d, Dr. Alexander S. Cornell. **Davis**.—In Omaha, Neb., on Friday, December 5th, Dr. J. Walter E. K. Davis. **Elliott**.—In Brooklyn, N. Y., on Friday, December 12th, Dr. Amos Henry Elliott, aged seventy-three years. **Farewell**.—In Brooklyn, N. Y., on Thursday, December 11th, Dr. Norman Eugene Farewell, aged thirty-seven years. **Hueston**.—In Ypsilanti, Mich., on Saturday, December 6th, Dr. James Hueston, aged eighty-two years. **Huntington**.—In Newburyport, Mass., on Tuesday, December 9th, Dr. Thomas Marshall Huntington, of Amesbury, aged fifty-five years. **Lathe**.—In Boston, Mass., on Friday, December 5th, Dr. Leonora F. Lathe, aged seventy-nine years. **Layman**.—In Philadelphia, on Saturday, December 6th, Dr. Alfred Layman, aged seventy years. **Manahan**.—In Brookline, Mass., on Sunday, December 7th, Dr. Margaret M. Manahan. **Nelson**.—In Norwich, Conn., on Saturday, December 6th, Dr. Abiel W. Nelson, aged seventy-eight years. **Pulliam**.—In Tolono, Ill., on Sunday, November 30th, Dr. William T. Pulliam, of Tuscola, aged sixty-three years. **Rogers**.—In Newton, Iowa, on Thursday, December 4th, Dr. Lee O. Rogers, aged seventy-five years. **Sager**.—In Rockford, Ill., on Tuesday, December 2d, Dr. Rockwood Sager, aged fifty-seven years. **Staples**.—In Franklin, N. H., on Thursday, December 11th, Dr. John W. Staples, aged fifty-eight years. **Street**.—In New Bern, N. C., on Monday, December 1st, Dr. Nathaniel Heath Street, aged fifty-six years. **Von Klein**.—In Chicago, on Friday, December 12th, Dr. Carl H. von Klein, aged seventy-one years. **Ward**.—In St. Johnsbury, Vt., on Monday, December 8th, Dr. R. C. Ward, aged seventy-five years. **Wishard**.—In Indianapolis, Ind., on Tuesday, December 9th, Dr. Henry Wishard, aged ninety-seven years. **Worcester**.—In Peabody, Mass., on Sunday, December 7th, Dr. Fitzwilliam S. Worcester, aged sixty-two years.

# New York Medical Journal

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WHOLE No. 1830.

### Original Communications.

#### THE CANCER RESEARCH HOSPITAL.\*

BY JAMES EWING, M. D.,  
New York.

In the year 1913, New York State opens a hospital for cancer research. The event is significant. When a State legislature commits itself to clinical cancer research and devotes public funds to this purpose, it establishes important precedents.

It means that enlightened public sentiment in this community is not satisfied with maintaining homes for incurables and that the study of cancer in the human being is worth while, and a legitimate State function. One can hardly expect an event of this character to attract great public attention. The public mind is chiefly interested in sociological experiments on a large scale, the larger the scale the better; to determine how a man shall get along with his neighbor, and how the wealth of the land shall be distributed.

The lust and worry about money may be a very important economic question, but its solution does not tell essentially for the permanent betterment of mankind. Humanity advances chiefly through enlarged control of its physical environment. This type of progress is dependent upon the sciences. The world's real work is being done by a relatively small army of physicists, chemists, and biologists, whose average wage is little larger than that of the bricklayer. They have no trades unions, no cyclic demands for larger pay, and their fortunes will not generally be reached by an income tax.

The public at large is an unsuspecting and innocent beneficiary of the slowly gathered fruits of this labor and receives only a belated newspaper notice of the sensational phases of scientific progress. It is hardly to be expected that the average man in the treadmill of American life should busy himself with the interests of science, but it may not be amiss to refer to this aspect of the socialistic movement of our times.

Possibly those in control of the forces which design to take over a large portion of American fortunes propose also to assume the responsibilities heretofore carried by these fortunes. Practically all the support of American science has come from men of large means, but one does not hear of any political platform which clearly proposes to maintain and enlarge the immense philanthropies now

voluntarily supported by the rich. Indeed, one may gravely question whether the general intelligence of governing bodies in America is equal to this task. In fact, the public utterances of many men in high places indicate a firm resolve to readjust the wealth of the land, but little concern as to how they are going to spend the money.

American science has much at stake just now, and it may become necessary urgently to push its claims into public notice to avoid a long period of repression. Especially is it to be feared, when the support of science becomes a governmental function, that the finer appreciation of the peculiar needs of medical research may not be felt by the successful political leader, and that the optimism which is willing to risk large resources on faint possibilities may not appeal to political bodies at all.

Under these circumstances the action of the State of New York in establishing new relations to an important department of medical science, assumes a significance not realized by the man in the street. Yet as I interpret the function of to-day's ceremony in Buffalo, it is just to do what the man in the street will not do, pause to consider the meaning of a decision which commits the State of New York to cancer research in the clinic.

It is no reflection upon the intelligence of our legislature to suggest that this movement did not arise within its ranks. The layman's impression of cancer is of something very indefinite, very portentous, quite hopeless, a disease which always affects some one else than himself, about which he carries no immediate interest or responsibility. This point of view does not originate any activity in the fight against cancer.

Neither can it be supposed that the medical profession with its larger acquaintance with the disease rose up and demanded that the State enter upon this field of work for the public health. The average physician is a confirmed pessimist on the cancer question, and probably the profession as a whole feels that the community has done its full duty in providing routine surgical skill for the early cases, and asylums where the advanced stages of the disease can run their course under bandages and morphine anesthesia.

No, the impetus for this movement must have come from some specially enlightened and aggressive source, from some man or group of men who are fully alive to the real needs of the cancer situation, both from the humanitarian and from the scientific sides.

The city of Buffalo may well be congratulated upon the possession of such leaders in medicine,

\*Read at the formal opening exercises of the Research Hospital of the State Institute for the Study of Malignant Disease, Buffalo, November 1, 1913.

who not only have advanced ideas, but have the power to put them into practical form. The possession of a cancer hospital is the logical development of those activities which for many years have maintained in the city of Buffalo a leading and pioneer institution for cancer research, and in my judgment it stands as a flattering indorsement of the past work of that institution, and signifies a confident hope for new and important results in the future. I take pleasure in expressing my conviction that no other institution in this country more richly deserves this enlargement of its scope, and nowhere could the large resources involved be placed to better advantage.

It is well to recall that the Buffalo institute provided opportunity for concentrated and specialized work on the nature and causation of cancer at a time when other American medical centres and most of those abroad indulged in only a casual and perfunctory interest in the problems of this disease. At that time, at least one considerable endowment intended for cancer research was diverted from its object because the medical circle into which it fell enjoyed only a routine surgical and largely commercial interest in the subject. Under such circumstances no one could claim that cancer research was an inviting field. On the contrary, it was regarded as unproductive territory into which a laboratory worker ventured at the peril of oblivion or virtual ostracism. Even to-day, quite distinguished workers in cancer problems seem to come and go, while others do occasional obeisance to the great biological Sphinx and then hastily pass along.

The only active question at that time was the possibility that a specific cancer parasite might exist. Into this field the Buffalo institute entered with enthusiasm. As a friendly critic of that earlier work I venture to say that the studies of *Plasmodiophora* enlarged upon previous knowledge of that subject, that the compilations and observations on cancer cell inclusions were the most elaborate in the English language, and that the activities of the institute brought American information and opinion abreast of the views of leading Continental authorities who had committed themselves to the parasitic theory of the origin of cancer.

When the modern era of the study of transplantable tumors in lower animals began, in 1902, the institute immediately took a conspicuous position in the pursuit of the many problems which the new experimental method revealed. It may safely be stated that the institute contributed its full share of the really new and important facts that have developed in this field. The observations on the spontaneous regression of spontaneous and implanted tumors and on the development of artificial immunity and its nature, while at first contested or denied or bodily appropriated by some European workers, have emerged from debate as scientifically attested facts, thus proving that the Buffalo work was conducted with competency and skill.

While the existence of thyroid cancer in trout was demonstrated by our European colleagues, the recognition of the peculiar problems presented by this disease was the work of the Buffalo institute. The energy and very elaborate scope with which this research has been conducted stands as a model

for the scientific pursuit of a large problem and is especially valuable in revealing the extensive equipment and expert organization which is required for the successful study of many biological problems.

Not the least significant phase of this work was the stirring of the United States Government to its support. Finally, to complete this record of qualifications the institute is known for its consistent contributions on the serology of tumors, on many chemical questions of importance, and in the testing of reputed therapeutic agents as well as the elaboration of original ideas in experimental therapy. Through these highly profitable years spent in experimental studies, the institute has maintained an attitude of dignified optimism regarding its own work and the general progress of cancer research. It has not overexploited itself, nor overestimated the importance of its own work, nor assumed for itself, much less openly claimed for itself, any specific inspiration or apostolic authority.

On the contrary, as the most active influence in the foundation of the American Association for Cancer Research, as a joint originator and notable supporter of the International Association, and as a cordial friend and helper of many colleagues in this country and abroad, the Buffalo institute stands in an enviable and unassailable position. To such an institution now comes the responsibility of conducting intensive research upon cancer in the human patient. The hospital is open; what is to be done with it?

The experiment of extending the activities of laboratory workers to cancer in the human subject and of gathering for this purpose under one roof a considerable number of patients mostly in the condition called hopeless, is an experiment, but not entirely a new one. At least three American institutions and several abroad are already organized in this way. The uncertain feature of the plan concerns the possibility of maintaining a desirable mental atmosphere about an institution peopled largely by all too obvious victims of a dread disease.

This difficulty has stood in the way of the establishment of cancer homes, and some good surgeons feel that it is an insuperable objection to the cancer research hospital. Others, mostly lay persons whom we need not stop to classify, gravely fear that the patients in such a place will serve merely as subjects for experimentation, with very deleterious effects upon the morals of the experimenters. Yet the brief experience of existing cancer research hospitals is distinctly to the effect that a reasonable optimism may be maintained among the patients and personnel.

Write the word "hope," meaning hope only of definite palliation, over the door of a home for cancer incurables and you convert that home into a live cancer research hospital. You can fill it several times over with eager patients. Even without the promise of more than routine medical and surgical care, there is no field of hospital work so inadequately provided as are the needs of the inoperable cancer patient. The physical suffering entailed by cancer is not a part of our topic, but the attention of philanthropists may well be called to the urgency of this need beside which most other charities appear dwarfed. But it is not for the mitigation of



suffering by the better application of known methods that the research hospital is primarily intended. It is for the much larger ambition of adding to our knowledge of the nature and control of the disease by its more elaborate and careful study in the human subject.

About ten years ago a notable investigator, discussing the new observations on artificial immunity to cancer in lower animals, declared that the outer breastworks had been stormed and it was only a question of time when the inner citadel would be captured and cancer become a solved problem. Perhaps because of weary desertions from the ranks, the capture of the citadel has been delayed. In fact, I think it must be candidly admitted that the results of the modern era of experimental cancer research from the standpoint of the human patient, have been disappointing. I hasten to add that this point of view may not be a legitimate one from which to judge the results of this era. Workers in the most obscure problem of medical biology resent the question, "How many cases of cancer have you cured?" There is no obligation resting upon cancer research to arrest the course of a naturally fatal disease, any more than the chemist must justify himself by making diamonds out of charcoal. It cannot be too strongly urged that the value of contemporary results in the study of cancer should not be estimated from the therapeutic side. One must be prepared to face the contingency that the problem of advanced inoperable cancer may always remain a therapeutic impossibility, and there is strong reason for believing that it will so remain during our present era.

Many believe that exclusive attention to the direct attack upon cancer in man stands in the way of necessary fundamental progress, and that we are not ready for the therapeutics of cancer. While fully assenting to the general validity of these objections, I cannot help feeling that modern cancer research owes something to its day and generation, and I have been impressed by the fact that the very significant advances of the past decade in some departments of research have brought very little relief to the cancer victim.

It is highly interesting and theoretically important that many cancers in rats and mice spontaneously regress, but we already know this to be true of human cancers and that the event is very much less frequent in man than in lower animals. Perhaps some day we may learn from the lower animal why this regression occurs, and be able to facilitate the process in man. The modern progress stops short of this goal.

It is very encouraging to be able to arrest tumors in animals by blood transfusion, by various traumas, by strangling the bloodvessels with epinephrine, by poisoning the animal by various toxic agents, by high temperatures, by injections of colloidal metals, even by simple changes in diet: or by complex synthetic compounds labelled "chemotherapeutic" agents, and by many other procedures, but therapeutic tests on a vast scale, in many countries, return the verdict that these methods are ineffective in man. Serological studies have revealed many subtle changes in the blood of organisms suffering from cancer, but with the possible excep-

tion of Freund's observations that cancer blood has lost the normal capacity to dissolve cancer cells, this work has not elucidated the nature of cancer predisposition, nor enriched our practical diagnostic measures, nor opened the way for constitutional treatment of the disease.

It is quite confusing to learn that certain tumors or tumorlike processes in chickens can be transmitted by an agent filterable through porcelain, but this is the only department of chicken pathology that has been carefully investigated so that one hesitates to apply this principle to any process in man; its interpretation in the chicken is difficult; and it may very well be that this problem, somewhat artificially created, in spite of being very ably pursued, may lead nowhere in the etiology of human tumors.

Likewise, the discovery of an epidemic of cancer of the stomach in rats and the brilliant demonstration that this disease is connected with a nematode worm found in a limited circle of cockroaches which enjoyed the rich diet of a Copenhagen sugar factory, furnishes a model of scientific acumen and finished research, but there is not the slightest indication that gastric cancer in man has any parallel etiological relations.

While a very high value must be placed upon these and other notable results of the study of tumors in lower animals, does it not appear, on the whole, that this field of work is somewhat distantly removed from the real problems which animate cancer research? The variations in biological processes are almost infinite. The direct attack upon cancer has proved ineffective, but it is not necessary to aim the guns as far away as possible in the hope of opening up effective side paths of approach. There is a growing conviction that to know cancer in man one must study the disease more carefully in the human subject.

In the past few years the development of facilities for this type of research has progressed with great rapidity. It is worth noting that at least ten special institutions of this sort have come into existence in the past few years, indicating a very strong current toward human cancer research as against the purely experimental field.

The problems presented in the cancer research hospital are so numerous and conspicuous that their contemplation at once reveals that this is the broadest and the most profitable of all departments of the subject. Here is the place for the study of etiology in which clinical observation has already furnished our most important knowledge.

A young surgeon, in discussing a communication on precancerous conditions of the breast, recently asserted that a disease is either cancer or not cancer. Quite the contrary; a pathological condition may be neither the one nor the other. It may be in the process of becoming cancer, and this process takes time, sometimes years, and is attended by certain rather definite morphological changes easily detected by the microscope and often recognizable by the naked eye, as well as by very important changes in physiology. It is a highly important fact that these precancerous conditions are usually remediable by the knife, or by less violent measures.

The great majority of cancers, according to Billroth, all of them in many regions, are preceded by

such preliminary changes. Much is known, but more remains to be learned about precancerous conditions. They are of very general clinical interest, but the cancer hospital should contribute an important share in the more careful study of these conditions and in the spread of the knowledge thus obtained.

The special etiology of tumors varies with each particular variety and constitutes a large chapter of our knowledge of cancer. It presents one of the most comprehensive fields of clinical research for which an extensive acquaintance with the literature of the disease and with general medicine is essential.

I sometimes think that those who frequently emphasize and deplore the paucity of information about the nature of the cancer process would do better to familiarize themselves with what is actually known about the very numerous factors which condition the development of tumors.

We may never know just why cancer cells grow lawlessly, but we can elucidate a vast number of conditions under which they are observed to do so and perhaps remedy the conditions. The influence of racial, local, and personal habits upon the nutrition and functions of different organs, the traces of heredity, the evidence and nature of local tissue and general constitutional predisposition, the influence of chronic infection, of trauma, and many other matters enter into the etiology of tumors, and should be pursued in a cancer hospital by observation, analysis, and experiment, by clinician, chemist, and pathologist.

The cancer hospital is no place for the immature and indolent mind, either in the wards or on the administrative staff. Unstable emotions and sentimentality of every other kind are out of place in its neighborhood. The spectacle of humanity bowing before the unhindered progress of a disease which tends almost inevitably to a fatal issue, often with much physical pain, can be sanely viewed only in the light of science. In this light there is value in every observation steadfastly pursued to the end.

The natural history of cancer is far from a finished story and has never been adequately written. The medical profession is in the habit of regarding it as a single disease varying chiefly in location and prognosis. This view is about as profound as the ancient impression of inflammation, which grouped tuberculosis, syphilis, and pyogenic infections, as well as many tumors, in one category. But there is no more justification in identifying embryonal cancer of the testis with cancer of the breast or epithelioma of the lip, or traumatic sarcoma of the long bones than for confounding lobar pneumonia with typhoid fever. The tumors mentioned are related only as forms of neoplasia, the infectious diseases only as inflammations.

The etiology, symptoms, clinical course, and indications for treatment, which constitute the specific quality of clinical entities are in many cancers quite different. Not until we come to recognize the individual character of different tumors, benign and malignant, can we comprehend their true significance.

The cancer hospital offers conditions where the natural history of tumors can be observed and recorded in all its phases, and where our knowledge

of this vast and comparatively neglected department of medicine can be greatly amplified. For this purpose, a well organized department of pathology is essential, every type of patient in any stage should be admitted, and the public should be educated to the necessity of post mortem study of every fatal case.

As a factor in medical education every one must see the immense influence which the cancer hospital is capable of exerting. I would recall the declaration of the American Association for Cancer Research, that the knowledge of the early symptoms, diagnosis, course, and treatment of cancer is very inadequately taught, even in the best medical schools. It cannot be adequately presented as a clinical study because the hospitals shun the advanced cancer patient. The inefficiency of our present methods of diagnosis is shown by the statistics of the best Berlin hospitals, which prove that twenty per cent., even of fatal cases, come to autopsy unrecognized. The microscopical diagnosis of tumors is one of the most difficult of laboratory specialties, requiring many years of experience, and often much careful and competent consideration, but much of this work is done by laboratory tyros, chemists, and drug stores. Yet when the facilities for acquiring this knowledge are so limited, one should not blame the surgeon too severely for his amazing confidence in the amateur and the fakir.

The grave defects in the knowledge of the average practitioner of primary facts about the early diagnosis and treatment of cancer have been revealed by many investigations of this subject conducted by clinicians themselves with the conclusion that the chief hope of an immediate reduction in the mortality from cancer lies in its earlier recognition. For this end the public should doubtless be made acquainted with the early symptoms of cancer, but first of all the competency of physicians must be assured.

The cancer hospital in connection with a university can do more than any other institution to provide material for the educational movement. It should collect a gross and microscopical museum, train expert diagnosticians, and open its wards freely to students.

Under such conditions much new and important information concerning the nature, etiology, histogenesis, and prognosis of tumors, and the relation and classification of neoplasms can be acquired. To the experimentalist all this is dull routine, mere skirmishing and sharpshooting, and will never lead to the grand upheaval with the storming of the citadel revealing the great secret of cancer. Yet it should be recalled that the great bulk of our knowledge of the disease has been acquired by just such methods of painful and persistent observation and analysis of apparently routine phenomena. Moreover, the results of experimental study in all fields must eventually come before the bar of just this sum total of clinical and pathological experience with the disease and there be judged as to their validity.

Personally, I find so much of interest in the study of etiology, histogenesis, prognosis, and classification of human tumor material, that I have never been able fully to indulge a passion for artificially

created problems, and I have an impression that this sort of work tells effectively, although indirectly, in reducing the mortality from cancer. One must obviously supplement the old fashioned methods of study by serology and chemistry with experts specially interested in cancer problems. In these fields human material appears to be essential and for this end alone the cancer hospital would justify itself. Very important problems in both these departments are beginning to define themselves.

The chemical study of tumors and of the affected organism is still in its infancy. In fact it seems to enjoy recurring periods of infancy. It was highly in vogue in Virchow's time. So far as I can learn there are only two studies of the sugar content of the blood in cancer, one about 1860, reporting an increase, the other in 1910, recording a decrease or variations in this substance. Among many other problems, one awaits the results of modern chemistry as a necessary basis for the ambitious science of chemotherapy of cancer into which some would boldly venture without such light.

Serology also has made a conspicuous entry into cancer research, and will doubtless prove an essential instrument in elucidating many subtle changes in cancer processes. Both these sciences should be adequately represented in a cancer hospital.

Therapeutic studies are bound to claim a large share in the activities of a cancer research hospital. In fact a hasty tour through such institutions in England and the Continent might suggest that this is their only real interest. It would at least convince the visitor that the partial success of the palliative treatment of inoperable cancer fully justifies all the support these institutions have received. To the harsh critic, the treatment of inoperable cancer is nothing more than a form of euthanasia, and such as a rule it proves to be. Yet the palliative treatment of these patients is a worthy service, demanding far more patience and skill than are involved in most routine functions of the physician. It is an intellectual rather than a mechanical occupation, and when it is well done calls for the skill of an artist.

I suppose that when Czerny began to take an active interest in the palliative treatment of cancer, it was by some regarded as the beginning of the end of his career. But I recall that it was only in his old age that Abraham was taken up into the mountain and had his eyes opened to the promised land. Not a few distinguished surgeons have been willing to devote minute attention to this subject, which calls for much surgical skill and experience and for a knowledge of many adjuvants to surgery. Of the very numerous devices which are shown to retard the progress of cancer I do not propose to speak, but merely mention that this field should be developed to the highest possible point which its costly nature permits.

With rare exceptions, I think the principle should be followed of prolonging life to the limit, not only because life with hope or consecutive activity is generally worth while, but because surprising improvement may be observed, and there are on record

very puzzling cases of apparent recovery from the last stages of cancer.

There is also recorded a series of malignant tumors with very prolonged course occasioned by periods of quiescence under elaborate palliative treatment, and there is little doubt that this frequent tendency of the disease is not always encouraged to assert itself. I regard these cases of spontaneous partial arrest of cancer as highly important objects of study, illustrating phases of cancer immunity. None of them, so far as I know, has ever been fully studied from the serological and chemical sides. It was with such a case that Hodenpyl made his interesting observations, showing the undoubted presence for a time of a curative agent in the chylous ascitic fluid of breast cancer.

Successful palliation is not, however, the sole therapeutic ambition of a cancer hospital. The numerous methods which have proved capable of retarding or eradicating experimental tumors in animals naturally rouse the hope that some one of them may be found effective in man. Thus far none of these biological methods has had any significant influence over generalized or advanced human cancer, although isolated paradoxical results are credited to many, while not a few give temporary mitigation of symptoms. In this situation it is difficult to avoid a form of quackery in clinging to a method whose influence is uncertain. Yet in a cancer hospital, where the financial element is eliminated, any method with a sound theoretical basis deserves a thorough test.

An enormous labor is now being expended in investigations of this class, but it must be seriously questioned if the field is ripe for any harvest from the vaccines, sera, metals, ferments, and complex chemotropic agents lately employed on an extensive scale. These agencies ignore every element of the disease except the cancer cell, they rest on an assumption that all cancer processes are essentially alike, and they indulge the hope that some shadowy property of a chemical body, diluted in the blood stream, may somehow arrest the momentum of a whole series of a headlong vicious process in cells and organs. I have often wondered if some of these agents might not be able to control the early stages of tumors, but against advanced or generalized carcinosis it seems a vain hope to set up any circulating material so far devised.

Yet for localized but inoperable cancer there has recently come renewed hope and from partially discredited sources. Radium and its allies have made a steadily enlarging field for themselves in the treatment of localized and inoperable tumors. It has long been known that sufficient exposure to radioactivity kills cancer cells while sparing normal tissues, and it has remained a question of the technic of application how far this action could be employed for the control of cancer. So long as the use of radium was limited to superficial growths, just as well removed by the knife, it was regarded as an interesting and expensive toy, and when not a few aggravations of the disease were charged up against the careless or inadequate application, it assumed the character of a dangerous toy. No such atmosphere surrounds the reputation of radium to-day.



Every year has brought improvements in the methods of application, in the quantities available for use, in accuracy of dose, and in the observation of effects.

It has been demonstrated that radium is the best method of treatment of certain superficial and some deeper tumors which may also be removed by the knife, and that in a few conditions, deforming operations not certainly successful may well be avoided by its use. Much yet remains to be learned of the physics of radium and its products and of allied substances. Well equipped physical institutes in Paris, Birmingham, and Vienna are fast supplying this information, which will doubtless prove an important control in the medical application of radium.

The x ray treatment of cancer has made substantial progress during the past year. Here again it has been a question of the technic of application, since the destructive action of x rays upon cancer cells has long been recognized. By the repeated and prolonged application of filtered rays it has been possible to render many inoperable tumors accessible to the knife and in some instances completely to eradicate extensive although comparatively superficial growths which were formerly regarded as far beyond the reach of this or any other agent.

Thus the field of radium and x ray as curative agents in cancer is rapidly widening, and the results already obtained assure for the cancer hospital a definite field of successful therapeutics of inoperable and borderline cases. Likewise the capacity of these agents as palliatives is correspondingly increased, so that by systematic employment of physical therapy, the melancholy aspect of the chronic cancer ward may be greatly mitigated.

The possession of an effective supply of radium, a fully equipped light department, and competent experts capable of breaking new ground, supported if possible by a trained physicist, are quite essential parts of the organization of a cancer hospital. While the ultimate results of the new methods of physical therapy are not yet known, and the real problem of the constitutional treatment of generalized cancer still remains untouched, there is no doubt that very important new weapons have been made available for the fight against cancer.

From the consideration of these various functions of the modern cancer research hospital, I think that it must be evident that such an institution not only can justify its existence, but fills a very urgent need without which the progress of cancer research would be handicapped, and much relief that might easily be extended to cancer victims would be unavailable. Nor is there any doubt that the function of supporting such an institution is properly exercised by the State, which support should be continuous and liberal.

I have to confess that the plans of such a hospital, as they appear to me, do not contemplate the early subjugation of cancer, but look rather to the slow and painful attack upon a great number of problems which present in this broad field.

Personally, I do not look for any startling advances or sensational discoveries, either in the etiology or therapeutics of cancer. I do not think

the citadel will ever be stormed. It seems much more likely that a steady reduction in the mortality from cancer will come chiefly from a large number of separate factors, of which the most significant appear to be increased control of the conditions leading to cancer, more general recognition of the preliminary stages of the disease, and earlier diagnosis and treatment of the established disease.

If there is any wisdom in this forecast, which I believe embodies the views of many workers in cancer research, then a prime importance attaches to all the various activities of a cancer hospital. Through the steady growth of our knowledge of every phase of neoplastic disease, and not by a single grand denouement by some inspired medical genius, will the problems of cancer meet their solution in due time. That the cancer process will ultimately yield before this steady advance of knowledge is, I believe, a legitimate conclusion. A tissue infiltrated by cancer is not wholly beyond repair. We need only recall the series of cases in which established cancer has spontaneously disappeared, leaving the affected tissues cicatrized but in a functioning condition. In the same way bulky gummas disappear, leaving only moderate scarring.

In Mackay's well known case there was probably extensive absorption of carcinomatous tissue and astonishing improvement in general health. Thus Nature occasionally heals the cancerous lesion, showing that such a result is well within the range of physiological possibility. That Nature's secret may be discovered or that the same result may be accomplished by other means, is a reasonable assumption. Already there are hints regarding the nature of certain agents that may eventually prove effective.

The deadly x ray may be made to penetrate the deepest tissues, even the bone marrow, and radium may be sent circulating to the farthest corner of the body. It may be possible to intensify and localize the action of these physical agents. From the biological side we know that cancer tissue is in some respects specific and excites in the body the formation of specific antagonistic substances. Abderhalden has shown that these antagonistic ferments appear in probably every case of cancer and often in the early stages. Perhaps with early sero-diagnosis one may be able to intensify the protective processes in the body and arrest the disease in its incipency by following Nature's own devices. Again, the specificity of cancer tissue calls for a peculiar chemical composition or physical state with peculiar chemical affinities. Hence the ultimate basis of chemotherapy is well founded, and the search for effective agents in this field may some day be successful.

I would not attempt to predict in what direction the therapeutic labors of cancer research will prove most effective, but merely assert that its labors will not be in vain. The conception of cancer as a curable disease may well inspire an optimistic spirit in all who are engaged in its study.

The new institution formally opening to-day is the logical outgrowth of the optimism which led to the founding of the original Gratwick laboratory; it represents the larger scope of modern cancer research; it is destined to add much to our knowledge

of human cancer, whether it makes sensational discoveries or not; it expresses the determination of discerning men to provide the State of New York with an institution fully equipped for its great purpose; it is a notable monument to the State of New York and the city of Buffalo; and it begins its career with the unqualified endorsement of medical science.

## ILEOCOLITIS WITH MENINGEAL SYMPTOMS.

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In preparing this paper on ileocolitis with meningeal symptoms, I wish to draw a sharp differentiation between those cases of meningeal inflammation in which bacteria are found in the spinal fluid and those in which, after repeated examinations, no organisms are demonstrable.

The acute intestinal infections are frequently referable to artificial feeding—fermentation of the milk being especially responsible. Thus a number of microbic species, as well as their toxins, are brought in contact with the young organism. The strong reaction to the infection in the digestive tract on the part of the child manifests itself promptly in a very complicated series of symptoms. Besides the various forms, of which diarrhea is a constant feature, a form of intestinal intoxication, with constipation, and accompanied by symptoms of pseudomeningitis, has also been described. Any form of enteritis may give rise to cerebral symptoms. Genuine cholera infantum, however, does not cause meningitic disturbances, because, as a rule, the patient rapidly becomes comatose, and the nervous system has no time to react in the form of excitement. Convulsions in the course of enterocolitis are sometimes observed, and these cases must be differentiated from those forms of intestinal infection occurring in epileptics.

In 1894, Dupré, at the congress held in Lyons, defined meningismus as follows: "The features of meningismus, more characteristic by their association and their sequence, than by their character and nature, are the signs of general and local excitement of the cerebral cortex, followed by depression; to these are added headache, vomiting, or constipation, with temperature variations, which, on account of their inconstancy and irregularity, represent the most important feature of the symptom complex. The scope of the temperature variations is governed by the cause of the meningismus." Autopsies and bacterial examinations gave negative findings in certain cases where the diagnosis of meningitis had been made. This is explained by the action of microbic toxins of the intestine upon a prepared soil. An autointoxication of this kind is analogous to the same disturbances caused by alcohol, strychnine, or other poisons. Personally, I can explain these cases of meningismus only as attenuated forms of meningitis due to bacterial toxins. These toxins must be assumed as acting in some manner on the men-

inges, producing a certain degree of congestion. This action is possibly of a chemotaxic nature.

Oppenheim, in his *Lehrbuch der Nervenkrankheiten*, states that in children who are weakened by gastrointestinal catarrh some of the symptoms of meningitis are observed, such as somnolence, convulsions, trismus, etc. But the conditions which are designated as hydroencephaloid are characterized by the absence of fever, focal symptoms, and involvement of the optic nerves. Moreover, the diagnosis can be established on the basis of the etiology, the sunken fontanelles, and the associated phenomena.

Gastrointestinal autointoxication in children may give rise to conditions very closely approximating the picture of meningitis. The gastric symptoms, the indicanuria, the prompt effect of intestinal evacuation, permit the differentiation of these cases from meningitis. Lumbar puncture may also assist in the differential diagnosis.

According to Mülle, in his excellent thesis, the explanation of these pathological disturbances is found in the microbic flora of the digestive tract. The bacterial species which exist in the intestine of the child are somewhat variable and, according to the findings of Lesage and Thierulin, in the normal stools of nursing infants include large numbers of common *Bacillus coli*, which is normal—meaning harmless—in the ordinary proportion. Associated with it, but in smaller quantities, are found the following: *Bacillus mensentericus vulgaris*, *Bacillus lacticus*, some liquefying and nonliquefying micrococci, *Streptococcus varieties*, *Bacillus fluorescens liquefaciens*, and *Bacillus fluorescens putridus nonliquefaciens*, gram positive and gram negative.

Some other microorganisms are noted in the course of an acute gastrointestinal infection, such as *Bacillus pyocyaneus*, isolated or associated with *Bacterium coli commune*. Association results in increased virulence, which produces a hypertoxicity of their soluble products. When these toxic infectious agents become distributed in the organism and find a favorable soil for their action, meningeal complications may result.

There are no specific microbes to explain the genesis of common gastroenteric infections. All the microbes which have been held responsible in this respect may be found in the stools of healthy infants. Aside from *Bacillus coli* and *Bacillus lactis*, which are always present, *Streptococcus pyocyaneus* (peptonizing bacteria), and staphylococci may be found as accidental contaminations in normal stools. The part played by *Bacillus coli* is a matter of controversy; while some regard it as the chief agent of infantile diarrhea, others deny its influence altogether. The action of streptococci has been demonstrated by Escherich and his school. Two varieties were found—*Streptococcus brevis* and *Streptococcus gracilis*. Marfan isolated streptococcus eight times, four times in pure culture and four times in association with *Bacillus coli*.

CASE. On April 18th, E. W., aged five years, male, was admitted to the A. Jacobi ward for children, of the German Hospital. Five days before admission, the child had begun to vomit, had numerous green stools, with slight traces of blood and mucus. No history of an indiscretion in diet could be obtained from the parents.

Examination on admission: A poorly nourished, anemic, neurotic looking child; no skin eruption. Eyes reacted to

light. Mouth: Teeth in poor condition; tongue slightly coated, papillae prominent and red; tonsils markedly retracted and not inflamed; crypts clear; pharynx covered with thick mucus. Chest expansion fair; respiration 26. Heart within normal limits, sounds clear, no murmurs. Lungs negative. Abdomen scaphoid; soft and tender; no masses felt. Liver dullness from fourth intercostal space to costal margin in midclavicular line; edge felt. Spleen not palpable. Rectal examination negative.

During the first day in the hospital, the patient's temperature remained at about 99.4° F. He had a few loose stools, the laboratory reports on which were as follows: Brown and green, streaked with blood; some of the stools composed almost entirely of straight masses and strings of mucus. Microscopically, enormous numbers of white blood cells, strings of mucus, many red blood cells. Amorphous particles stained yellow and green. No connective tissue or masses of epithelial cells seen. No ova. The blood examination showed 21,000 white blood cells; polymorphs, 78 per cent.; lymphocytes, 20 per cent.

Because the boy had been so thoroughly purged before admission, and because of his extremely weak condition, he was given a Murphy saline of 500 c. c. The diet consisted of albumin water, cereal solution, and chicken broth, milk being eliminated. Medication consisted of small doses of subgallate of bismuth and pepsin.

At ten o'clock at night, on the day of his admission, the boy vomited a small amount of light yellow fluid. On the second day after admission, his temperature rose to 101° F. preceded by a slight vomiting spell; the green stools continued, and small amounts of blood and mucus were contained therein. Toward evening, the temperature fell to 99° F. without any antipyretic. The urine contained no albumin, but large quantities of indican were present. On the third day, the temperature remained around 99° F., but the patient became apathetic, refused nourishment, and slept mostly all day. He gave the impression of being a very sick child. He voided but 340 c. c. of urine. Hypodermoclysis was resorted to. Examination for incipient meningitis was negative. The following day the apathy was increased. At 9 a. m. he had a slight convulsion, lasting four minutes; at 1:45 p. m., another convulsion, also lasting four minutes, and at 5:15 p. m., a third convulsion, lasting two minutes. The convulsions involved the entire right side of the body, including the face. This was followed by a complete paralysis of the right arm and leg. At this time, about 10 a. m., there were definite signs of meningeal involvement, stiff neck, suggestive Kernig, and positive Babinski. On making afternoon rounds, I was amazed to find that the paralysis had entirely disappeared, and the patient was able to move both his arms and legs. On the following day, the patient had two convulsions, one at 2 p. m. and one at 4 p. m., each lasting five minutes, again followed by paralysis, at first flaccid, then becoming spastic, and also involving the left leg. This paralysis, or apparent paralysis, lasted until the following noon, when the patient was again able to move all his extremities. Electrical examination showed normal reactions; the urine still contained traces of indican. High enemas were given daily. On the fourth and fifth days, when the convulsions appeared, spinal puncture was resorted to. The first puncture showed a pressure of 110 mm.; clear; specific gravity, 1.004; no albumin; reducing substance uncertain; butyric acid test negative. The second report was also negative. The spinal fluid injected into guineapigs showed no reaction. Widal, von Pirquet, and Wassermann reactions were negative. To the bismuth and pepsin medication, hexamethylenamine in doses of two grains three times a day was added. After the convulsions, on the sixth day of the disease, the boy gradually improved, without any further complications; the green and bloody stools ceased, the indican disappeared from the urine, and the boy was able to be up and about two weeks later, without any functional or organic disorder. Reflexes were normal. Electrical reactions normal.

The peculiar features of this case were the moderate temperature, the irregular, slow pulse, the rapidly disappearing paralyses, and the complete recovery.

In reviewing the literature, one is amazed at the enormous number of cases of meningeal irritation occurring in the course of infectious diseases, such

as typhoid, scarlet, and other febrile conditions. I would refer those of you who are interested in this subject to the excellent work of Cole and McCallum, in the *Johns Hopkins Hospital Reports*. In our case, however, we had to deal not with bacteria, but with their toxins. Bousquet, in *Gazette des hôpitaux*, acknowledges the existence of a pseudo-meningitis as occurring with intestinal disorders. It seems reasonable that these conditions may, reflexly, give rise to symptoms suggestive of meningitis. It should also be kept in mind that these various conditions are frequently combined with intestinal disturbances capable of generating toxins, and acting upon the nervous centres in the same way as microbic poisons in the course of infections. Even transitory digestive disturbances in children are known to be very often accompanied by nervous symptoms. Many of these patients are nursing infants, who, in the course of intestinal infection, present rigidity at the nape of the neck and the lower limbs, with slight tension of the fontanelles. Lumbar puncture may show slight hypertension. In those cases coming to autopsy, the meninges are found to be congested. But recovery frequently follows under the influence of gastrointestinal hygienic measures, so that it is easy to understand how these cases have been erroneously classified under the heading of meningismus of gastrointestinal origin. Sometimes the meningeal lesions are more pronounced and the phenomena more serious in character. All these conditions may be due to the invasion of the meninges by germs from the intestines, but the cerebrospinal fluid is often found sterile, as in my case, and under these conditions the toxins are responsible. Again, however, in a number of cases, the assumption of reflex phenomena is favored by the sudden disappearance of the meningeal symptoms simultaneously with the removal of the gastrointestinal disturbance. This group of meningitis cases without lesions, will probably become more and more restricted as the pathological processes which give rise to the meningeal symptoms become better understood. To illustrate further this type of meningeal irritation, Carrière, in *Nord médical*, reports a case which, in many ways, was similar to the one I have just reported. Carrière observed a case of meningismus in a boy five and a half years of age, who presented a symptom complex extremely suggestive of tuberculous meningitis. The puncture fluid, however, contained neither cellular elements nor microbes. Cultures and animal inoculation remained negative; examination of the blood showed neither leucocytosis nor lymphocytosis, so commonly present in tuberculous meningitis. The child had no symptoms of infectious disease. There was no history of traumatism. In order to eliminate helminthiasis as a possible cause of meningismus, a prescription of calomel and santolin was given, but the copious stools which followed contained neither parasites nor ova. Meningismus through autotoxemia of intestinal origin, appeared probable, on account of the patient's tendency to constipation and mucomembranous colitis. The actual existence of this intestinal autointoxication was demonstrated by the hypertoxic character of the stools, a watery extract of which proved fatal to rabbits. The urine was like-



wise hypertoxic, with increased content of ammonia, indican, and acetone. The influence of this auto-intoxication on the cerebrospinal fluid was shown by the fact that a guinea-pig was killed by one c. c. of the patient's puncture fluid. It has been shown that cerebrospinal fluid from healthy individuals or from patients having tuberculous meningitis, has no toxic action on intracranial inoculation into guinea-pigs. The accuracy of the diagnosis was confirmed by the course of the disease. As soon as the intestinal intoxication had been controlled by suitable measures, the meningismus likewise subsided, together with the signs of this intestinal intoxication. Spinal fluid withdrawn at a subsequent puncture proved to have no toxic effect upon a guinea-pig. The child was well four days after the institution of the treatment, except for the persisting attack of mucomembranous enterocolitis, which required dieting and other measures.

Bousquet points out that this observation permits the following conclusions to be drawn:

1. Meningeal symptoms accurately simulating tuberculous meningitis, and which may be designated as "meningismus," are sometimes observed in children with a neuropathic heredity, and in certain cases of gastrointestinal auto-intoxication due to colitis or other digestive disturbances.

2. The diagnosis of meningismus may be extremely difficult and require the closest investigation; the clinical picture exactly resembles that of meningitis. The absence of bacillary findings in cases of meningismus is not always an absolute sign. The diagnosis of meningismus cannot always be based on the abruptness of the onset. Photophobia and miosis are observed in meningismus. Irregularity and inequality of the pulse have also been noted. Irregular respiration and dissociation of the thoracic and diaphragmatic movements, often regarded as typical of meningitis, have also been observed in meningismus. An exact diagnosis must be based on the examination of the blood and of the cerebrospinal fluid, with the study of their tension, cellular formulae, toxicity, etc., the search for microbes, and animal inoculation.

3. In order to attribute the meningismus to the intestinal auto-intoxication, the latter must be established, and this can be done through the investigation of the toxicity of the fecal matter, the toxicity of the urine, the demonstration of ammoniuria, indicanuria, and acetoneuria. The diagnosis is confirmed by the disappearance of the meningismus after the subsidence of these symptoms.

4. The pathogenesis of these meningeal complications is explained by demonstration of the toxicity of the cerebrospinal fluid. The fecal impaction and the absorption of the intestinal poisons undoubtedly terminate in hypertoxicity of the serum and of the cerebrospinal fluid. This hypertoxic fluid acts upon the encephalomedullary centres and produces the meningismus. When the intestinal stagnation is relieved, the auto-intoxication disappears, the cerebrospinal fluid loses its toxicity, and the meningismus disappears.

5. The prognosis of this condition is favorable. Recovery must be the rule after the removal of the cause.

6. The treatment is self evident, and includes two indications: 1. Removal of the intestinal auto-intoxication by purgatives and enteroclysis, a suitable diet, reducing intestinal fermentation to the minimum. 2. Removal of the toxic action of the blood serum, and especially of the cerebrospinal fluid on the nerve centres, by means of lumbar puncture, repeated if necessary, injections of physiological salt solution, and diuresis.

Appreciation of meningeal excitations and of grave nervous disorders, and their etiological bearing upon abnormal decomposition processes in the intestine, is only recently receiving proper attention. The relation of these grave symptoms to de-

composition products in the intestinal tract has been proved by clinical observation. As yet, all attempts at isolation of the injurious toxins have been unsuccessful.

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136 WEST EIGHTY-SEVENTH STREET.

## SERODIAGNOSIS (ABDERHALDEN) OF CANCER AND PREGNANCY.\*

### Action of the Protective Ferments in Cancer and Pregnancy.

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The fact that a protective ferment is produced for every blood foreign substance opens a field in seropathology that promises to be as important as tissue pathology.

Experimental work with the protective ferments of Abderhalden indicates that this test may be used, not only for the diagnosis of pregnancy, as originally proposed, but for the diagnosis of various diseased conditions. Any physiological condition or disease that causes the blood stream to be invaded by a blood foreign substance, whether physiologically this substance is chorionic villi, or pathologically malignant tumor cells, broken down gland tissue, etc., matters not. The mere presence in the blood stream of these unreduced materials calls for the production of a ferment that will digest them. They are blood foreign so long as they maintain their anatomical structure. The action of the ferments is to digest them, or in other words, to split them into the molecules originally entering into their formation. The molecules in the cell's formation were received from the blood stream as the blood's own substances, and must therefore be returned to their original state. Proteids circulate in the blood only as aminoacids.

In order more fully to understand the action of the protective ferments it will be necessary to review some of the finer processes of proteid digestion. It is the digesting and rebuilding of the proteid elements that interest us most. The pepsin of the gastric juice acting in the presence of hydrochloric acid gradually blasts apart the albumin molecule into its coarser constituents, the peptones and proteoses. These latter are still further broken up into peptids and aminoacids by the trypsin of the pancreas and the erepsin of the intestinal mucosa. These are the "building stones" of Abder-

\*Read at a meeting of the Windham County Medical Society, October 1, 1913.

halden. The liver stands guard, acting upon any unreduced protein, that no blood foreign elements pass into the circulation. The liver also controls the quantity entering the blood stream and stores that not used.

Every cell, of whatever type, appropriates from the blood stream its proteid requirements of aminoacids in such proportion as that cell finds necessary for its individual economy. Differences in functions necessarily imply variations, chemically and physically, in the structure of the cell's protoplasm. Although every cell with its neighbor goes to make up the body as a whole, it has, however, an individual life history of its own to maintain.

The lymphatic system guards against the entrance of body cells, as such, either holding them back or reducing their protoplasm to aminoacids or the blood's own substances.

With these guards always on the alert to protect the blood from invasion, it is possible for its composition to remain fairly constant. There are, however, conditions that upset this equilibrium, and to provide for such an accident the protective ferments are mobilized to make such a readjustment as the condition demands. Any cell accidentally entering the blood stream is blood foreign until separated into the molecules composing it. Even leucocytes and erythrocytes are blood foreign when seriously injured, and are accordingly digested. The combined cell economy produces this special ferment immediately upon the appearance of any blood foreign substance entering the blood stream from whatever cause. When this ferment has been produced, blood from the individual possessing it will digest a similar proteid in a dialyzing thimble kept at body temperature.

The serum of a pregnant woman will digest placental tissue in the dialyzing thimble, because the presence of chorionic villi circulating in her blood, as a blood foreign substance, calls for the production of a ferment to reduce the chorionic cells to their original elements, or aminoacids. Digestion taking place in this thimble is readily detected by heating the dialyzate with ninhydrin, which turns the solution a distinct blue violet color upon cooling for thirty minutes.

Investigators are clearly and sufficiently proving the value and reliability of this test in pregnant states. Research to demonstrate that cancer calls for a protective ferment, the same as for pregnancy, and that it can be demonstrated by the same technic, is all important. Sufficient work has not yet been done to warrant the statement that cancerous conditions can be positively diagnosed. That this test appears to be useful in such cases is confirmed by continued experiment with the Abderhalden technic in known malignancies. It is at least safe to say that there has been no test previously devised that runs so positive to a known condition of malignancy, with so high a percentage of positive results. Further, there is no test that runs so uniformly negative to all other conditions. The gravity of the cancer problem demands the association of this test with the experimental production of tumors in animals, by experts possessing suitable facilities, as affording a means of demon-

strating the actual value of this test in malignant conditions: the time of appearance and the durability of the protective ferment mobilized by such inoculations would be intensely valuable, as would be the determination of the length of time the special ferment might persist after the radical removal of the tumor. I firmly believe that this work will soon be done and that the results will be very gratifying and the information obtained will go a long way toward solving the cancer problem.

An attempt has been made in bringing together the following abstracts to show, first, the probable merits of the Abderhalden technic in cancer diagnosis as compared with other serum tests now in limited use, and secondly, to suggest the inference from work already done that the test may be as definite in malignant conditions as is the test in pregnancy.

The miostagmin reaction of Ascoli, while giving good results in his hands and the hands of his associates, fails to be satisfactory in the hands of equally careful men.

Bruggemann (1) reports the Ascoli test positive in twenty-one out of forty cancer cases. He also used the Kelling hemolytic test, which gave positive results in twenty cases out of forty. In only twelve of the cases were the two positive together.

Halpern (2), using von Dungern's complement deviation test, reports 89.8 per cent. positive reactions in seventy-nine carcinoma patients, and 92.8 per cent. negative in fifty-six patients free from tumors.

Arzt and Kerl's (3) tabulation of various sero-diagnostic tests (other than that of Abderhalden) gives the following figures and average of eleven different workers; with the miostagmin reaction, 82.8 per cent. of positive reactions in three hundred and ninety-nine cases of cancer, and 9.5 per cent. positive findings in five hundred and forty-eight healthy persons: working with the Freund-Kaminer reaction obtained positive findings in eighty-three per cent. of fifty-three cases of cancer, and 13.5 per cent. positive in sixteen cases with other affections. Ascoli, personally, obtained ninety-three per cent. of positive findings with his miostagmin test in his series of one hundred cases.

Epstein (4) (working with the Abderhalden technic), using carefully prepared carcinoma tissue, with a control test of placental tissue, found that in thirty-seven cases of cancer the serum of all but one reacted positively with cancer tissue, negatively with placental tissue. In seventeen out of eighteen cases, serum of pregnant women reacted positively with placental tissue. Of forty-seven other cases, free from cancer, but with some other severe disease, forty-six reacted negatively with cancer tissue. Epstein considers the test of great importance.

Frank and Heimann (5) obtained a positive reaction in fifty-three out of fifty-four cancer cases, or 98.2 per cent., while the reaction was negative in five per cent. of twenty normal persons. The tissue of cancer of the uterus was used in these tests.

Markus (6) reports eleven cases of carcinoma tested by Abderhalden's method—the results all corroborative.

From the fact that the Abderhalden technic had been in use for only a few months compared with the tests above mentioned, it is not safe to arrive at the conclusion that because a few workers get favorable percentages with this method, the test is inevitably that much better. As a possible index as to the value of the test in future cancer work and as showing the value in pregnant conditions, the following abstracts of over two thousand cases are significant.

Abderhalden (7) reports three hundred cases of pregnancy with exact technic in which there was not a single negative reaction.

Lindig (8) had confirmed Abderhalden's results in his tests. He regards it as having "established beyond question now that a proteolytic ferment is present in the blood serum of pregnant women, and in women with tumors in the genital tract, and possibly also with inflammatory processes. This ferment is able to digest the albumin in placenta, uterus, and ovarian tissue, in tissue from tumors of the genital organs, and to a less degree, muscle albumin."

Parsamow (9) made one hundred tests with Abderhalden's earlier technic and sixteen with his later technic. He found the reaction positive in all cases of pregnancy, but also in some other cases, especially those with cyst, myoma, and some cases of cancer. He believes, therefore, that the test is not absolutely specific, but may be useful in differential diagnosis in some cases—a negative reaction shows that there is not pregnancy, but a positive reaction is not absolutely a proof of pregnancy. He thinks that further perfection in the technic may make the test more reliable.

Schlimpert and Hendry (10) used Abderhalden's biological test for pregnancy soon after the publication of the method, and report the results in three hundred and sixteen cases. At first their findings were contradictory, but they found the hydrant water (Freiburg) used, to be the source of error, and since this was eliminated their results confirmed Abderhalden's statements. They based their conclusions on the last series of seventy-nine patients, forty pregnant and thirty-nine nonpregnant. In these they found the reaction strictly specific, and they believe it to be the "greatest progress yet made in the investigation of the metabolic processes which accompany pregnancy." They obtained the sera in all cases while the patients were fasting, and included patients with various diseases in their nonpregnant cases.

Jellinghaus and Losee regard the accuracy of the method and the results in these seventy-nine cases as "unimpeachable."

Stange (11) reports positive findings in all of seventy-three of his cases of pregnancy.

Heinmann's (12) experience with one hundred cases confirms in every respect Abderhalden's statements in regard to the serodiagnosis of pregnancy.

Behne (13) did not find the dialysis test absolutely specific for pregnancy. He tested one hundred cases, but leaves out of consideration the first forty in which the technic may have been defective. He found the reaction almost constantly positive in normal pregnant women, but in a few in-

stances it was negative where pregnancy was certain. He also found it positive with a number of nonpregnant women with an inflammatory process in the genital organs or elsewhere; and also positive in several males but only in cases with pulmonary tuberculosis or liver disease.

Elker (14) finds Abderhalden's test very reliable, and considers it of especial importance in the diagnosis of early pregnancy, extrauterine gestation, and amenorrhea at the time of the climacteric.

Engelhorn (15), who followed Abderhalden's technic carefully (?) in regard to the preparation of placenta and the blood serum, obtained unsatisfactory results. In sixty pregnant women, he obtained a positive reaction in forty-nine, negative in eleven; in forty-eight nonpregnant cases, positive in thirty-one, negative in seventeen. He also tested the serum of pregnant women twelve times with cancer tissue, obtaining a positive reaction ten times, a negative reaction two times; sera of nonpregnant women were positive three times, negative three times. He concludes that the test is not specific. Engelhorn is the chief opponent of Abderhalden's test.

Freund and Brahm (16) used both the dialysis and the optic method in their test. "The findings were sustained by the clinical aspect of the case in 72.4 per cent. of the one hundred and thirty-four cases in which the optical method was applied and 66.7 per cent. of the ninety-nine cases with the dialysis method. The fresher the serum, the better the chances for accuracy in the test. In the ninety-two cases in which both methods were applied, the findings harmonized in sixty-one instances, including forty-three positive and eighteen negative cases. In thirty-one cases the findings were contradictory." These authors believe that by neither method is one able to determine beyond a doubt the existence of pregnancy, yet the scientific importance of the reaction involved is still very great."

Heilner and Petri (17) come to the conclusion that the serum of pregnant women will give a positive reaction, but that other sera will also give a positive reaction, with placental as well as with other tissue; also that the serum of pregnancy will give a positive reaction with tissue other than placental. Hence the reaction is not specific.

Maccabruni (18) had tested over one hundred cases with both the dialysis and the optical method, following Abderhalden's technic carefully. Out of eighty-four pregnant cases, he obtained only one negative and three doubtful or weakly positive reactions; in one nonpregnant case with cystic ovary, the reaction was positive. The author does not consider that these results affect the practical value of the test. He also used the dialysis test with fetal serum, with a positive reaction in some cases. He suggests that the fetus may have some part in the formation of the protective enzymes, but does not consider that sufficient experiments have been made to prove or disprove this point.

Murray (19) gives a brief notice of Abderhalden's method but adds nothing of importance.

Petri (20) has found Abderhalden's method very reliable in determining the existence of pregnancy. It gives information before any other method per-



mits "even a presumptive diagnosis." Even a few days after the imbedding of the ovum it may be possible to determine the specific ferment and thus establish the presence of gestation. "In experimental tests with placental tissue, he found a positive reaction seven or eight hours after subcutaneous injection, and fifteen minutes after intravenous injection."

Rubsamen (21) used the Abderhalden test one hundred times. In ninety-four cases, thirty-eight tests were made by the dialysis method alone, six by the optical method alone, and fifty-six by both methods. Of these, forty-seven cases were normal pregnant women; the reaction was positive in all; most markedly so in the first half of the pregnancy. The author comes to the conclusion that the Abderhalden reaction is entirely reliable as a method of diagnosing pregnancy.

Schiff (22) emphasizes the importance of thoroughly understanding Abderhalden's technic and of following it carefully. He tested forty-nine cases by the dialysis method (ninhydrin reaction) and obtained a positive reaction in all cases of pregnancy, and a negative reaction where there was no pregnancy. In addition he obtained a negative reaction where there was no pregnancy. In addition he obtained a negative reaction where he used carcinoma tissue with a pregnancy serum. He believes the method to be of the greatest value.

Veit (23) in a recent article stated that he considers Abderhalden's method important from a clinical standpoint for the early diagnosis of pregnancy, and from a theoretical standpoint for the further study of the normal and pathological physiology of pregnancy.

Aschner gives the following statements from Veit's clinic: Forty-five cases from the second half of pregnancy gave positive reaction. Of sixteen cases from the first half of pregnancy, including abortions, fourteen cases gave a positive, two a negative result. A control test by Abderhalden himself for one of these two gave a positive result; no control test in the other case. Twelve normal nonpregnant cases gave negative reactions. Of fourteen tests of cancer of the uterus, eight were negative, three were positive with the dialysis test, negative with the optical test; three were slightly positive with the dialysis test (no optical test). Four cases of myoma were negative. Of four cases of hemorrhage in the climacteric due to metritis, two gave a positive reaction, one a weakly positive reaction, and one a negative reaction. Of five cases of amenorrhea in the climacteric, four gave a negative reaction, two a positive reaction with the dialysis method, one of the latter being negative with the optical test. Six cases of chlorosis gave a negative reaction. Of twenty-three cases of annexal disease, seventeen were negative, two positive and the rest weakly positive. Aschner stated that his statistics show five per cent. of failure to obtain the correct diagnosis from the test, which may in some cases be due to some slight fault in the technic. He believes Abderhalden's method to be useful, but is not prepared to say that it is absolutely specific.

Schwarz (24-25) says: "While using the biuret reaction exclusively, I had some negative results

in cases of advanced pregnancy, because digestion was carried too far; since using the ninhydrin reaction I have obtained positive results in some nonpregnant cases, because I worked with too large quantities of serum; at all times I have had conflicting results due to various sources of error such as bacterial growth, unclean glassware, leaky dialyzers, and improperly prepared albumin. . . .

"On the other hand, I have the records of twenty-one pregnant and four puerperal cases, in which the test invariably has given the violet blue ninhydrin reaction, while the control remained colorless. . . . I also have the records of eighteen nonpregnant cases, including several tubal enlargements, four uterine fibroids, and two males, in which the dialyzates of both test and control remained colorless. . . . In eight instances the serodiagnosis has been employed as the only means of differential diagnosis and in every one of these eight cases, its answers have been true."

Williams and Pearce (26) found that the dialysis test or ninhydrin reaction positive in twenty-eight pregnant women, and three women in the post partum period, including one abortion. "The test has never been negative in any known pregnancy. On the other hand, the serum of pregnancy reacts with tissues (kidney, heart, uterus) other than placenta; also sera of two cases of nephritis, one of tabs and one of infection (carbuncle), and occasionally of individuals apparently in perfect health have given the reaction with placenta and other tissues. Inactivation of the serum causes a great diminution in the degree of the reaction, but does not cause it to disappear entirely." These authors conclude that "this test cannot be accepted as an accurate clinical method until it has been thoroughly investigated and the possible sources of error corrected." This conclusion applies only to the dialysis method, not to the optical method, which they have not tried.

Schwarz says that the investigations of Williams and Pearce are "absolutely worthless and must be entirely discarded on account of faulty technic."

Jellinghaus and Losee (27) used the dialysis test for five hundred and sixty-three sera; they did not have results that proved the dialysis test to be absolutely specific for pregnancy, but as they progressively improved their technic, the results became more and more accurate, showing that much depends upon the absolute accuracy of the technic, and many failures to obtain correct results are to be attributed to lack of attention to the details of the method. Hence these authors "favor the opinion that it is possible by the dialysation method to distinguish between the healthy pregnant and the healthy nonpregnant woman."

Judd (28) reviews the technic, but reports no cases. In a second article (29) dealing largely with his pitfalls, he finds the test with his improved technic in a variety of different cases confirmatory of Abderhalden's assertions. He finds the test the same in pregnant colored women as it is in white women. He finds many diseased conditions negative to placental tissue, including one case of cancer of the cervix, several infectious diseases, typhoid, septicemia, pericarditis, endocarditis, and gonorr-

rheal arthritis, all negative to placental tissues.

Gutman and Druskin (30) performed three hundred and fifty-seven tests with the dialysis method on two hundred and two cases. In their earlier series of cases, they had some difficulty with the details of the technic, but after carefully reviewing and correcting their methods of procedure, they obtained results that showed the test to be very reliable. The last group, in which the technic was perfected, comprised one hundred and fifty-nine tests in one hundred and six cases, with ninety-eight per cent. of correct findings. The two cases in which the findings were incorrect were a male syphilitic, with positive Wassermann, which gave an indistinct biuret and a doubtful ninhydrin reaction; and a case of ectopic gestation which gave a negative reaction. Of the one hundred and six cases, seventy-nine were pregnant and twenty-seven were nonpregnant (including eleven males).

McCord (31) used the Abderhalden test in two hundred and forty cases with practically no failure. He believes that "the serodiagnosis of pregnancy is both reliable and practical."

Jamison and Cole (32) tabulate fifty cases of all kinds as follows: Three cases, seven to nine months pregnant reacted positively to placental tissues. Three normal gave a positive reaction. Two ectopic gave a positive reaction. Two abortion cases, one about six months, the other two months, gave each a positive reaction. One stillbirth gave a negative reaction. A case of pernicious vomiting gave a positive reaction. One case, nonpregnant, in the menopause gave a negative reaction. Ten females and thirteen males with various diseases all reacted negatively. One case of acute nephritis in a woman reacted positively. One case reacted positively after eating.

Heany and Davis (33) with corrected technic report one positive case of five nonpregnant and four cases with a negative reaction. Of seven pregnant women two negative reactions, six and fourteen weeks respectively; three positive reactions in early puerperium with two negative in later puerperium, thirteen to twenty days respectively.

Steising (34) has announced that he has succeeded in separating the active ferment into an amboceptor and a complement test, which renders the technic much more generally applicable. He inactivates the serum by heating to 58° C. for an hour and then reactivates it as desired by the addition of fresh male serum.

Mayer (35) declares that the contradictory findings reported by some experimenters with Abderhalden's technic are due to the fact that practitioners as a rule are not used to painstaking exactness or chemically pure methods, consequently conflicting results are obtained merely because some imperfection has crept into the technic. With increased care and practice, the conflicting findings grow less and less frequent. The clinical importance of this serodiagnosis of pregnancy is obvious, not only at its earliest inception, but also after all other signs of it have subsided, as after abortion. In a case described, the suspicion of a recent abortion apparently was not confirmed by

the scrapings of the uterus, but the serodiagnosis was positive. Renewed examination of the scrapings finally revealed decidual tissue. The reaction is positive with an extrauterine as with a normal gestation, but it becomes negative in both after the tissues specially connected with the pregnancy have lost their vitality from the death of the fetus. Mayer reports further research with the test applied in eclampsia and various complications of pregnancy. The response shows that the protective ferments involved keep constant, as in the behavior of the blood. The response to the test also throws light on the functioning of glands with an internal secretion, also on metabolic disturbances and on cancer, as he illustrates with cases from his own experience. He suggests further that it may prove interesting to study racial differences in the reaction to the biological tests.

The results (36) in my first series of cases, using a cancer proteid prepared from a lymphosarcoma involving the retroperitoneal glands will be quoted as follows: "The serum from each patient was run both with placental and tumor tissue. Three cases of a known malignancy reacted positively to a sarcoma proteid; one, a carcinoma of the uterus, inoperable; one, a carcinoma of the sigmoid, confirmed by the x ray; one, a postoperative carcinoma of the cervix (four months after operation). Two cases were examined for a doubtful malignancy, one of the stomach, and the other of the liver. In each case the test was clearly negative.

One of two cases consulting me more than a year ago for cancer of the breast, gave a positive reaction, the other was negative. In both cases the "questionable bunches" were not considered malignant at the time. In the case giving a positive malignant test, the blood serum also reacted to a placental tissue as the woman had just given birth to a child. Consequently there appears in this instance two ferments, one reacting to tumor tissue and the other to placental tissue, or one ferment digesting two different kinds of proteids. In this series I have a second parturient giving a double ferment, and one male. I know nothing of the second woman's history, as I attended her for one of my associates when he was on his vacation. Questions on my part brought out nothing so far as any possible history of malignancy was concerned. The man with the double ferment referred to, had been treated for some time for a papilloma of the bladder. He gave a history of a rapid loss of weight and strength during the few months previous to the test.

"One has to ask the question: Will tumors of the genital tract cause the production of a ferment that will digest placental tissue as readily as cancer proteids? Lindig found a ferment in women, with tumors of the genital tract, that digested placental, uterine, and ovarian tissues. In this male there is evidently a similar ferment to that found by Lindig in women.

"In these malignancy tests there was not the suggestion of any reaction to placental tissue except in the two parturients referred to and this male.

"Of seven known pregnancies all have reacted positively. Of four tests made to determine a possi-

ble pregnancy, three showed an illegitimate condition. The fourth case presented gave acute abdominal symptoms, with an apparently enlarged uterus. The test failed to show positively to placental tissue. Operation revealed a pronounced tuberculous peritonitis, with a nongravid uterus. In all the cases where the test was made primarily with placental tissue the control was always negative to carcinoma tissue, except as already mentioned.

"The results were further controlled by using separate thimbles of blood serum, alone; tumor tissue with distilled water; and formaldehyde or heat to inactivate the serum. These controls were always negative or the test was discarded. In one test all the thimbles went bad on account of using old distilled water. In this test the formaldehyde thimble was not used. The test was repeated with fresh distilled water, and gave a satisfactory reaction. As a result of this failure, I have set up a still to furnish perfectly safe water as required.

"Another fault experienced in one of my early cases was my failure to reboil the tissue and have it test negatively to ninhydrin, before use. As a result of this carelessness I obtained a positive reaction in a male. Correcting the error, I received satisfactory and correct results. A second male with a history of gonorrhea reacted negatively to all tissues used."

My further work with the different kinds of tumor tissues appears to make the diagnosis of cancer rather more complicated than suspected, but more interesting, inasmuch as there appears a possibility of being able to designate the kind of tissues involved. I have been led to think of such a possibility when comparing the clear cut differences of reaction in my first series of cases, using the sarcoma proteid, compared with subsequent tests made with the proteid prepared from an epithelioma of the cervix. When using this kind of material I was not able to get satisfactory results. Pregnant conditions would, apparently, give the malignancy reaction in cases known not to be malignant, probably because of the ability of the pregnant ferment to digest uterine tissue as well as placental tissue. I believe this is also an explanation for some of the adverse findings by others giving their reports, but not specifying the kinds of tissue used. The same result was obtained when using albumin prepared from an epithelioma of the skin of the hand. I used this tissue only a very few times, fearing to continue on account of the possibility of the sweat glands complicating the test. I am convinced that some of the conflicting reports relative to the value of the test are due to the use of different and poorly prepared materials. It is interesting to note that Engelhorn obtained ten positive reactions out of twelve pregnant cases using cancer tissue (probably a uterine malignancy of some kind according to results obtained by others with pregnant sera). It is not impossible from his results with nonpregnant sera, eight positive with only three negative, that his trouble was due to poorly prepared placental albumin. Personally I believe the latter to be the cause of his unusual findings, which opinion is supported by his poor record with the pregnancy test compared with so many others getting satisfactory results.

Schiff failed to get any reaction with cancer tissues in pregnant conditions. He does not state the number thus examined, or the kind of cancer tissue used. Markus states that he gets positive findings in all of eleven cases of cancer. He does not state that his pregnant cases were negative to the tissue used for his cancer work.

Veit reports in his series of pregnant cases fourteen cases of cancer of the uterus, of which eight were negative to placental tissues, three positive by dialysis method, negative by optical method, with three others slightly positive by either test.

It remains for Epstein, Frank and Heimann to supply us with satisfactory and correct results. Epstein worked with the two tissues at the same time, obtaining very satisfactory results. Frank and Heimann worked with the cancer tissue alone, getting 98.2 per cent. positive reactions in known cancer cases and ninety-five per cent. negative findings in twenty normal individuals.

In conclusion, I desire to emphasize: 1. The desirability of always working with at least two kinds of tissues, one of these necessarily to be carefully prepared placenta; 2. the necessity of designating the kind of material used in all experimental work when other than placental tissue is used; 3. the advisability of associating this test with experimental tumor transplantations in animals; and, 4. further experimental work directed toward eliminating, if possible, all sources of error in the present technic, or the substitution of a trustworthy modification.

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## CHRONIC SUPPURATION OF THE MIDDLE EAR.\*

*A Consideration from the Standpoint of the General Practitioner.*

By J. AUERBACH, M. D.,  
New York.

Paradoxical as it may seem, specialization has increased rather than diminished some of the responsibilities of the general practitioner. To-day his scope is broader than ever, an extensive acquaintance with the resources and limitations of the special departments of medicine is absolutely essential to him as well as the relation which each of them bears to his own work. The specialist, however, his mind focused on his own special subject no longer looks out upon the broader horizon of general medicine.

Fortunately the influence of the general practitioner has in nowise lessened, notwithstanding the fact that much surgical and medical treatment is carried out by the various specialists. Patients still continue to consult the family physician and to act upon his advice in reference to surgical procedures or special treatment. It therefore devolves upon the general practitioner to recognize the early symptoms of disease and to place them in their proper category. We may conclude that it is just as important for the general practitioner to detect these early signs as it is for the specialist or surgeon to apply the means of cure.

There are few diseases of the ear which the general practitioner is so frequently called upon to observe as the chronic discharging ear, or as it is commonly called, the O. M. P. C. In fact, it is he, who, in the majority of instances, will be called upon for a diagnosis and for treatment long before the patient thinks of consulting the otologist. Often, too, he will be consulted for symptoms which the patient does not attribute to his ear condition, but which symptoms have a direct bearing on the suppurative process.

Suppurations of the middle ear may be acute, subacute or chronic; I shall not dwell upon the acute or subacute variety of middle ear discharge, but will consider the chronic type from the clinical and di-

agnostic standpoint. For a thorough appreciation of the pathology of chronic middle suppurative, one must take into consideration the causes which lead to chronicity among these causes may be mentioned the general systemic diseases, as tuberculosis, syphilis, the severe anemias and malnutrition in general, and local causes, such as chronic affections of the nose and throat. Certain anatomical conditions are also influential factors in predisposing to chronicity, such as perforations in Schrapnell's membrane and affections of the attic, a region which is clothed with numerous mucous membrane folds and ligaments, and where stagnation may easily take place. Certain forms of acute otitis have from their virulence a tendency to become chronic from the very beginning of the infection; I have reference especially to the severe otitis media accompanying the acute infectious diseases, as measles and scarlet fever. Chronic inflammatory processes in the external auditory canal, as chronic eczema, may, by extension into the tympanic cavity or by narrowing the lumen of the canal, prolong the middle ear discharge.

Pathologically and clinically speaking, chronic middle ear suppurative may be divided into two chief classes: First, the benign noncomplicated or when there is involvement only of the mucous membrane of the tympanic cavity; second, the complicated or malignant cases where, in addition to involvement of the mucous membrane, there is also involvement of the bony structures of the ear organ and of those bony structures which separate the ear organ from the middle and posterior fossa of the skull. To this class of cases also belongs that form of middle ear suppurative accompanied with cholesteatoma.

A chronic suppurative ear is at best a menace to the patient, but fortunately there are many cases which are amenable to conservative treatment, and these are the noncomplicated or benign cases: here, as I have said before, there is involvement of the lining membrane only; function of the sound conducting apparatus alone is interfered with, and the dangers of intracranial complications, which may arise, are at a minimum.

In the complicated middle ear suppurations the pathological changes are such as not only to threaten the organ of hearing, but to produce complications which endanger the life of the individual. It becomes of primary importance, therefore, to recognize those signs or symptoms which are evidence of approaching danger, and which will indicate the proper method of procedure. The structural change underlying the chronic complicated suppurations are varied; there is primarily, in addition to the inflammatory process involving the mucous membrane of the tympanic cavity, an accompanying structural change in the bony skeleton of the ear and of the ossicles, the latter often becoming necrotic, the antrum and mastoid cells become involved, and from here the inflammatory process may extend into the compact mass forming the facial canal. In the tympanum proper we have, forming the inner wall, the promontory representing the basal turn of the cochlea; the oval window receiving the foot plate of the stapes and leading directly into the vestibule of the labyrinth; above it, the horizontal portion of the facial nerve; below, in the posterior inferior quadrant,

\*Read by invitation before Section II of the Rochester Academy of Medicine.

the secondary drum membrane or round window, leading directly into the membranous cochlea.

In the epitympanum or attic, there are housed the malleus and incus and its thin roof separating the tympanum from the middle fossa of the skull; furthermore the horizontal or external semicircular canal, lying partly in the antrum, is unduly exposed to any necrotic process in the immediate vicinity. I mention these anatomical facts in illustration of the vast number of important structures that may become involved in the course of a middle ear suppuration, and a detailed knowledge of which becomes absolutely essential, not only in the surgical treatment of these complications, but for the proper interpretation of the clinical symptoms which we shall soon analyze.

Simple noncomplicated suppurations of the middle ear are characterized by the mildness of their course, the chief symptoms being otorrhea of long standing, sensations of fullness in the ear or in the head, and subjective noises; otoscopic examination, after cleansing the external auditory canal, discloses a perforation in the drum, generally of large size, either central or marginal, through which may be seen the velvety shiny membrane of the tympanic cavity; the secretion in neglected cases is fetid, while those receiving proper, systematic treatment are on the other hand never so. The bony external auditory meatus is intact; the ossicular chain and mastoid are unaltered and the pus drains freely, or there may be slight retention. Especially is this apt to occur in the presence of granulations or polypoid masses, when these excrescences of mucous membrane protrude through the perforation in the drum and act as a barrier to the free exit of the pus. The functional tests show all the signs of interference with the sound conducting apparatus, with more or less diminution in the hearing.

In the course of a chronic middle ear suppuration when the diseased process has extended to the surrounding and underlying structures by means of the various paths outlined above, it becomes imperative to recognize as early as possible the invasion of the purulent process into the danger zone. To emphasize some of the signs of impending danger that the process may be nipped in the bud, so to speak, shall be the aim of the writer, and if he can make these points clear, he will offer no words of apology for the presentation of a subject which has trodden the beaten path.

A form of chronic otitis media that should put one on guard and be shown the respect which it deserves is that type of suppuration in which there is a tiny perforation in Schrapnell's membrane; perforations in this portion of the membrana tympani are of necessity small, because Schrapnell's membrane in its entirety is small compared to the membrana flaccida. The location of the perforation is a strong index to the seat of the suppuration, and in every case where Schrapnell's membrane is found perforated, it is safe to assume that the attic is involved; drainage through a small perforation in the upper part of the drum cannot be complete, with the result that retention and stagnation occur: the ossicular chain and the numerous folds and ligaments are bathed in the pus, and the field is now a favorable one for necrosis; this often

does take place, resulting in great diminution in the function of hearing, fetid odor and headache. A continuation of the process may result in exfoliation of the ossicles, and the pus traveling in the direction of least resistance, may invade this plate of bone separating the attic from the middle fossa of the skull; sometimes this plate is cellular, sometimes, especially in young children, dehiscences may exist, thus hastening the spread of the infection to the meninges.

Among the conditions complicating chronic middle ear suppurations may be mentioned cholesteatoma, chronic periostitis, latent mastoiditis, facial paralysis, labyrinthine and sinus affections, and involvement of the structures in the middle and posterior fossae.

Cases associated with cholesteatoma are especially worthy of consideration, because of the tendency of the cholesteatomatous masses to invade the deeper structures. Their presence should sound a note of warning, and be looked upon as an important danger signal. The subject of cholesteatoma is a large and interesting one, but it is not within the scope of this paper to consider it in detail; I will say in passing, however, that every chronic discharging ear should be examined for their presence, and particularly those cases showing marginal perforations of the drum, because it is here that the proliferation of the epithelial masses from the external auditory canal can gain easy access to the tympanic cavity.

I have mentioned headaches in speaking of attic suppuration; I cannot lay too much stress upon this symptom of complicated middle ear suppuration, and where this is constant and localized over the parietal occipital region, in spite of free drainage, it is probable that the process has extended to the dura of the middle or posterior fossa.

In recent years much effort has been expended in the study of the labyrinth and the various modes of attacking it when it is the seat of a suppurative inflammation; its close anatomical association with the meninges and the brain proper is sufficient to give prominence to this organ, if only from the standpoint of preventing the spread of infection from the labyrinthine spaces to the coverings of the brain. It is not my purpose to go into the various forms of labyrinthitis, but as this organ is never the seat of a primary inflammation, which is almost always secondary to an otitis media, it may not be amiss to point out the cardinal symptoms of labyrinthine irritation as they may occur in the course of a chronic middle ear suppuration. These symptoms are: First, vertigo; second, nystagmus; third, nausea and vomiting; fourth, disturbance of equilibrium; and fifth, disturbance of the function of hearing.

Vertigo associated with chronic middle ear suppuration should at once direct the attention of the examiner to the state of the labyrinthine function. Labyrinthine vertigo is differentiated from other forms of vertigo in that it is always associated with subjective sensations of turning, is influenced by movements of the head, never accompanied with loss of consciousness, and is not influenced by closure of the eyes. The nystagmus is made up of two components; one quick, the other slow; the former is cortical in origin, while the latter is of labyrinthine origin. The dizziness in most cases is

in proportion to the degree of nystagmus; the more marked the nystagmus, the more marked the dizziness. Naturally, nystagmus due to other causes must not be lost sight of, such as the nystagmus produced by disorders of the eye and its muscles, by cerebellar diseases, by neurasthenia, etc.

Attacks of nausea and vomiting coming on in the course of a middle ear suppuration may be due to concomitant disease of the stomach; the close observer, however, will remember the reflex irritability of that organ which may be produced by inflammatory processes when they invade the inner ear or meninges; this statement will probably recall to many the attacks of nausea and vomiting which have ushered in infections of the middle ear in children.

Disturbance of equilibrium as a sign of invasion of the labyrinth is produced by the abnormal irritation of the vestibular end plates in the semicircular canals, these being the special end organs of the semicircular canals, as Corti's organ is the special sense organ of the cochlea. This disturbance of equilibrium has a special character, in that the falling is always opposite to the direction of the nystagmus; in other words, in the direction of the slow component. The falling may be to the diseased side or to the healthy side, depending on the stage of the infection; in general it may be said that in the beginning the falling is away from the diseased side as the nystagmus is then directed to the affected side.

*Disturbance in the function of hearing.* This is not as important a symptom as those mentioned above, as the hearing is already affected in the middle ear suppuration. I must lay stress upon one point regarding the loss of hearing; that where this is sudden and complete and comes on in the course of a middle ear suppuration, invasion of the cochlear portion of the labyrinth is manifest.

In the light of the present day crusade that is being made against tuberculosis, I cannot refrain before closing my paper from saying a few words about tuberculous otitis media. This is a form of middle ear affection which is pretty generally overlooked; but if it is remembered that suppurative otitis medias of tuberculous origin begin without inflammatory phenomena, without the usual manifestations of pain or tenderness, that the first thing the patient is aware of is discharge from the ear, that in addition the drum shows multiple perforations, many discharging ears looked upon as belonging to the ordinary variety will be properly classified.

62 WEST NINETY-SIXTH STREET.

## THE RESORTS WE VISITED.\*

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For years many of us who heretofore had not visited any of the famous European spas have had a great desire to do so, that we might learn personally of the efficiency of their waters, and view

the many attractions and advantages at these places which induce so many Americans to visit them each season. The members of the American Medical Travel Study Tour who visited several of these resorts on their tour this summer were fortunate indeed. They were accorded a most cordial reception at each place by the local medical fraternity and by the officials, and were given by them every opportunity possible to study the mineral waters, the various methods of treatment of disease by the use of these waters, and also to inspect the various beautiful bathing establishments and *Kurhäuser*. No task was too great nor was time spared by these generous people to further the object of our visit, and it is with the most profound feeling of gratitude that these many courtesies are acknowledged.

The first resort visited was the spa Baden near Vienna which is one of three places that were named Baden by the Romans. One of these is situated in Switzerland, one on the Rhine in the Grand Duchy of Baden, and the third is the one of which we are writing.

Baden is a beautiful little city about forty minutes by train to the south of Vienna, admirably situated on the plain of Wiener-Neustadt and on the slopes of the Wienerwald. Its inhabitants number about 22,000, with an additional annual patronage of over 30,000 who take the "cure"; in addition there are many excursionists each season who stay for a short period to view the many attractions of this noted resort and to delve into its history, which is so replete in its associations with great men and great deeds of the past.

For over two thousand years it is known that these thermal sulphur springs have been used for the cure of disease. The overfed, gouty and rheumatic Romans made this a convenient stopping place in order that they might gain a new lease on life. When they were driven southward other nations took their place so that, on and on down through the centuries to the present, these springs have had their bouts with disease and doubtless more often won than failed.

There are thirteen springs in all, ranging in temperature from 84.3° to 96.8° F., and yielding upward of 6,000,000 litres of water daily. The water itself is decidedly sulphosaline, not unpleasant to taste, however, and it is radioactive. There are also thirteen bathhouses, among the newest being the municipal Hotel Herzogshof, completed in 1909 on the site of a former one of the same name. The Sanatorium Gutenbrunn is a beautiful, thoroughly equipped institution with bath house, where all the modern methods of balneotherapy are used.

At our next stopping place—Marienbad, which is situated in the western part of Bohemia—conditions are somewhat different. The springs are dissimilar to those of Baden and are owned by the abbey of Tepl, which in itself is an innovation, and the use of the waters for curative purposes is comparatively recent. Prior to 1818 they were little known and in fact as late as 1779 the site that Marienbad now occupies was a part of the dense forest possessions of the abbey of Tepl. What a contrast to-day! A beautiful, substantially built city greeted us, remarkably uniform in its architecture, and all looked so symmetrical, modern, and

\*I am indebted to Dr. S. P. Collings for valuable assistance in gathering data for this article.



well kept. It is partly surrounded and protected by pine covered hills, over which are beautiful foot paths leading in every direction.

There are ten principal springs in all, with an enormous aggregate flow of mineral water. The Marienquelle, which we visited, was notably large, and it was an interesting sight to see the water bubbling up from all over the bottom of a capacious rectangular enclosure. Had the water not been cold, as all these spring waters are, we might have received the impression that Satan was not far away and was just giving a demonstration of how thoroughly well he could make water boil.

The waters from the different springs here vary considerably in their analyses. This gives to the place a great advantage in their therapeutical application. Some contain large proportions of Glauber's salt, others are rich in carbonate of iron, and all are highly charged with carbonic acid. The Ferdinandsbrunn containing the largest amounts of sulphate of soda (47.+ parts per 10,000), chloride of sodium (17.+), bicarbonate of sodium (20.+), bicarbonates of calcium and magnesium (6.+ each); and clear carbonic acid (31.+). From this analysis the sulphate, chloride and bicarbonate of sodium decreases gradually in the other springs to almost nothing but the carbonic acid and bicarbonate of calcium content continue in all nearly the same; two contain a large percentage of bicarbonate of iron. From the waters salts are also extracted, which are shipped to all parts under the name of Tepler salts and some of the natural waters are also shipped extensively for drinking purposes.

Space does not permit of our going into detail concerning the large and beautiful bath houses, the extensive and well appointed kurhaus, and the splendid colonnades. Suffice it to say, however, that there are three very large modern bathing establishments in which every variety of bath may be given. The mud bath facilities are extensive, the mud used being of a ferruginous and sulphurous variety obtained near at hand.

Reluctantly we departed from peaceful and beautiful Marienbad, but as we approached the world renowned Carlsbad, our next stopping place, our interest naturally centred there. It is the one resort of the Continent that is best known to Americans and greater numbers go there for the "cure" each year than to any of the others.

Carlsbad is situated in the northwestern part of Bohemia in the valley of the Tepl. The Eger river passes by the town and separates it from Fischern which lies just over the bridge. The Tepl river runs through it, and the city itself seems crowded in the narrow valley, close to the banks of this small stream, which should be arched over. However, there are 3,500 acres of park woodland in the adjoining hills that serve as a strolling place for those who are well enough to undertake the grades. The altitude, 1,227 feet above sealevel, is ideal. It lightens the air sufficiently to encourage the deep breathing in of the pine laden zephyrs, wafted from the forest covered hills.

There are sixteen mineral springs used in the "cures." These range in temperature from 102.2° to 163.4° F.; the hottest as well as the most productive is the Sprudel spring, which has a flow ex-

ceeding 2,000 litres a minute. The analyses of the various springs show the solid contents to be very nearly the same, there being a great difference, however, in the carbonic acid content and the temperature, the waters of lower temperature as a rule having larger proportions of carbonic acid and also greater radioactivity. Both the water and the gas issuing therefrom are radioactive. The carbonate and sulphate of sodium and chloride of sodium are the predominating salts contained in the water as well as a considerable portion of hydrocarbonate of lithium.

The springs are owned by the city as are also the five large bath houses. The kurhaus is a very extensive building, erected in 1867, containing 166 rooms, apportioned as follows: Thirty-five for Sprudel water baths, thirty-eight for carbonic acid baths, fifty for mud baths, forty-three for mud packs and the great halls of the kurhaus. The Kaiserbad, erected in 1895, much more modern than the above, contains the most extensive Zander's system department that we saw. The room was very large and indeed stately, containing sixty-five appliances. The Elisabethbad, completed in 1906, is an impressive looking building both inside and out. It has the advantage of an open park in front which, together with its newness, makes it very attractive. We also visited the Sprudel salt works and were shown every detail of their manufacture.

From Carlsbad an autobus line landed us, in the course of an hour's time, at St. Joachimstal, one of the most talked of places in the world by students of radium and radium emanation.

The surrounding country here is mountainous in character and was noted for centuries for its silver mines. The chief product now, however, is uranium pitchblende, from which radium is obtained. These mines are the greatest uranium ore producers in the world and unless recent discoveries in Colorado come up to expectations they will probably continue to be such.

The Austrian government is the owner of these mines and likewise of the springs which exist in various parts of them. The water used in the Imperial and Royal Sanatorium for Radium Therapy comes from a depth of 900 feet and is said to be the most highly radioactive water known, containing 600 Mache units. This sanatorium was erected in 1911 for the purpose of treating disease with radium salts and also for using the emanations in every known way. The water is prescribed for drinking, bathing and local packing. It is also used to obtain radioactive air for the inhalatorium which is accomplished by forcing air through the water and then into the special room for the inhalation treatment. The sanatorium is complete in its appointments and being under the control of the imperial government will be able to accomplish great good in this special line.

Our other excursion from Carlsbad was to Giesshübler Sauerbrunn, or Mattoni's Giesshübler, which is said to be six and one half miles from Carlsbad. If our observations did not err, we made the trip in a driving rain, by special autos, in thirteen minutes. Even though we exceeded the speed limit, the pelting raindrops never missed a

chance to strike—in fact, at times they reminded one of some electrotherapeutic enthusiast shooting jump sparks at our faces. We even tried to sleep, but an extra dash of speed or rain, now and then, would cause us to scan the horizon for a possible Gatling gun operator who might be practising with fine bird shot. Some of our party did sleep on the return trip, but the rain had ceased then. The immense plant consisting of the springs, the bottling houses, the bath house and the park etc., is owned by the brothers Mattoni. The four springs, though of the same composition, vary slightly in proportions. The principal ingredients are the bicarbonates of sodium and calcium and free carbonic acid; they also possess radioactivity. The water, very pleasant and agreeable to the taste, is shipped for drinking purposes to every civilized country. The enormous bottling facilities enable the owners to export 14,000,000 bottles annually. There is an excellent bath house in which the natural spring water is used, great care being taken to conserve the free carbonic acid. There is also an inhalatorium. Beautiful walks on either side of the Eger river which flows through the place, parks, forests, and hills all go to make an ideal spot for recuperation and rejuvenation.

A little over two hours by train from Carlsbad landed us at the oldest spa of Bohemia—Teplitz-Schönau—which is situated in the northern part near the Saxony border. The Celts and Romans rested here to recuperate from their campaigns, as later on did kings and princes of various nations. Austria at frequent intervals for centuries was in the turmoil of war and Teplitz was so famous a place among the soldiers of this and other nations that it became known as the Warriors' Bath. The wounded and diseased soldiers, friends and foes alike, met here on common ground and mingled freely while receiving the benign, soothing, and healing influence of the radioactive waters. Little did they know why these waters were so wonderfully helpful for the relief of the exhausted and wounded. They were content with the fact that relief was almost certain from their use. The water having comparatively little mineral in it might seem less potent than those that are more highly mineralized. Those of us who know the beneficial effects of that kind of thermal waters, which have marked radioactivity, can realize by observation that their healing powers are all that are alleged for them. If reports are accurate, it is proved at every resort we visited that the radioactive inhalatoriums produce the same beneficial results as do the radioactive baths in the same class of cases, hence raising the question as to how much the mineral content alone has to do with the cure after all.

Since the twelfth century history records the happenings of that country pretty completely. Teplitz suffered much devastation in the Hessian wars, also in the Thirty Years' War, which latter originated near this place. From the tower of the medieval Schlossberg castle, situated on a cone shaped mountain adjoining the city from which an unobstructed view is had in all directions, a low mountain range to the north, in Saxony, can be seen where Napoleon first met at least partial de-

feat from the allied forces of Austria, Russia, and Prussia in 1813.

Teplitz-Schönau is now a delightful city of 28,000 inhabitants. Its famous past is dimmed by its modern repute. It is situated in a comparatively broad valley; is beautifully laid out and has ample, well kept parks, which will for all time accord the invalid visitor an opportunity freely to commune with Nature.

There are five thermal springs, one of which, the Urquelle, produces three million litres of water daily at a temperature of 115.7° F. Space will not allow us to enter fully into detail about all of the springs, bath houses, etc. I can but mention the new municipal bathing palaces, the Kaiserin Elisabeth Bad and the Kaiser Bad, and the two owned by Prince Clary-Aldringen, namely the Herrenhaus and the Neubad. The tubs in the Kaiserin Elisabeth Bad are worthy of special mention. They are miniature pools with steps leading down into them, 700 litres of water being used for each bath. The arrangement for the mud baths was also admirable. The tubs were raised from beneath and accurately fitted an opening in the floor of the bath room. The temptation to go on and describe in detail the many admirable features in Teplitz is strong, and were it possible to command the space we should delight in attempting to do full justice to the springs as well as the city and its hospitable people. After leaving Teplitz the radical change of scene and the activities of Dresden, Berlin and Frankfurt am Main gave us renewed pleasure and interest in Bad Nauheim upon our arrival there.

Bad Nauheim lies forty minutes to the north of Frankfurt in the Grand Duchy of Hesse. It is situated on the slopes of a spur of the Taunus mountains called Johannisberg, on the summit of which is a view tower. Prior to 1835, the place was known only for its extensive salt works. Since that time the waters have gradually become more and more noted for their curative qualities until to-day they are famed throughout the civilized world. There are three springs or wells from which the water is used for bathing, and six for drinking purposes. The wells for baths are No. vii, at a temperature of 85.8°F.; No. xii, at 93.9°F.; and No. xiv, at 90°F. These wells, bored at different dates, the first in 1838, combined, furnish about 325,000 gallons daily. The analyses show sodium chloride and free carbonic acid to be the chief ingredients with chloride and bicarbonate of calcium next in importance. The six drinking wells contain much less sodium chloride and slightly less carbonic acid, their waters also being shipped extensively for drinking purposes. The water from the three bath springs is conducted to a central fountain for distribution; however, the bath can be supplied direct from any spring without exposure, thanks to their splendid new conduit system, so that the escape of gas is practically *nil*. Three principal kinds of baths are given with some variations for each: 1. The Sprudel bath, direct from spring with full CO<sub>2</sub> strength; 2. the thermal bath, which is the brine bath without the gas; and 3. the thermal Sprudel, with gas partially escaped. The baths are given at about the natural temperature of the water; however, this must be varied to

suit the case and a fineness in this variation in heart cases is essential, as different temperatures produce different effects on the blood pressure. The cases treated are about seventy-five per cent. circulatory, it was stated; added to these are those diseases needing increased elimination. There are nine bath houses practically new, eight of which are arranged around the new Sprudel fountain.

The springs of Homburg are situated in Prussia about one and one half hour to the southwest of Bad Nauheim. They also are situated on a spur of the Taunus range of mountains in such manner as to have protection from the northwest winds. This resort is another one of those that dates back to very early times, probably even further than any we visited. In pre-Roman times the water was used for the extraction of the salt that supplied the fiscal boards of the inhabitants of that remote day. Whether it was then used for "cures" is not known; however, it is known that the Romans erected bath houses there for the purpose of using the mineral water. Down through the centuries Homburg is of interest historically, and like most of that region frequently changed masters, the result of the force of arms. Finally it fell into the hands of Prussia, which, on January 1, 1873, turned over the ownership of the springs together with a large capital of accumulated *Kurfonds* to the town of Homburg. Thus to-day the city of Homburg is the proud owner of the springs, a magnificent *Kurhaus* that is indeed imperial in its proportions, interior decorations, and furnishings; also connected with the kurhaus is the new kurhaus bad which was completed in 1902, and the Kaiser Wilhelm bad, which is likewise a modern and beautiful building. Both of these bath houses are complete in every detail and contain all of the most up to date adjuncts to modern balneology. The tubs used here are made of brass, which is an innovation, as at other resorts where carbonic acid is a large component of the water, wooden tubs are used. A feature worthy of mention is the unique manner in which the mud bath tubs are handled. When filled and ready for the bath they are run on a truck upon a subfloor underneath the bath room floor and then lifted as at Teplitz into position through an opening in the floor by means of hydraulic pressure. Another tub, filled with clear water for cleansing after the mud bath, stood beside this. These spring waters are all cold and are heated to the proper degree for the bath with little loss of the  $\text{CO}_2$  by a steam container underneath the tub, into which the flow of steam is regulated at will. There are ten springs in all, one the Elizabeth, being a natural spring, and the rest drilled wells. The water contains large amounts of sodium chloride, and free and partly combined carbonic acid. They also contain some bicarbonate of calcium and other ingredients in small amounts. Two are rich in iron.

We arrived at the next and last resort visited—Wiesbaden—late at night on our way from Homburg. Wiesbaden is a modern looking, well built city of 110,000 inhabitants. Situated in Prussia on the southernmost spurs of the Taunus range, which is so noted for its numerous and varied spas, it lies near the renowned Rhine, whose course is dotted with historic castles and whose many legends are

wont to keep the traveler's attention spellbound. Here again we meet with evidences of the ancient "Romans who ruled over this country for a period of 300 years at the beginning of the Christian era." Some specimens of their masonry are preserved to this day, an example being the Römertor, which is a broad archway of stone in the heart of the city.

Here are twenty-four thermal springs, of which the Kochbrunnen is the largest, having a flow of 380 litres of water a minute, at a temperature of 150.2° F. The water contains about nine parts of solids to the thousand, of which sodium chloride is the chief ingredient, but this is not in sufficient proportion materially to affect the taste, which is quite pleasant. This spring and the Adlerquelle are situated in the centre of the city. The Adlerquelle furnishes the water for the new Kaiser Friedrich Bad, and the Kochbrunnen alone supplies seven bath houses. Several of the springs are privately owned, and all of the principal bath houses are under private ownership except the new Kaiser Friedrich Bad, which was completed and its opening celebrated last March. This bath house was erected by the municipality at a cost of two and one half million marks, and it may very appropriately be said of it that it is the last word in bathhouse construction. The ordinary expressions that one might use in referring to such an institution do not seem adequate. It surpasses the ordinary, it surpasses even the extraordinary, and stands as a monument to the wisdom, pluck, and energy of Wiesbaden's officials and to the knowledge and skill of its architect, Mr. A. O. Pauly. Beside having every modern method and appliance that might be used in such an institution, it is really a work of art. In its construction the materials used and the color scheme in the decoration and furnishings of each of the three floors for baths are varied so that monotony does not even suggest itself. The bathing facilities are so extensive in this institution that it is possible for 200 persons to bathe at one time. The fourth floor is occupied by a laundry of such proportions that it can care for the linen of the entire institution when in full operation.

The most beautiful kurhaus we saw on our trip was situated here. The large and stately dining room; the music room and the excellent *Kurband* of sixty-two pieces; the white and gold reception rooms; the reading room with its 350 newspapers and periodicals from all countries are some of its features. The wisdom of providing such a place for entertainment as well as relaxation is laudable in the extreme, for it not only serves its purpose in that way, but the added possibilities of the refining influence of such environment are great.

In all we visited nine different continental spas. Most of them are known in a more or less familiar way by practically every American citizen. Their reputation has been established and their curative qualities proved locally and likewise recognized for many years by the medical profession throughout the world. At least four of these spas were known and used by the Romans, and from the historical knowledge we have of the old Roman and his bath, how he must have reveled in them! The waters of the different resorts vary chemically. The springs at five of the places contained large quanti-



ties of  $\text{CO}_2$ , and of these five, three were highly mineralized. At four resorts the waters were cold, at two warm, and at three hot. Five were situated in Bohemia, three in Germany, one in lower Austria. Leaving out Joachimstal there were ninety-one separate springs from which flowed medicinal waters direct from Nature's own laboratory, and thanks to the enlightenment of the present age, they are being used by people from every clime.

We are glad to note that there is governmental control, either municipal, ducal, or national, at every resort we visited, also that these governments are aiding in every way to advance the scientific knowledge of these spas and their therapeutic use, as well as to popularize them among the people.

DUGAN-STUART BUILDING.

## ACROMIAL BREATHING AS AN AID IN THE DIAGNOSIS OF APICAL PULMONARY TUBERCULOSIS.

BY NATHAN MAGIDA, M. D.,  
New York.

It is of the greatest importance to be able to make a diagnosis of pulmonary tuberculosis in its incipency. We have many signs which help us; the subject, however, being so important, it seems to me that we cannot have too many. The general signs in use at the present time are the prolonged expiratory note, increased whispered sound, dullness and tactile fremitus. Symptoms are of value, (especially such as evening rise of temperature, night sweats, weakness extending over some length of time, loss of appetite, loss of weight, and the presence of cough.

Some authorities aver that it is possible to make a diagnosis of tuberculosis by the presence of any one or two of the following signs: Increased whispered sound or dullness on percussion, or increased expiratory sound. The normal differences between the right and left apices should be considered; for instance, the right apex normally presents bronchovesicular breathing in contradistinction to the vesicular breathing of the left apex. Whispered sounds are heard quite plainly over the right apex, but are just audible at the left apex, and on percussion the right apex gives a dull, the left a vesicular, note.

Some time ago, Dr. Robert Abrahams<sup>1</sup> observed that in apical tuberculosis, auscultation at the acromion process increases and amplifies all the auscultatory signs which are ordinarily obtained over the apices. Since then, work has been carried on in the medical clinic of the Post-Graduate Hospital with the result that in almost every case of incipient and second stage tuberculosis involving the apices, this sign was elicited. In third stage cases, it is rarely found, but of course, such cases can easily be diagnosed without the aid of any special sign.

*Technic.* The hard rubber bell should be used. It is placed over the acromion process of the sca-

pula, where it joins the acromion end of the clavicle. Here we are confronted with a slight difficulty in some cases. In thin people this anatomical part is not well covered with muscle and it is sometimes hard to place the bell of the stethoscope in such a manner as to exclude all external sounds. This, however, is overcome by pinching the skin up so that the bone fills the bell of the stethoscope; the surrounding folds of the skin act as a barrier to foreign sounds. Joint creakings which are sometimes heard are easy to distinguish from rales. The value of this method is best appreciated if the apices are examined first, the acromion after, and then the difference in the sounds compared.

Following are a few instances of the average cases of tuberculosis seen daily at the Post-Graduate Hospital medical clinic, showing the presence or absence of acromial breathing:

CASE I. P. S., male, aged twenty-one years, had been complaining of weakness for the last two or three months, had lost his appetite, could not do his work properly, felt warm toward evening and perspired a good deal when in bed. Did not complain of any cough. On examining this man, we found:

Left apex marked bronchovesicular breathing and increased whispered sound. No rales. Acromion process, prolonged expiratory note and whispered sounds greatly increased. The percussion notes over the left and right apices were found to be the same, showing the left apex diseased. The right apex was normal. A diagnosis was made of incipient tuberculosis, left apex.

CASE II. D. S., male, aged thirty-two years, complained of indigestion and weakness; after nearly every meal complained of feeling "blown up." Had sour taste in mouth and sometimes regurgitated small amounts of food. Complained of frequent headaches, and chills.

Left apex showed on auscultation, marked prolonged expiratory note; mucous click at end of inspiration; whispered sound heard very distinctly. At the acromion process, these sounds were heard much more distinctly, rendering the breathing almost tubular and the whispered sound almost pectoriloquy. Percussion was dull. The right apex was negative. The diagnosis was first stage tuberculosis, left apex.

CASE III. A. C., female, aged thirty-eight years, had been complaining for the last three years of cough, followed very frequently by expectoration, which was becoming more and more distressing; marked weakness; had had two hemorrhages. Upon examination, right and left apices were found to be involved.

Left apex showed bronchial breathing, coarse rales, both on inspiration and expiration. Whispered sounds markedly increased. At the acromion process, no sounds were heard. Percussion was dull; palpation gave tactile fremitus. At the right apex were bronchial breathing, loud whispered sounds, rales on inspiration and expiration; at the acromion process, nothing was heard. Percussion was almost flat, while palpation gave tactile fremitus. The diagnosis was third stage tuberculosis, both apices.

CASE IV. C. E., male, aged thirty-four years, complained of cough and expectoration for last year. During the last month had noticed a streak of blood at times in the expectoration. Felt weak and could not do his work, complained of feeling chilly frequently.

Left apex gave prolonged expiration, increased whispered sounds, mucous rales at end of inspiration. At the acromion process, all sounds were enormously amplified. Percussion was dull, palpation gave tactile fremitus. The right apex was negative. The diagnosis was second stage tuberculosis, left apex.

CASE V. B. F., female, aged thirty-two years, for last two and one half years had been complaining of cough followed by expectoration, which at times was streaked with blood. Within last year had had two small hemorrhages. Felt very weak and could not do her housework. Upon examination, left and right apices were found to be involved.

Left apex showed bronchovesicular breathing, increased whispered sounds, fine rales at end of inspiration. At

<sup>1</sup>Abrahams: Auscultation at the Acromion Process; Its Significance in Apical Disease, *Archives of Diagnosis*, April, 1913.

acromion process, no sounds heard. Percussion was dull; palpation gave tactile fremitus. Right apex showed bronchial breathing, mucous rales on inspiration and expiration, whispered sounds greatly exaggerated. At acromion process, no sounds. Percussion was almost flat, palpation gave tactile fremitus. The diagnosis was second stage tuberculosis, both apices.

CASE VI. S. F., female, aged twenty-two years, for last two and one half years had been complaining of cough followed by expectoration, which at times was bloody. Had had three hemorrhages. Very weak; frequent night sweats and steady emaciation. Right and left apices involved.

Left apex showed bronchovesicular breathing, marked increased whispered sounds. Rales on inspiration and expiration. At the acromion process, was marked exaggeration of all sounds. Percussion was dull; palpation gave tactile fremitus. Right apex exhibited bronchial breathing, marked increased whispered sounds, loud rales on inspiration and expiration. Signs at the acromion process were negative. Percussion was flat; palpation gave tactile fremitus. The diagnosis was advanced second stage tuberculosis, left apex; third stage, right apex.

#### CONCLUSIONS.

In looking over the histories of fifty-two cases, consisting of twenty-eight in the first stage, fourteen in the second, and ten in the third, we found acromial breathing present in all the first stage cases, in eight of the second and two of the third. It would seem that it is a valuable method in first stage cases, and since that stage is the most important from a diagnostic point of view, and as the method is so easily acquired, it should be universally employed. It should also help toward ascertaining the advanced stages of tuberculosis, as the further advanced a case is, the less probability there is of getting evidence from auscultation of the acromion process.

A short trial will convince anybody of the merit of this method and will conclude with its originator that the subject deserves a place in physical diagnosis.

620 EAST 168TH STREET.

### THE ETIOLOGY OF PELLAGRA.

#### *A Review of Recent Theories.*

BY PAUL BARTHOLOW, A. B., M. D.,  
New York.

Under the title, *The Etiology of Pellagra*, Perroncito (*Sperimentale, supplemento al fascicolo*, iv, September, 1913) has put in very plain and simple language a very complex and difficult conception; that of pellagra. He succeeds admirably; we are brought appreciably nearer to the nature of the disease, yet the final cause continues to elude our grasp.

To explain the etiology of pellagra, Perroncito institutes a careful comparison between three prominent theories—the zeistic, the toxic-zeistic, and the parasitic. The zeistic theory is the product of the school of Strambio and Lussana, which tried to connect pellagra with the habitual and almost exclusive eating of *Zea mais* or Indian corn. Maize, whether sound or not, without the addition (*correttivo*) of nitrogenous food, is supposed to be an influence in producing the symptoms of pellagra. Maize, as Lo Monaco believes, has no proportion of protein capable of maintaining the nitrogen bal-

ance. Accordingly the occurrence of the disease rests upon the fact that there is a deficiency of nervous and muscular nutrition. Such is the theory of Strambio, and its undeniable aspect of truth has fundamentally affected the physician's notion of pellagra. In Perroncito's phrase, the present definition of pellagra is, that a maize diet and poverty (*miseria*) are two elements of great importance; and there is no doubt that spoiled maize is toxic.

There are many communities, however, which are poor and which habitually eat maize, yet do not necessarily suffer from pellagra. Even maize spoiled by moisture does not always produce it. The effects of spoiled maize are undoubtedly evil, but their operation is superficial and frequent, and pellagra is limited to definite regions and often to definite periods of time. Thus the zeistic theory does not explain why pellagra has a distinct periodicity, why it is more common in spring, in the absence of running water, and why relapses occur long after a diet of maize has been given up. Finally, pellagra is found in people who do not eat maize.

Pellagra is something other than the product of the food habitually eaten. The toxic-zeistic theory is thus stated by Lombroso: Pellagra is the effect of an intoxication produced by poisons which are developed in spoiled maize by certain microorganisms in themselves harmless. This theory is so grounded in the common consciousness that it is the basis of the Italian legislation on the subject. It is true that the colon bacillus cultivated in maize gives very powerful toxins. If not strictly a coli infection, pellagra may well be connected with it. Maize undigested in the intestine undergoes a putrid decomposition, and, as De Giacca has pointed out, is admirably adapted for the growth and maintenance of bacteria. In such a medium germs increase both as regards their numbers and their virulence. Maize is also liable to a peculiar fermentation by fungi, *Penicillium glaucum* being the most common. This unquestionable fact has been carefully developed by Lombroso, following Sette and Balardini, the protagonists of the toxic-zeistic theory. Lombroso began his experiments with this fermented maize, with maize spoiled by moisture, and, lastly, with putrid maize. Subsequently he made an extract of putrid maize with alcohol, and administered it to men and animals. Limiting his attention to this toxin, called pellagrosine, he ascribed the origin of the nervous, the gastrointestinal, and cutaneous symptoms to its operation. These conclusions, however, were not countenanced by a commission from the Institute of Lombardy, especially appointed to examine the experimental results. Pellagrosine, it was found, is so feebly toxic that it would require the consumption of ninety kilogrammes to produce a fatal dose. Nor again does this theory, however impressive, and in virtue of which laws are made, explain the existence of pellagra in dry regions, nor its periodicity, nor its frequency near stagnant water.

Another circumstance of importance is the growth of moulds in maize. One of these, almost constantly found and mentioned before, is *Penicillium glaucum*. Gosio regards this parasite as an essential condition of the spread of pellagra. Another fungus, which produces an infection from

which people die, is *aspergillus*. According to Ceni, two varieties are found in maize, *Aspergillus fumigatus* and *Aspergillus flavescens*, and the toxin they produce enters the pleura, pericardium, and lungs. It is most probably a phenol, parahydroxy-malic acid. Is pellagra a phenol intoxication? Those who expound the photodynamic theory of pellagra are inclined to answer this question in the affirmative. They view these phenols, as well as hematoporphyrin, also developed in the metabolism of maize, as sensitizers of the tissues, especially to light. Centanni and Galassi have examined these premises experimentally without definite conclusion in their favor, and it is known that the erythema of pellagra appears not only in winter when the sun's rays are weak, but on covered parts of the body. The eruption also appears when maize has been excluded from the diet. In support of the view, which puts the essential cause of pellagra on the eating of maize, Zuntz asserts that it contains toxic substances, one of which, zeine, is a phenol, and Albertoni contends that as a food it is inadequate and therefore a cause.

The truth is, as Sambon declares, pellagra is not due to either sound or spoilt maize. He lays down several propositions. First, the foci of pellagra are strictly related to streams of running water; secondly, the infecting agent is a parasite conveyed by a bloodsucking fly, probably *Simulium*. *Simulium* has, in fact, the same geographical distribution. On the other hand, Alessandri conjectures that the infecting agent exists in stagnant water, that it has no intermediate host, that most probably it is a species of filaria. This theory deserves careful attention. Filariasis would explain many phenomena of pellagra, e. g., the periodicity, its epidemiology, the intervals of latency, and the erythema. But filaria is an obligatory parasite, at least as far as we are aware, and must have an intermediate host. The question concerning filariasis cannot be answered until it is determined exactly what the nature of this parasite is. The fact is obvious, however, that the parasitic theory is gaining ground.

Tizzoni isolated a microorganism which he believed to be the cause—a pleomorphic bacillus. Later, as his results were not confirmed by Perroncito, Bezzola, nor Raubitscheck, he considered his bacillus as a pleomorphic type of actinomycete. Among biological evidences are the facts mentioned by Lombroso; that the serum in pellagra is toxic, that patients show anaphylaxis to putrid maize, and disorders of the sympathetic and cerebrospinal nervous systems, but precipitins and deviation of complement have not been demonstrated.

In conclusion, Perroncito is profoundly impressed with the connection of causes and effects. One of these is certainly spoilt maize. Another, not to be ignored, is the economic condition that leads us to distinguish accidental concomitants from essential conditions. We have in pellagra a fixed and somewhat circumscribed disease, connected in a manner still unknown with spoilt maize, with poverty, with malnutrition, possibly with parasites and insects living near stagnant water, but with no one cause exclusively nor universally. Pellagra implies a state which is the very antithesis

of the economic and hygienic spirit, and this truth is a grand compensation for the inability to discover the other causes.

40 EAST FORTY-FIRST STREET.

## THE TREATMENT OF BRONCHOPNEUMONIA IN CHILDREN.

BY ABRAHAM GOLTMAN, M. D.,

New York.

So much has been written on this subject—the newest drugs, theories, and treatment—that after one tries them all one comes to the conclusion that one, and only one, essential treatment will pull the little patient through, and that is good nursing.

Pneumonia cannot be cut short by drugs, and too much medication is poor treatment as well as dangerous. I have had occasion to see a tired out heart whipped up with stimulants, and one wonders, in fatal cases, whether the heart gave out from the disease itself or from the cardiac stimulants.

In a severe case of bronchopneumonia, a child's recovery or death will, in a good many cases, bear some relation to the surrounding hygienic conditions, previous condition of health, and the causation—in other words, whether secondary to some of the infectious diseases or not.

Support the patient's strength with nourishing liquid diet, and let the temperature and pulse be your guides as to whether you should use stimulants. The ice pack will reduce a temperature in quick time. When mucous rattling is heard, when the respirations are increased and dyspnea and cyanosis are present, aim at one thing—keep the respiratory centre alive. Plunging the child into a warm bath and then wrapping it up in a cold sheet, pouring hot and cold water alternately from a height on the patient's chest will cause the child to cough and expel the mucus.

These seem heroic measures, but I reported a case in the NEW YORK MEDICAL JOURNAL, some time ago, where death was imminent and these measures were tried with good results. By adopting them, instead of waiting for the uncertain results of medication, good results will ensue.

805 KELLY STREET, BRONX.

**Pituitary Extract in Threatened Mammary Abscess.**—J. A. Henton White, in the *Practitioner* for September, 1913, states that while the employment of pituitary extract in the condition mentioned is not commonly thought of, experience leads him to consider the drug very useful. It has been experimentally shown that within a few minutes after the injection of pituitary extract the flow of milk is much increased, owing to contraction of the muscular fibres of the lacteal duct walls. When these ducts contain pus and are blocked, this action is a useful one, and in two or three instances the author has found a threatened abscess to undergo absorption soon after giving pituitary extract.



## Prize Essays.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CXLI.—How do you treat frostbite? (Closed.)

CXLII.—How do you treat chronic constipation? (Answers not due later than January 15, 1914.)

CXLIII.—How do you treat gallstone colic? (Answers due not later than February 16, 1914.)

Whoever answers one of these questions in the manner most satisfactory to the editor and his advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no one answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best essay submitted in answer to Question CXXXIX was awarded to Dr. J. Walker Moore, of Philadelphia, Pa., whose article appeared on page 1117.

## PRIZE QUESTION NO. CXXXIX.

### TREATMENT OF CHANCROIDS.

(Concluded from page 1221.)

Dr. H. S. Holloceay, of Jacksonville, Fla., says:

I have found nothing so thoroughly satisfactory in meeting all the foregoing requirements as the powerful escharotic, acid nitrate of mercury. This medicament possesses unusually great penetrating properties, and is a notable stimulant in promoting absorption of broken down tissue. When I am called upon to treat a chancre, I first wipe dry the surface of the ulcer with sterile absorbent cotton. Then with a pledget of cotton saturated with hydrogen dioxide I cleanse the surface, drying as before. Now, with a fine pointed toothpick on which a fine film of cotton is twisted, I dip it into the acid nitrate of mercury, exercising care to avoid supersaturation, and lightly touch the entire surface of the ulcer until it appears of a whitish color. If the ulcer is unusually sensitive, I first touch it with a ten per cent. solution of cocaine.

When the chancre presents an ugly greenish hue with a tendency to phagedena I use the Paquelin cautery and very lightly touch the margin of the sore.

Following the cauterizing process, I first remove any moisture that may have accumulated, then, thoroughly dust the sore with bismuth formic iodide, apply a compress of sterile gauze or cotton

and bandage the penis, cautioning the patient not to remove the dressing, and not to let it become wet.

The second day, I cleanse the wound as at first, and if after thoroughly washing the surface of the sore the exudate has not all come away, I recauterize these areas, always doing a punctate cauterization, avoiding a too drastic use of the drug.

I dress the wound as at first and repeat this process once daily, providing the patient is convenient to my office, until the chancre presents a red, clean, granulating surface, and as soon as this condition is attained I discontinue the routine application of the cauterizing agent, using it only when the wound shows a tendency to relapse into a sluggish state of healing. In place of bismuth formic iodide, iodoform may be used as a dusting powder. Iodoform has no antiseptic property in its pure state but in the presence of pus disintegration takes place with the formation of substances inhibitory to germ growth. I have seen iodoform set up a dermatitis medicamentosa and cause undue damage. I have never seen any untoward effects from bismuth formic iodide.

To prevent autoinoculation of the sore, which is very apt to occur unless one be very careful to keep the infectious secretions away from healthy tissues, I keep the ulcer very dry and after dressing the sore, I wipe the surrounding skin with a one in 3,000 solution of bichloride of mercury.

Not infrequently one encounters chancre complicated with phimosis. Here, if the phimosis cannot be relieved by ordinary measures, the foreskin should be slit over the dorsum of the penis sufficiently to expose the ulcers and permit the underlying parts to be thoroughly cleansed. If the chancre is situated on the foreskin, and the foreskin is unduly long, and the patient is willing, circumcision may be resorted to, thus accomplishing two purposes at the same time.

When the chancre is situated in the urethra, as sometimes happens, the secretion ought to be examined microscopically to differentiate it from gonorrhea and if found to be chancre, irrigation should be resorted to and if the sore is situated some distance from the meatus it is best to use the urethroscope, cauterizing it at the same time.

In doing a circumcision on a chancre patient, one must be particularly careful to avoid contaminating the knife, thus running the risk of setting up multiple chancroids.

When the phimosis is attended with considerable edema, I merely slit the foreskin over the dorsum, sewing up the inner and outer skin on each side, until the edema subsides, when a circumcision can be done if desired by the patient.

Usually, if the chancre is kept clean and properly cauterized, the tendency to bubo formation in the groin will be avoided. When buboes have already formed, but are yet in the early stage, a very firm compress over them with a tight bandage often does good, at the same time painting the skin over affected side with tincture of iodine or colloidal silver. The bowels should be kept open and the urine kept bland by the administration of infusion of digitalis or buchu.

<sup>1</sup>An unusually large number of communications were received in competition for the prize this month. We regret that, owing to the pressure on the last issue of a volume, we have not space for the excellent work of the following gentlemen, whose essays were selected and prepared for publication as presenting features of uncommon interest: Dr. C. C. Cater, Jr., of Atlanta, Ga.; Dr. W. O. Weiskotten, of Utica, N. Y.; Dr. E. J. Carlson, of Mound City, Mo.; Dr. Irving Friedreich, of New York; Dr. Karl Greiner, of Hammond, Ind.; Dr. C. G. Roehr, of Fort Pierce, Fla.

A very useful preparation to apply locally is the following:

R Ungt. hydrargyri, ..... )  
 Ungt. iodi comp., ..... ) ..... āā 3ii.  
 Ungt. belladonnae, ..... )  
 Ungt. petrolati carbolati, ..... )

Sig.: Apply locally twice daily.

When suppuration has occurred or is inevitable, as evidenced by fever, sweats, and a fluctuating mass in the groin, free evacuation is the best treatment. Remove all pus, and glands too, if possible, then pack the cavity with iodoform gauze and permit the ulcer to heal by granulation.

Sometimes a sore will not heal but continues ugly and may even become more dangerous. Here one must ever keep in mind the possibility of chancre and chancroid in the same site. I encountered such a case and was profoundly puzzled until the administration of mercury caused a gradual disappearance of the sore, but the glands of the groin suppurated and *Treponema pallidum* was found in the serum from the sore. In other cases when a chancroid fails to heal, the general health should be looked into. Evidences of tuberculosis, syphilis, scrofula, etc., should be looked for and if found should be properly treated. Tonics of a ferruginous type may always be given and they seem to do good. I always advise patient to drink plenty of water, to keep the bowels freely evacuated, and to avoid all irritating foods. Meats had better be withheld. All vegetables are allowed.

Cleanliness, after all, is *sine qua non* in treating all cases of chancroid. Effort should also be made to keep the parts dry. Some recommend the complete extirpation of the chancroid when seen very early before much tissue is involved. I have never been successful with this treatment.

The bacterin treatment may be tried. Personally, this treatment in my hands has been eminently unsatisfactory.

### Therapeutic Notes.

**Local Use of Ether in General Peritonitis.**—Patel, in *Lyon médical* for October 26, 1913, reports the case of a woman fifty-seven years of age, seriously ill with general peritonitis apparently of appendicular origin, in whom incision (thirty-eight hours after the onset of peritoneal symptoms) revealed a normal appendix but perforation of the ileum about ten inches from the ileocecal valve. Fluid with a fecal odor welled up from all parts of the peritoneal cavity and there were no adhesions. The perforated loop of gut was brought up, after drying the peritoneum as thoroughly as practicable, 150 to 200 c. c. (five to six and one half ounces) of ether poured into the abdomen, and the incision partly closed, leaving the perforated loop outside the wound. Within a few hours a remarkable degree of improvement was noted, the patient feeling well and color returning to her skin. One pint of saline solution was the only additional measure instituted. Eleven days later, the patient being in good condition, unilateral exclusion of the ileum was performed, with ileosigmoidostomy, to be followed later by excision of the involved gut. The author considers the perforation in this case

to have been of tuberculous origin. While direct drainage of the gut undoubtedly proved beneficial, Patel believes the ether to have been responsible for the surprisingly prompt and marked improvement in the patient's condition. In two cases of less extensive peritonitis—one in a young patient with double pyosalpinx and pus up to the level of the umbilicus, and the other in a woman of sixty, with malignant ovarian tumor—pouring 150 c. c. (five ounces) of ether into the peritoneal cavity produced a striking tonic effect. In each of the three cases the pulse frequency increased for five to ten minutes after the introduction of the ether; then the pulse became slower and of good volume. The postanesthetic period of sleep was prolonged about two hours by the measure, and at the moment of awakening the tonic influence of the ether became clearly manifest, continuing, moreover, on the succeeding days. The ether flows rapidly in all directions when introduced into the peritoneum, and its antiseptic effect is evidently exerted over a wide area—much better than with camphorated oil. Ether poured into the abdomen of unanesthetized patients was found not to cause pain; as usual, the pulse frequency increased for a few minutes, then rapidly improved. The contact of ether with the intestine causes it to redden and contract. In short, further trial of ether in grave peritonitis seems desirable.

**Treatment of Pruritus ani.**—Jerome Wagner, in the *International Journal of Surgery* for March, 1913, warns that in patients complaining of itching about the anus one should not rest content with prescribing, but should examine the part, look into the rectum, and likewise ascertain if any constitutional derangement is present. Limitation of the diet will often relieve a previously most persistent pruritus.

As proctitis is nearly always associated, cleansing irrigations are indicated. A two per cent. hydrogen dioxide solution is excellent for this purpose. From two to four quarts should be used morning and night.

To procure temporary relief from the itching, local applications containing calamine or tar are very efficient. One may prescribe, for example:

R Calamine, ..... )  
 Zinci oxidi, ..... āā 3i (4 grammes);  
 Glycerini, ..... )  
 Liqueoris calcis, q. s. ad..... 3i (30 grammes)

Fiat lotio.

If the perineal skin is moist, a warm sitz bath, followed by a dusting with:

R Zinci oxidi, ..... )  
 Hydrargyri chloridi mitis, ..... āā 3ii (8 grammes).  
 Amyli, ..... )  
 Fiat pulvis.

will afford relief.

Pediculi and pinworms should not be overlooked as possible causes of pruritus. The former can be overcome with mercurial ointments; the latter, by injections of lime water or of:

R Quassia, ..... 3i (30 grammes);  
 Aqua, ..... Oi (500 c. c.).  
 Bulliat, Fiat injectio.

In cases of anal pruritus of marked chronicity and severity, radical operation alone permits of relief.

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CAUTERIZATION IN THE TREATMENT  
OF INOPERABLE UTERINE CANCER.

Early diagnosis of uterine cancer is, obviously, of major importance to enhance the chances of operative and permanent recovery. Unfortunately, inoperable cases constitute the larger group, owing either to delay on the part of the patient to apply for treatment or to tardy recognition of the true nature of the disease. That this large proportion of cases is not to be ignored, however, is self evident; indeed, our resources having for their purpose to delay the development of the growth are steadily increasing, and a few methods are so useful in this direction that at times they initiate convalescence or at least restore previously doomed patients to the operative field. Even advanced cases of inoperable uterine cancer are susceptible of temporary improvement, as illustrated by the results of extensive cauterization of the cancerous mass noted by many surgeons. In a clinical study of this important question, Howard A. Kelly and J. Craig Neel (*Johns Hopkins Hospital Bulletin*, December, 1913) emphasize the value of such a procedure.

Decreased mobility of the diseased cervix is

generally considered the most important factor in determining whether or not the extensive operation required in these cases is advisable. But Kundrat showed, ten years ago, that the induration could be due to a secondary inflammatory process rather than to carcinomatous infiltration. Again, decreased cervical mobility may be due to extension of the growth to both broad ligaments; to infection of the carcinomatous mass through the presence of inflammation in these ligaments or of an extensive pelvic peritonitis involving them. To determine just when a cervical cancer is actually inoperable, therefore, is often very difficult without an exploratory operation. This procedure enabled Aulhorn to redeem forty-two cases out of 221 apparently inoperable ones.

Kelly and Neel summarize their clinical study of the subject as follows: The extensive radical abdominal operation offers the greatest hope of absolute cure in patients suffering from carcinoma of the cervix of the uterus. The percentage of operability has gradually increased with the adoption of the radical abdominal operation. An exploratory operation is occasionally necessary to determine whether or not the radical operation is to be attempted. Immobility of the cervix is not an infallible sign in determining whether or not a case is operable.

As to the use of the cautery, they conclude that in advanced cases of carcinoma of the cervix a preliminary curettage and cauterization is advisable, for the following reasons: A large portion of the friable new growth may be removed through the vagina. The curettage and cauterization constitute an important procedure in the disinfection of the vaginal field. The induration in the broad ligaments, due to secondary inflammatory reaction, may be relieved, causing the new growth to become circumscribed and rendering mobile a cervix previously immobile.

## ONE PROBLEM IN GYNECOLOGY.

It has become a truism that each case of disease presents an individual problem, a prominent factor in the symptom complex being the patient's self. While the practitioner may be armed with the most precise information from the laboratory and have gained a perfect concept of the physical conditions present by thorough and competent use of his eyes, ears, and fingers, there still remains, particularly if the physician is a gynecologist, the most disturbing and baffling equation of the whole calculation—the individual woman. The higher in the social scale she is, the more elusive is her personality. There



sits before the physician in many instances an embodiment of twenty to forty years of an education of dubious value, accomplishments, flattery, luxury, undisciplined emotion, and, usually, an overwhelming egotism and conviction that on earth there is no other woman who has her particular problems and sorrows. There is a wild desire to be understood, to be adequately appreciated, a hint that even the husband has not grasped the depths of her uncommon nature; a terrible loneliness is felt in the midst of a deceitful and unsympathizing world. Properly to meet such a problem would demand in the medical adviser the strength of Hercules, the wisdom of Æsculapius, and an aloofness from female charm that was never manifested by any of the heathen gods.

A flexed or diverted uterus may be straightened up, an ovary removed, weak trunk muscles massaged into competence, periodical distress alleviated, soothing nervines exhibited, stern advice given as to habits, diet, and hours, a glimpse of a dangerous sympathy permitted, and, withal, the problem left exactly *in statu quo ante*. The temporary cloistering proposed by Weir Mitchell may, indeed, relieve the disturbed mentality; but the old environment is shortly reentered with prompt relapse. It is not uncommon for the husband of one of these spoiled daughters of fortune to pay a visit to his wife's physician and promise princely rewards for the restoration of a once endurable temper. After the too frequent removal of every detachable organ, the lady has been advised to seek a change of scene, to consult a specialist many thousands of miles away, and this measure has brought temporary peace.

With these patients it used to be impossible to accomplish much in the way of relief. As Holmes advised in other circumstances, we should begin with the grandparents. The real, underlying cause of trouble is idleness, the want of an object toward which the energies may be directed. If the maternal and domestic instinct is lacking, as it often is, broadly but scientifically planned charity is sometimes advised. The result is too often the creation of a new group of pseudopaupers, or the disgruntled comments of self respecting working people; in either case quick disillusion and renewed dissatisfaction. Steady work is possible to only a few choice spirits where the necessity for remuneration is lacking. The ideals held up to our extremely wealthy young women seem to be wrong. Women who are to inherit vast wealth, or even modest independence, should be educated for the responsibilities thereby involved. The greatest of these is service to the unfortunate. Planning to spend vast sums wisely is work under our present social system worthy of the best minds,

and solving the problems presented in organized charity would be almost a panacea for purely functional disturbances of the human female economy.

### THE DIAGNOSIS OF RABIES.

How far is the parasitic theory suited to the right diagnosis and classification of the cell inclusions of Ammon's horn called the Negri bodies? The old problem is taken up by Dr. Lina Negri-Luzzani in a striking article contributed to *Pathologica*, v., p. 253, 1913. The subject is clearly defined in the title, the diagnosis of rabies with the demonstration of the specific parasite. The specific parasite, in a word, is the Negri body, and the paper frankly sets out to justify this proposition.

Accordingly, Doctor Luzzani deals with a specific parasite, or at least with specific forms, concerning herself mainly with the question, how far ultimate authority for this belief should depend upon the morphology of the Negri bodies and the frequency with which they are found in rabid animals. The best specimens, fully developed, are seen in Ammon's horn, but smaller types occur in the cortex, the medulla, and spinal ganglia, even the Gasserian ganglion. In a series of 1,650 animals, Doctor Luzzani found them in 1,605. This corresponds to the world estimation of these bodies. They are essential to the diagnosis of rabies. But what is to be made of the eosinophile granules, of spherical form, occurring in the protoplasm of the nerve cells? These are found in other diseases, in tetanus, in pyocyaneus poisoning, in poisoning with snake venom and arsenic. Whatever experts may ultimately decide with still fuller knowledge, it is clear that these granules are highly significant; but their parasitic nature, if they have any, appears to be unsettled.

Thus on the main question the article is decisive. The Negri bodies are certainly diagnostic, and the tone and balance of the paper insist strongly on their parasitic nature. It brings the subject to the centre of all that interests most in the characters of these bodies, especially the side which so nearly concerns their possible protozoan origin. The points that strike us most about them—why they are found equally in all animals that can become rabid, why the furious form furnishes the most perfect specimens in Ammon's horn, why they are different in different species, and in fixed and street virus infection—require to be answered on a plan which may be called physiological if not ontological. The alternative is strongly presented: "Are the Negri bodies the expression of a stage of evolution of a living existence (*essere vivente*), or do they represent a reaction of the nerve cell to a hypo-

thetical parasite within themselves, or again a reaction of the nerve cell to the rabic virus? In any case they constitute a specific existence." We may freely confess that the parasitic nature of the Negri bodies is not more remarkable than the uniformity with which they occur in rabies. If they are not parasites, or related to parasites, what are they? Opinion tends to connect them with the parasitic class.

### THE INTRAMUSCULAR INJECTION OF SALVARSAN AND NEOSALVARSAN.

Unquestionably in this country, and probably also abroad, the method of choice for the administration of both salvarsan and neosalvarsan, and the one in general use, is that by intravenous injection. Among the chief objections which have been found to intramuscular injection is its painfulness; Dr. W. S. Gottheil, in a paper published in this JOURNAL for June 7, 1913, asserts that it is not only less desirable, but less effective than the intravenous route. Last winter, at a meeting of the Medical Association of the Greater City of New York, Dr. A. L. Wolbarst stated that in a conversation which he had had some months previously with Professor Ehrlich, the latter had expressed the view that if a painless plan for performing it could be devised, intramuscular injection would eventually become the only method used for the administration of salvarsan and neosalvarsan. He (Doctor Wolbarst) then went on to describe the efforts he had made in this direction, and said that these had proved successful to the extent that from seventy to ninety per cent. of the injections were comparatively painless.

On the other hand, Dr. H. E. Robertson, associate professor of pathology in the School of Medicine, University of Minnesota, as the result of the observations of K. Martius, Busche, Wise, Swift, and Tomaszewski, and of two series of experimental investigations on animals by himself, together with two cases in human beings which came to necropsy, arrives at the conclusion (*Journal of the American Medical Association*, November 8, 1913) that the intramuscular injection is certainly, in the majority of instances, an unjustifiable procedure. His own work, he states, was carried on for the purpose of making intensive studies of the peculiar type of necrosis noted by others and of observing, 1, the effects of salvarsan, on the muscles of animals compared with its effects on the muscles of human beings; 2, the effects of salvarsan compared with those of neosalvarsan; and, 3, the effects of both these drugs compared with those produced by deep in-

jections of the mercurial preparations more commonly employed in the treatment of syphilis. The animals made use of in his experiments were dogs, and in the first series, of thirty animals, salvarsan and neosalvarsan were given intramuscularly. Among the results observed in these cases were the following: The lesion consisted of hemorrhage and necrosis, with edema which developed almost immediately after the injection; leucocytes early invaded the tissue and tended to form a zone around the necrotic area; there was no appreciable difference between the severity of the lesions appearing after the injection of salvarsan and of neosalvarsan; no changes in the general health of the animal could be observed, and there was no evidence of any marked tenderness at the site of the injections. In the second series, of twelve animals, mercurials were employed by intramuscular injection, and the reaction was similar, at least in its early stages, to that obtained with the arsenical drugs, although the results did not appear to be so severe. Robertson bases his conclusion as to the unjustifiability of the intramuscular injection of salvarsan and neosalvarsan, as well as of mercurials, on the facts observed by him that all these drugs, administered in this way, uniformly produce destructive lesions which always heal slowly and are often complicated by hemorrhages and sloughing abscesses, while salvarsan invariably leaves an insoluble pigment which acts as a foreign body. Many syphilographers, however, who prefer the intravenous method for salvarsan, are constantly giving full doses of mercury by intramuscular injection, and apparently do not meet with the deleterious results which Robertson describes.

### SPIROCHÆTA PALLIDA IN LATE SYPHILIS.

Since the discovery of the spirochete in the gray substance in general paralysis and in tabes, another curious question has arisen, How often is the parasite to be found in other instances of late syphilis—of the heart, vessels, liver, kidneys, spleen, and glands? According to Chieffi, in *Giornale internazionale delle scienze mediche* for November 30, 1913, its presence could not be traced in the very numerous specimens which he examined. He measures the difficulty of the task, when he was unable to find genuine spirochetes in cases of general paralysis, and even in syphilis of the arteries, liver, and spleen. In strong contrast is the frequency of finds in congenital syphilis. While he casts no doubt on the positive results of other authors, it does not follow so conclusively as some suppose that *Spirochæta pallida* is always to be found in the organs of late syphilis. He found it in none, though he used smears stained by Levaditi's and Giemsa's methods.

## News Items.

**Smallpox in Niagara Falls.**—Acting Assistant Surgeon Bingham, of the United States Public Health Service, stationed at Niagara Falls, N. Y., reported eleven cases of smallpox in that city during the week ending December 13, 1913.

**Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.**—Thursday, January 1st, Obstetrical Society; Friday, January 2d, Kensington and Southeast Branches of the Philadelphia County Society.

**Philadelphia County Medical Society.**—The Kensington Branch of this society has elected the following officers to serve for the year 1914: Vice-president, Dr. Edwin B. Miller; chairman, Dr. William Dempsey; clerk, Dr. Harvey W. Goos; chairman of committee on programme, Dr. John F. Roderer.

**Genitourinary Clinics at the West Side German Hospital.**—Dr. Abr. L. Wolbarsht will hold a genitourinary clinic on Thursday evenings at 8:30 o'clock, from January to May, inclusive, at the West Side German Dispensary and Hospital (New York School of Clinical Medicine). These clinics will be free to physicians.

**Tri-State Medical Society.**—At the tenth annual meeting of the Tri-State Medical Society of Arkansas, Louisiana, and Texas, held in Texarkana, Texas, on Tuesday and Wednesday, December 9th and 10th, Dr. Preston Hunt, of Texarkana, was elected president for the ensuing year. Dr. J. B. Runyan, of Little Rock, was elected vice-president for Arkansas; Dr. J. E. Kingston, of Shreveport, for Louisiana, and Dr. Thomas J. Allison, of Redwater, for Texas. Dr. J. M. Bodenheimer, of Shreveport, was reelected for the sixth time as secretary.

**Personal.**—It is reported that Dr. Livingston Farrand, professor of anthropology at Columbia University, has accepted the presidency of the University of Colorado.

Dr. J. H. Comstock, professor of entomology at Cornell University, will retire at the end of the present academic year.

The Nobel prizes in physics and chemistry have been awarded to Professor H. K. Onnes, of the University of London, and Professor Alfred Werner, of the University of Zurich, respectively.

**North Texas Medical Association.**—The sixty-eighth semiannual meeting of this association was held in Fort Worth on Tuesday and Wednesday, December 9th and 10th, under the presidency of Dr. M. E. Taber, of Dallas. Dr. K. H. Beall, of Fort Worth, was elected president to serve for the ensuing year, and Dr. J. D. Burt, of Farmersville, vice-president. Dr. H. Leslie Moore, of Dallas, was reelected secretary, and Dr. Willard Fisk, of Lancaster, treasurer. The next semiannual meeting of the association will be held in Gainesville.

**Trichinosis to Be Reported.**—At a meeting of the Department of Health of the City of New York, held on December 9th, the following resolution was adopted:

WHEREAS, Trichinosis, a very painful disease occasionally followed by death, is caused by eating meat, especially pork, which has been invaded by *Trichinella spiralis* and has not been sufficiently cooked to destroy this worm, which causes trichinosis, therefore be it

*Resolved*, That the department of health requires all physicians to report cases of human trichinosis.

**To Regulate the Work of Dispensaries.**—At a recent meeting of the Kings County Medical Society recommendations were adopted for the regulation of the work of dispensaries. These institutions should be operated exclusively for the benefit of the poor who are unable to pay for advice and medicine, and it was suggested that the practice of exacting a small fee for medicine should be abolished. The society also recommended that the borough should be divided into districts and that prospective patients should be compelled to call at the dispensary in the district in which they live, exceptions to be made in special cases. An important recommendation adopted by the society commends the discontinuance of the practice by which certain physicians have a monopoly in constituting the medical and surgical staffs of these institutions. The idea of the society is to give all physicians an opportunity to practise in these institutions, so they may extend their knowledge in medicine and surgery. All these recommendations by the medical society have the indorsement of the State Board of Charities.

**Medical Society of the County of Kings, N. Y.**—At the ninety-third annual meeting of this society, held on Tuesday evening, December 16th, Dr. J. Richard Kevin was unanimously elected president. The other officers elected were: Vice-president, Dr. Russell S. Fowler; secretary, Dr. Burton Harris; associate secretary, Dr. Charles E. Scofield; treasurer, Dr. Stephen H. Lutz; associate treasurer, Dr. Robert L. Moorhead; directing librarian, Dr. Frederick Tilney; trustee, Dr. James M. Winfield.

**Richmond, Va., Academy of Medicine and Surgery.**—Dr. Charles V. Carrington was elected president of this organization, at the annual meeting held on the evening of December 9th. Other officers were elected as follows: First vice-president, Dr. Greer Baughman; second vice-president, Dr. Thomas W. Murrell; third vice-president, Dr. J. Fulmer Bright; secretary for the twenty-first year, Dr. Mark W. Peyser; assistant secretary, Dr. E. H. Terrell; treasurer, Dr. W. A. Shepherd; librarian, Dr. G. Paul LaRoque; judiciary committee, Dr. Clifton M. Miller, Dr. Moses D. Hoge, Dr. H. H. Levy, Dr. McGuire Newton, Dr. Robert C. Bryan, and Dr. A. L. Gray. Dr. Charles L. Brock was elected to membership.

**Seaboard Medical Society of Virginia and North Carolina.**—At the closing session of the eighteenth annual convention of this society, held in Norfolk, Va., on Thursday, December 11th, the following officers were elected to serve for the ensuing year: President, Dr. J. R. Parker, of Goldsboro, N. C.; first vice-president, Dr. G. K. Vanderslice, of Phoebus, Va.; second vice-president, Dr. C. E. Griffin, of Winton, N. C.; third vice-president, Dr. R. E. Whitehead, of Kempniss, Va.; fourth vice-president, Dr. W. J. Harrell, of Aulander, N. C.; secretary, Dr. Clarence Porter Jones, of Newport News; treasurer, Dr. George A. Caton, of New Bern, N. C.; orator, Dr. James H. Culpepper, of Norfolk. Next year's meeting will be held in Goldsboro, N. C.

**Gifts and Bequests to Hospitals.**—By the will of Mrs. Emma Marcy Raymond, daughter of the late Dr. E. E. Marcy, the Hahnemann Hospital, New York, will receive, on the death of the life beneficiaries of the income, the proceeds from the sale of property valued at about \$500,000.

The Philadelphia Home for Incurables, Woodland Avenue and Forty-eighth Street, has received \$7,500 for maintenance of a free bed in the cancer annex.

The will of the late Mary H. Russell contains bequests of \$5,000 to the Germantown Hospital and \$60,000 to the Children's Homeopathic Hospital.

Under the will of the late Mrs. Jane McKee Norris the Presbyterian Hospital, of Philadelphia, will receive the sum of \$55,000 for various purposes.

A contingent bequest of \$1,000 to the German Hospital, of Philadelphia, is contained in the will of the late Otto Backmeister.

All except \$73,000 of the \$400,000 estate of Katherine Allen, of Worcester, Mass., is disposed of in public bequests. Worcester Polytechnic Institute and Memorial Hospital are named as residuary legatees and will receive about \$100,000 each.

**Hermann Knapp Memorial Eye Hospital Formally Opened.**—The new building of this hospital, at Fifty-seventh Street and Tenth Avenue, New York, was formally opened on Saturday, December 13th. The institution was founded in 1906 by the late Dr. Hermann Knapp under the name of the New York Ophthalmic and Aural Institute, at 44 and 46 East Twelfth Street. The inadequate facilities of the old hospital building, the passing of the locality into business with the erection of tall loft buildings, and the advance in hospital construction suggested the necessity of finding a new home for the institute in a part of New York further uptown, where a modern hospital could be erected. For this purpose Dr. Hermann Knapp succeeded in enlisting the generous interest of the trustees and other friends of the institute, and a building fund was collected through his personal appeal. The building is a seven story structure, completely equipped with the latest appliances for the treatment and teaching of diseases of the eye. The roof is adapted for a roof garden, which is an innovation for eye hospitals, but is a desirable addition to all hospitals in a large city. The medical staff consists of the following surgeons: Dr. Arnold Knapp, executive; Dr. H. H. Tyson, Dr. J. M. Mills, Dr. J. B. Lynch, Dr. O. Schirmer, Dr. E. Torok, and twelve assistant surgeons and clinical assistants.



## Pith of Progressive Literature.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

October 7, 1913.

**Organ Specificity of the Proteolytic Splitting Ferments.**—A. Fuchs treated rabbits with intraperitoneal injections of organ extract and tested, after the lapse of a certain period, for the presence of specific splitting ferments (*Abwehrfermente*) in their blood. All tests proved an absolute organ specificity of the ferments. In one animal, after the injection of kidney substance, only kidney substance was split up, and after the injection of muscle only muscle was split up and no other tissue. There is no species specificity. The ferments attack the corresponding organ of the most diverse animal species in equal degree.

**Intravenous Melubrin Therapy.**—B. Hahn recommends the intravenous injection of a fifty per cent. solution of melubrin in patients with sensitive gastrointestinal tracts and in cases which are influenced with difficulty when the medicine is given by mouth. When 2.5 to three gm. of this solution is given intravenously three times daily, an intensive and direct influence can be exerted on the causative factors of the disease. The yellow color which the preparation assumes after its solution and sterilization is of no consequence. No disintegration occurs, nor is the therapeutic value of the preparation in any way diminished.

**Action of Uzara and Opium.**—O. Hirz says the basic principle of uzaron action is an inhibition of motor acts in the organs having unstripped muscle tissue (intestine, stomach, bladder, and uterus). It is brought about by a stimulation of the inhibitory sympathetic fibres. The action of uzaron is, on the whole, more lasting than that of the easily decomposed adrenalin and the easily soluble salts of the opium alkaloids. The point of attack for the opium lies in its action on the autonomic nerve endings and in the musculature itself. The action is a paralytic one. The pharmacodynamic advantage of one physiological function (a sympathetic inhibitory action) of uzaron is thus seen. To this must be added the tonic action of the uzaron on the heart and vessels, particularly in the splanchnic area, in contradistinction to the disturbing narcotic properties of opium and its derivatives.

**Therapy of Pernicious Anemia.**—Windesheim obtained a most gratifying result in a case of pernicious anemia by repeated intraglutal injections of ten c.c. of fresh warm human blood taken from the basilic vein. The technic is simpler than the one recently recommended by Weber.

**Regeneration of Axis Cylinders in Vitro.**—R. Ingebrigsten gives, for the first time, proof that nerves grow out from small pieces of cerebellum of young cats and guineapigs if the latter are grown in plasma. The same phenomenon may be observed in cortex and spinal ganglion. The newly formed filaments do not anastomose, but grow isolated into the plasma without being accompanied by glia tissue. The conclusion may be drawn that in regenerative processes also in the body, axis cylinders

grow out of themselves without the aid of the surrounding tissue.

**Active Portion of Beck's Bismuth Paste.**—F. Rost says that the active, namely, the stimulative connective tissue substance, in Beck's paste is not the bismuth but the vaseline. Therefore the not altogether nonpoisonous bismuth may be omitted without compromising the efficacy of the paste.

**Influencing Abnormal Leucocyte Counts by a New Method.**—O. Veraguth and R. Seydewitz were able to change the pathological blood picture in leucemia, morbus maculosus Werlhoffii in a favorable manner by certain definite changeable applications of a weak current. Since this electric influence seems to possess a selective destructive action on pathogenic blood cells, it may be assumed that a similar influence is exerted on other cells, whose presence in the organism is equivalent to disease, by a weak electrical current.

**Examination of the Sugar of the Blood in Chronic Nephritis.**—L. Borchardt and W. Bennington state that in the chronic nephritides not complicated by fever or uremia, a slight grade of hyperglycemia is present in all cases where sodium chloride, that is nitrogen, is retained by diseased kidneys. *Vice versa*, excretion of the sugar of the blood is normal in normal sodium chloride and nitrogen excretion. Sodium chloride retention and hyperglycemia have one common cause; both are conditioned by increasing resorption of sodium chloride, more specifically by grape sugar in the urinary tubules.

October 21, 1913.

**Abderhalden's Seroreaction in Epileptics.**—O. Binswanger finds that in fully developed epileptics with paroxysms, the serum regularly contains protective ferments (*Abwehrfermente*) against cortical substance; thus there is a possibility of differentiating epileptic from hysterical fits by serodiagnosis. If the protective ferments are absent in the periods intervening between the attacks, then it may be assumed that a progressive anatomical change has not yet taken place, and that no progressing mental deterioration is, for the time being, to be feared. A negative Abderhalden reaction between the periods may also be due to the circumstance that splitting up of the brain substance is overshadowed by splitting up processes in other parts of the body. Epileptic equivalents, dream states, have not thus far shown splitting up ferments.

**Meningitis saturnina.**—E. Plate reports the case of a man who had previously suffered from lead colic, but who had for years not handled lead products. The patient began to complain of increasing headaches, stiffness in the muscles of the neck, slight clouding of consciousness; later he had vomiting and fever. Lumbar puncture shows pressure of 440 mm. Hg. The fluid is rich in lymphocytes. The blood contains numerous basophile nucleated erythrocytes. After a severe attack of colic and nose bleed an improvement occurred with general regression of all the symptoms. The lumbar pressure remained increased for some time, and the spinal fluid did not lose its lymphocytes.

**Treatment of Fracture of the Forearm with Pegs.**—G. Schöne says that for individual cases of old forearm fractures which require a tight and

reliable peg, the author recommends the following procedure: Narcosis, exposing the points of fracture, refreshing the fractured parts, and removing the callous mass infringing upon the marrow cavity; a longitudinal incision four cm. long over the extensor surfaces of the radius immediately above the wrist joint; exposure of the bone, a trephine opening over the marrow cavity; introduction of a flexible silver rod by means of a forceps against the point of fracture and beyond this in the marrow cavity of the proximal fragments; by hammering, the rod is pushed out as far as possible and then the point of fracture is controlled by proper position of the fragments; closure of the wound; repetition of similar technic on the ulna, with one difference, namely, that the boring is made at the proximal end.

**Treatment of Abdominal Wall and Muscular Pelvic Floor in Puerperal Women by the Bergonié Technic.**—Brommer reports that with the Bergonié high frequency current it is possible to strengthen the relaxed abdominal wall of the parturient woman. Much significance is placed on the strengthening of the levators, whose stretching plays such an important role in the production of prolapse. The apparatus was successfully applied after laparotomies, also in obesity. Further, the muscle atrophies due to inactivity following fractures are satisfactorily stimulated by these rhythmic contractions.

**Disturbances in Heart Conductivity in the Course of Salvarsan Treatment in Late Secondary Lues.**—H. Fuchs reports the case of a man with secondary syphilis, but clinically normal heart, who had received within four weeks 2.3 grams salvarsan intramuscularly and intravenously, in whom developed after the last injection of 0.6 gram salvarsan the signs of a typical heart block, bradycardia, dissociation of the heart action, differences in frequency between the radial and jugular pulse. These symptoms subside in a week under the influence of continued, mild antilutetic treatment. The author supposes that after the last injection the localized nests of spirochetes in the bundle of His were attacked and destroyed. This destruction freed the endotoxins and injured the weakened muscle fibres.

October 28, 1913.

**Body Accompaniments of Psychic Changes, with Special Consideration of Psychogalvanic Reflex Phenomenon.**—J. Leva proves with the plethysmograph that psychic changes produce body changes. It is sufficient for a thought of motion to produce in the organ volumetric changes. These variations depend, in all probability, on changes in blood distribution (blood displacement). A further body manifestation of psychical changes is the increase in the strength of the electric current passing through the body while a thought is being generated (so called psychogalvanic reflex). This phenomenon is strongest when the electrodes are placed on portions of skin rich in sweat glands. Since atropine causes the psychogalvanic reflexes to disappear, it may easily be supposed that the phenomenon bears a causal relation to the activity of the sweat glands. The important fact is thus established that our sweat glands are also functioning,

even when no results of their activity are evident.

**Simple and Inexpensive Fermentative Saccharometer.**—W. Reusch describes an apparatus, a modification of the Lohnstein's fermentation saccharometer, distinguished by stability, simplicity of construction, and inexpensiveness.

**Ambulatory Tuberculin Treatment.**—J. Hartmann answers the objections of E. Hartmann, and asserts that he has seen a number of permanent cures result from the ambulatory treatment with tuberculin. The physiocodietetic institutional treatment is the best in this disease when carried out for a long period of time; many patients, however, can not interrupt their work for this length of time, and for such cases the ambulatory treatment with tuberculin is very desirable.

#### FOLIA UROLOGICA.

August, 1913.

**Bilharziosis.**—G. Ekhnor reports a case which gave as a chief symptom terminal hematuria. The patient had been sick for six years, and died of an infectious pyelonephritis. The cystoscopic examination showed a characteristic picture. The top of the bladder was covered with pale gray villousities which resembled fur.

**Supernumerary Kidneys.**—F. Suter has collected from the literature seventeen cases of supernumerary kidneys, and adds two of his own; one of these was diagnosed before operation. The diagnosis is made by the occurrence of an extraureteral orifice and ureter. The ureter of the upper kidney opens into the bladder near the median line, and, therefore, nearer the urethra than the ureter of the lower kidney. These kidneys occur with equal frequency in men and women, and the supernumerary kidney is found as often above as below. They generally become hydronephrotic. In but three of the nineteen cases was the diagnosis made before operation.

September, 1913.

**Cystophotography.**—B. Klose has had Lowenstein, of Berlin, manufacture a cystoscope with which instantaneous photographs of the bladder may be made. The size of the cystoscope is 23 F. The pictures which he has taken of normal and pathological conditions are marvelous. As far as we know, no other such photographs of the bladder have ever been taken.

**Spontaneous Fracture of Vesical Calculus.**—H. Bastos describes a case in which a patient passed spontaneously many portions of an evidently fractured calculus. The case was operated in and many more fragments were removed. It is believed that the fracture is caused by some physicochemical changes within the stone and not by bladder contractions, or by bacteria. Spontaneous fractures are extremely rare and occur about once in ten thousand cases.

#### PARIS MÉDICAL

November 29, 1913.

**Value of Moriz Weisz Reaction in Pulmonary Tuberculosis.**—Tecon and Aimard studied the reaction for urochromogen in the urine in 225 cases of lung tuberculosis. The test is performed by adding three drops of a one in 1,000 solution of potas-

sium permanganate to urine diluted with two volumes of distilled water, the production of a golden yellow color indicating a positive reaction. Of forty-one cases with lung cavities in the authors' series only nineteen yielded a positive result, while other authors have reported 100 per cent. of positive results in such cases. This difference may have been due, 1, to the well known influence of altitude on secondary infections, the authors' tests having been made at Leysin, Switzerland; 2, to the fact that sanatorium, and not ordinary hospital patients, were under examination. The Ehrlich diazo reaction was conducted as a parallel test in the entire series. The authors conclude that the Weisz test is superior to the Ehrlich, being simpler and more sensitive. It is, however, uneven in its results, which is not surprising, since the underlying factors are as yet largely unknown. It is never positive in the first stage of tuberculosis, and the information it yields is no greater than that afforded by clinical examination. Often its occurrence is not related to the gravity of the cases tested. Only frequently repeated positive results appear to be of value. The fact that a positive reaction is reported to have occurred in the urine of normal persons deprives the test of much of its value.

#### Syphilitic Reinfection and Chancriform Lesions.

—G. Milian states that the term reinfection should be applied only where syphilis recurs with the identical features present in the original infection, viz., history of exposure, incubation period of fifteen to thirty days, typical chancre with glandular enlargement, and secondaries developing at least forty-five days after the appearance of the chancre. There exist chancriform secondary and tertiary lesions, which must not be confounded with the chancre of true reinfection. Distinction is made by the absence of related glandular swelling in the former instances and by the usual presence of other signs of the corresponding period, e. g., headache, insomnia, multiple glandular enlargements, buccal lesions, etc. The recent increase in the frequency of reinfections is due both to closer study of the disease and the fact that more powerful means of treatment are available.

#### PRESSE MÉDICALE.

November 22, 1913.

**Coxa vara.**—A. Broca asserts that relief of weight bearing upon the involved femur is the only rational procedure in coxa vara. The patient should be kept in bed, with the limb in continuous extension in the abducted position. This will not only promptly and completely relieve the pain, but may slightly open out the abnormally reduced angle between the femoral neck and shaft. When after a few months of rest, the upright posture is resumed, the abductor muscles should be strengthened by massage, gymnastic exercises, and if necessary, faradic stimulation. As the morbid condition almost always comes to a standstill at the termination of the period of growth, it is best to defer operative treatment, if such should be required, until this time, when the abnormal malleability of the bone has disappeared. The best surgical procedure is a

subtrochanteric osteotomy, transverse or oblique, according as there is slight or pronounced shortening.

**Coagulation of Cerebrospinal Fluid in Tuberculous Meningitis.**—R. Debré and J. Paraf report a case of meningitis, ending fatally in thirty days, in which the fluid removed by lumbar puncture on seven successive occasions underwent prompt coagulation *in vitro*. A large number of both red and white blood cells were found in it, and its color was yellow, with greenish fluorescence. Interest was lent the case by the fact that the tubercle bacillus was detected in the fluid and inoculation of a guinea pig gave a positive result. The symptoms for the most part were those of tuberculous meningitis, though the violence of the headache, marked rigidity and fever at first suggested a nontuberculous meningeal infection.

**Superheated Air in the Treatment of Suppurating Wounds.**—H. Roziès points out that hot air is in the first place bactericidal, destroying both aerobes and anaerobes, and after this effect has been exerted, promotes healing, with the production of pink colored, smooth, pliable and painless scars comparable only with those furnished by radium. After referring to the good results already reported from the projection of a stream of heated air upon varicose, tuberculous, and syphilitic ulcerations, mycoses, gangrene, burns, chancroids, and superficial cancerous lesions, he mentions two cases with superficial contused wounds, two of wounds with an open fracture, and ten of operative wounds in which the usual dressings and cauterization had failed to cause healing, where the hot air treatment gave excellent results. The applications were given usually on alternate days—daily in a few particularly rebellious cases—for ten to fifteen minutes, and were followed by covering of the wounds with a dry dressing, iodine tincture being painted around in a peripheral zone. The temperature of the air used was always 100° to 200°C. at the outlet from the apparatus and 50° to 70° at the skin level. No untoward local or general effects were noted except in one case, where a second degree burn resulted, later healing rapidly. In eight cases complete healing with excellent cicatrices was observed, while in the others there was marked improvement, indicating that entire healing would have followed in a few days if the patients had not hurried off from the hospital. The membrane of cicatrization developed with great rapidity under the hot air. A contused wound of the leg measuring five by ten cm. healed completely after three treatments.

#### BRITISH MEDICAL JOURNAL.

December 6, 1913.

**The Large Intestine and Its Work.**—Joseph Griffiths traces the development and function of the large intestine from the lower animals to man, and comes to the conclusion that we derive something from the process of absorption which goes on there which is essential to the feeling of complete well being. What this substance is, is not yet known; it is present in very small quantities apparently, and is probably absorbed from the intestine lying between the cecum and the sigmoid. The large in-



testine is so constructed anatomically as to provide a mechanism for the delay of the expulsion of the intestinal contents, to secure their perfect mixing, and to provide for the absorption of fluid. It is possible, also, that there is considerable nutritive matter absorbed from the large intestine; matter, the digestion of which is accomplished, at least in part, by the action of the bacteria which flourish in this portion of the intestine. The large intestine also provides an adequate mechanism for the transit and expulsion of fecal matter. As this loses its water through absorption, it is passed along the canal into a region which contains mucus glands to provide the necessary lubricant for the ever hardening masses. With the onward progression of the fecal mass there is an increasing production of mucus, so that normally there is no lack of lubricant. A delay in the transit of the intestinal contents along the large intestine is associated with well recognized symptoms, depending in their severity upon the degree of decomposition which the food undergoes, and the extent of the absorption of noxious products. In addition there is a resultant increase in the amount of fluid resorbed into the body tissues. This excess of fluid is, therefore, an indication of stasis in the large intestine, and accompanies or precedes the symptoms of autointoxication. The tongue is so constructed as to contain a great relative amount of loose areolar tissue. The excess of fluid in the tissues of the body is most readily observed in the tongue, which, in this condition, becomes enlarged and shows the indentations of the teeth. The author does not agree with Metchnikoff, or Lane, and their followers, that there is no good in the large intestine, but, on the contrary, holds that its functions are of great value in the maintenance of a feeling of being "in the best of health and spirits."

**Traumatic Intramuscular Ossification.**—John Morely finds that the ossification in the muscle is always due to the migration into it of free osteoblasts, which have been dislodged by traumatism and rupture of the periosteum. The presence of a blood clot in the region between the injured periosteum and the contused muscle greatly increases the probability of a subsequent ossification occurring in the muscle. Morley's conclusions are: 1. Traumatic intramuscular ossification, or myositis ossificans, is due to migration of osteoblasts into adjacent contused muscle and blood clot, after destruction of the periosteum and loss of its function as a limiting membrane to the growth of bone. It is essentially the same process as callus formation. 2. The condition may be produced experimentally in animals by reproducing to same mechanical conditions by an aseptic open operation. 3. In a case of difficulty in diagnosis from sarcoma open exploration is advisable. 4. Simple excision is usually, though not invariably, followed by recurrence. 5. Conservative treatment condemns the patient to long periods of disability, which may occasionally be permanent. 6. Excision combined with grafting of deep fascia on to the denuded surface of bone gives the best prospect of rapid and complete recovery, and is urged for all cases not complicated by ossifying peri-arthritis. 7. Osteoblasts and chondroblasts are the

same cells under different conditions of nutrition.

**The Daily Weight Chart as a Guide to Tuberculin.**—H. Warren Crowe weighs his patients daily, at the same hour, in the same clothes, and under conditions as nearly constant as possible. The curves of weight show several forms, which are found to follow closely the curves of the opsonic indices in the same patients, the parallelism, however, being absent where slight changes in the opsonic index are concerned. These weight curves also follow closely the changes in the subjective symptoms of well being or the reverse. If the weight curve shows a fall after a dose of tuberculin, it is an indication of a marked negative phase, and that the dose used was too large. A constantly increasing weight calls for an increase in the dose of tuberculin, and is indicative of a favorable response. The variations in weight from day to day are not matters of a few ounces only, but are often as great as two pounds. The method is easy, delicate and accurate.

**Bacteriology of the Mouth in Maori Children.**—H. P. Pickerill and S. T. Champaloup studied the organisms present in the mouths of a number of Maori children who were apparently decidedly resistant to dental caries. They found that the organisms were quite as abundant both in variety and in numbers as is the case in the mouths of Europeans who are subject to dental caries. The numbers and types of organisms are, therefore, not at the bottom of the immunity of the Maoris to dental caries.

#### LANCET.

December 6, 1913.

#### Change in the Pelvis in a Case of Prepuberal Atrophy of the Testicles.

—H. Batty Shaw and R. H. Cooper found several interesting bony changes in their patient, a man twenty-four years of age, six feet three inches tall, and weighing only 106.5 pounds. The changes associated with puberty never developed, and his testicles remained small until the age of seventeen years, at which time they began to atrophy. In addition to a very boyish, high pitched voice and absence of pubic, axillary, and facial hair, interesting phenomena were found in the osseous system. His trunk measured twenty-two inches from the suprasternal notch to the symphysis pubis, a measurement exactly similar to that of a normal man; from the symphysis to the ground he measured forty-two inches, whereas the normal man measures only thirty-three and a fraction. His pelvis was of peculiar shape and dimensions; its external measurements here given are followed by the corresponding ones for a normal man, given in parentheses. Interspines, nine inches (nine); intercrystal ten and three quarter inches (eleven and one half); external conjugate, seven inches (seven and a half); between posterior superior spines, four inches (four); between the tuberosities of the ischia, three and a quarter inches (four). Röntgenograms of his pelvis showed the inlet to be markedly cordiform, the transverse diameter being to the anteroposterior as 57 is to 67. There was marked inward protrusion on each side at a point corresponding to the acetabulum. There was an exaggerated curvature of the dorsal spine, ex-

tending into the upper lumbar region, leading to a stoop, and not compensated for by any lumbar lordosis. Ossification in general was defective, there being no bony fusion at the epiphyseal junctions in some of the long bones, deficient union in others, and a marked general lack of density of bony tissue. The pituitary and thyroid glands were apparently not enlarged. The question of the relation of the bony changes to the absence of the testicles is problematical. The general features correspond closely to those found in prepuberal eunuchs, except for the peculiar form of the pelvis. This is possibly to be accounted for on the basis of a late and defective union of the several pelvic bones where they go to make up the acetabular cavity, and an inward protrusion of these due to weight.

**Causes of Disappointment Following Removal of Tonsils and Adenoids.**—William Wilson says that, in children suffering from adenoids, a mass of adenoid tissue will be found occupying the region just behind the Eustachian orifices and pressing more or less on the posterior portion of the Eustachian cartilage. This growth is not recognized and is not removed, so that deafness often remains, owing to the inability of the muscles to open the orifice of the Eustachian tubes against the resistance of this adenoid mass. This mass should be sought in every case and, if present, removed by using the smallest ring knife or Mackie's curette. Many failures also are due to neglect to examine the nose to determine the condition of the turbinates. Hypertrophy of the posterior portion of the inferior turbinates is very common in adenoids, and, if not removed, causes great obstruction to respiration, and increases the tendency to deafness. Septic infection or hypertrophy of the lingual tonsil is frequently overlooked and is the cause of persistent throat cough. Deviation of the cartilaginous septum of the nose is often present, and should be corrected in order to secure a satisfactory final result. The aftertreatment of these throat cases is no less important than the primary operation and should include breathing exercises every day, weekly politization for six weeks or more, and dental apparatus designed to correct the narrow palatal arch.

#### **Perforation of Gastric Ulcer into the Heart.**

Frank E. Tylecote's patient was a woman seventy years of age, who went to bed feeling as well as usual and was found dead the next morning. There was no history obtainable, save that some ten months previously she had complained of indefinite pains about the lower part of the chest and epigastrium. A physical examination at this time did not reveal any signs of organic disease. A post mortem examination showed the cause of death to have been the rupture of an old gastric ulcer into the left ventricle of the heart. The diaphragm, stomach, pericardium, and heart were all firmly and mutually adherent over a considerable area around the ulcer. There had evidently been a fairly general productive serositis in both pleural sacs and the abdomen. The ulcer was very deep, soft, and was situated on the anterior gastric wall near the lesser curvature. A search of the literature brings forth only four other instances of perforation of a

gastric ulcer into the heart. In three of these also the ulcer was located on the lesser curvature, the fourth being on the anterior wall.

#### **JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.**

October, 1913.

**Accessory Sinuses.**—E. J. Moore is of the opinion that after a thorough curettage of one of the accessory sinuses, with special reference to the frontal and maxillary, the cavity in time is entirely obliterated by the formation of fibrous tissue, thus making unnecessary the disfiguring operations that are now frequently advocated. The curettage is usually preceded by the swabbing of the cavity with a tampon, small enough to enter every recess, and impregnated with a ten per cent. solution of zinc chloride. Following the complete removal of the lining membrane with the curette, the cavity is packed with a strip of iodoform or vioform gauze, with one end coming out of the nose and the other end at the internal angle of the cutaneous incision between two suture points. The gauze is removed in from three to five days, and at the end of five or six weeks the sinus should cease to exist.

#### **BOSTON MEDICAL AND SURGICAL JOURNAL.**

December 11, 1913.

#### **Condition of the Upper Region of the Abdomen in Relation to Disease of the Gallbladder.**

—Charles G. Stockton calls attention to the following as important among the causes of obscurity in diagnosis in disease of the gallbladder: The development and persistence of symptoms in an organ as results of disease in another, usually, but not necessarily contiguous part; comparatively trivial local disease accompanied by severe and misleading symptoms; the simultaneous presence of two diseases; the influence of diathesis and metabolic peculiarities, not only in the inauguration of symptoms, but also in masking conditions and in delaying recovery. These four cases he deals with at some length, and says under the last heading: "This generation will scarcely listen to one who advises a course of colchicum, alkalies, a diet scientifically prescribed, systematic diaphoretic baths, massage, and out of door exercise in the cure of infection of the urinary or biliary tract, but surely the time is at hand when the obscure subjects of gout, oxalemia, and other metabolic defects will stand again in the foreground, not only in explaining pathogenesis, but in guiding our therapeutics."

#### **Acute and Chronic Suppuration of the Middle Ear.**

—G. L. Tobey simply tries to drive home the facts that all and every suppuration of the middle ear is a serious menace to life, and that the majority of aural suppurations are amenable to proper and timely treatment.

#### **JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION**

December 13, 1913.

**Etiology of Artificial Feeding; Study of Breast Milk Problems,** by H. Lowenburg.—See this JOURNAL for July 5th, p. 41.

**Scientific Basis for Vaccine Therapy.**—R. M. Pearce summarizes as follows: 1. Prophylactic

vaccination rests on a sound scientific basis of experimental study and clinical observation. 2. Curative vaccination has no sound experimental basis, but the application of the general principles of immunity as well as clinical observation offers a plausible basis for the treatment of localized, more or less chronic infections and of "carriers." On the other hand, there is at present no satisfactory basis for curative vaccination in the acute, self-limited diseases characterized by general dissemination and systemic infection. 3. The only logical method is the use of autogenous vaccine. 4. Therapeutic vaccination, if it is to be placed on a scientific basis, should be regarded as a method of treatment based on the study of the individual and his infection, and not as a ready made method capable of the universal application of stock vaccines. The use of vaccines in diseases of doubtful or unknown etiology is unscientific and ethically indefensible. 5. Every physician practising vaccination should bring to bear every method of laboratory and clinical investigation which promises light, and preferably should work with a trained immunologist. 6. In the interpretation of results, it should be borne in mind that vaccines rarely, if ever, cure, but act rather in aiding a process which tends to recovery by stimulating a languid process of immunization.

#### Theory of the Cause of Ectopic Gestation.—

O. V. Huffman states that in May, 1913, he announced a theory he had formulated which explains the cause of ectopic gestation wherever located—the anomalous imbedding area theory. He now reports that he has examined sixty-eight specimens of tubal gestation, and, notwithstanding the difficulties attending such examinations, has found malformation in fifty-four per cent. of them. This evidence, beside the negative findings in regard to any obstruction or inflammation, is sufficient to warrant the establishment of the theory in question, which he regards as the most logical of all the explanations for ectopic gestation because it rests primarily on the mutual relation of fecundated ovum and imbedding site.

**Striking Acquirement of Visualizing Power and the Development of Dreams Following a Cerebral Tumor Extraction.**—E. G. Grey and L. E. Emerson state that the rapid reappearance of visual imagery noted has clear cut analogies in other aspects of cerebral pathological physiology, but just why there should have been a selection for visual imagery alone is not so clear. Auditory and motor images apparently showed no changes in intensity before and after the surgical treatment.

**Hyperthyroidosis of Intestinal Origin.**—J. C. Hemmeter reports three cases in which a chronic colitis of many years' standing preceded the symptoms of hyperthyroidism, and states that treatment directed to the intestine has proved more efficacious than treatment by thyroidine, antithyroidine, or Beebe's serum.

**Efficiency in Nursing.**—W. Gilman Thompson makes an urgent plea for the study of greater efficiency in nursing, in order to conserve the nursing force met with in any hospital, and for the greater use of common sense appliances for promoting the

comfort of patients in bed. If, he says, the nursing system of to-day is being overweighed with theory and pedagogy, to the detriment of more legitimate practical and humanitarian aims, physicians have no one to blame for it but themselves, through their lack of cooperation and increasing tendency to permit training schools to be managed by extraneous influences, who manipulate the curriculums, and arrogate the responsibilities which are primarily the function of the doctor.

**New Method of Anastomosing the Ovarian Tube or Vas deferens.**—S. L. Christian and E. L. Sanderson, in order to prevent obliteration at the line of sutures, pick up the cut ends, a piece of No. 0 twenty day catgut is inserted three eighths inch into each end of the tube, and the ends are brought together with two apposing catgut sutures.

#### MEDICAL RECORD

December 13, 1913.

#### Surgical Treatment of Diffuse Suppurative Labyrinthitis.

—P. D. Kerrison, having referred to the gravity of the lesion, remarks that the question of operating in any case depends so largely upon the surgeon's interpretation of symptoms that it is difficult to formulate any rules which might not lead to serious error. There are, however, certain grave conditions which in themselves constitute a more or less definite call for surgical intervention, and among these are, 1, labyrinthine infection quickly following upon surgical injury of the stapes; 2, suppurative labyrinthitis complicating acute purulent otitis media and accompanied by high fever; 3, evidences of a latent suppurative labyrinthitis, plus symptoms of chronic middle ear suppuration, calling for relief after the acute stage of a suppurative lesion of the labyrinth has passed; 4, physical evidences, found during the radical operation, of intravestibular suppuration. In speaking of the surgical treatment he states that the point he wishes particularly to emphasize is that the acute stage having passed without evidences of meningeal involvement, we may assume that the natural pathways of intracranial infection are to some extent safeguarded by inflammatory thickening of the membranous structures; the problem is whether to operate promptly, in order to forestall meningeal infection, or delay operation in the hope that the acute stage may pass without intracranial involvement. Operative intervention having been determined upon, two facts should be borne in mind, first, that aside from the defect or lesion at the oval window, the bony capsule is usually not diseased; second, we must enter a peculiarly unprotected field, in which any unnecessary manipulations may actually conduce to meningeal infection. Reasonable operative speed and the reduction of the operation to the simplest possible technic are therefore important factors. The technic is described.

#### Radium and Röntgen Therapy in Cancer.

—Isaac Levin summarizes as follows: The radium and Röntgen rays are no more of a cancer cure than salvarsan is a syphilis cure, but these rays are therapeutic agents deserving at least as much consideration as surgery. Overenthusiasm is as injurious to scientific work as overpessimism is.



Sober joint work in this field of the physicist, the biologist, and the clinician will surely be fruitful of far reaching results in the therapy of malignant tumors.

**Radium in the Treatment of Cancer.**—W. H. Dieffenbach, after eleven years of experience with the employment of radium in efforts to control neoplasms, expresses the conviction that the battle against malignant growths is not as confined and hopeless as is generally pictured. In many inoperable or advanced lesions the combination of surgery with radium radiation will prove successful.

**Chorioepithelioma; A Fatal Case.**—W. W. M. Hartshorn concludes, first, that chorioepithelioma, defined as a neoplasm apparently due to an unrestrained proliferation of chorionic epithelium, is as a rule a highly malignant blastoma which usually follows pregnancy. 2. Inasmuch as it most commonly arises after hydatid degeneration of the placenta, patients affected with it should be carefully watched for a long period after the expulsion of the uterine contents. 3. Persistent bleeding following abortion or pregnancy should be regarded with suspicion. In such the curettings should be subjected to pathological examinations. 4. Although chorioepithelioma is as a rule highly malignant, the prognosis is not hopeless; in a few cases the patients recover even after general metastatic involvement.

**Acute Phlegmonous Cholecystitis; Case with Gangrenous Enteritis.**—A. E. Roussel concludes that gangrenous cholecystitis may occur independently of impacted gallstones or typhoid fever, and may be secondary to a similar process in the intestinal tract; also that it must be admitted that gangrenous enteritis independent of obstruction, intussusception, or malignant disease may occur as the result of some virulent infection, probably streptococcic, and may extend into the gallbladder by continuity of structure. Furthermore, such infection may gain access to the gastrointestinal tract directly or indirectly from localized foci. That the general organs of the chest and abdomen must be below par for the culmination of this process, must be acknowledged, since all the cases enumerated by him showed more pronounced changes in the gallbladder and intestines, the more disturbed were the other viscera. In the face of these facts, the condition must be regarded as a fatal disease.

#### AMERICAN JOURNAL OF TROPICAL DISEASES AND PREVENTIVE MEDICINE.

October, 1913.

#### Filiform Nematode Passed from Urethra.—

Allen J. Smith and O. E. Denney describe a worm passed after the taking of a large dose of spirits of turpentine. The specimen is of a light brownish red color, almost twenty inches in length, and averages about 0.5 mm. in thickness. There had been pain in the back and bladder region, before the passage of the nematode, but no disturbance of nutrition. In view of the incomplete alimentary canal, the practical absence of generative parts, and other anatomical peculiarities of the worm, the authors consider it an undeveloped form, probably the second larval stage, of a *Mermis*. Leidy, in

1880, described a somewhat similar specimen, which was later reexamined by Stiles and named by him *Agamomermis restiformis*. How infestment of human beings by these nematodes, practically always parasites of insects, is effected, cannot at present be explained.

**Rapid Cure of Polyneuritis gallinarum by Intramuscular Injection of a Substance Isolated from Rice.**—C. Wellman, A. C. Eustis, and L. C. Scott repeated Funk's experiments on the cure of the polyneuritis of fowls (analogous to beriberi) with an extract of rice polishings and also made a careful pathological study of animals dead of the disease. Two of the first seven chickens receiving the extract recovered completely, and further work of this kind is in progress. The curative substance proved readily absorbable from intramuscular injections, and this is taken to show that it acts independently of the liver and alimentary canal. The nerve degeneration in the polyneuritis was found confined principally to disturbance in the myelin sheath of the fibres. Neither the sensory nor motor tracts of the cord, medulla, or brain showed any change. Subdural hematomas, due probably to increased vascular permeability, were found, and may, through spinal irritation, be the cause of the convulsions usually coincident with the paralytic symptoms.

#### ANNALS OF SURGERY.

October, 1913.

**The Treatment of Tuberculous Cervical Adenitis.**—George P. Muller believes that after a careful history has been obtained and an examination made, the portal of entry can usually be surmised and, if necessary, the tonsil, adenoid, or carious tooth should be removed, or any ulcer, scab, pediculosis, otitis, etc., attended to. In those cases seen early with only a small area involved and where the child is in good general health, an operation should be advised. If the social position permits, this dissection should be confined to the macroscopic group with a minimum scar and the child sent to the seashore and kept from school for one year; the general and hygienic details of treatment being carried out with scrupulous care. In the case of the poor child or where such cannot be carried out, he believes the entire submaxillary and cervical chains above the omohyoid should be excised. The general treatment must then be carried out at home. If the case is seen late with one or both sides choked up, the x ray is often of advantage in reducing the hyperplasia and a radical dissection may be carried out at an opportune time. If caseous abscesses, sinuses, etc., exist, they should be opened up, curetted, and an effort made to thoroughly clean up the tuberculous granulation tissue; after this the x ray is often invaluable in promoting healing. He prefers the transverse incision whenever possible, especially for the submaxillary and upper part of the deep cervical. When the mass has crossed posteriorly beneath the muscle or involved the posterior superficial cervical chain, an oblique incision from the posterior edge of the mastoid along the posterior edge of the muscle to just below its middle and then prolonged trans-

versely to the thyroid muscles will give a large field area. Finally, intratracheal insufflation anesthesia offers immense advantages in difficult cases, although pharyngeal insufflation anesthesia suffices for the easy ones.

**Uncomplicated Fractures of the Tarsal Scaphoid.**—A. E. Horwitz presents a series of cases, in all of which the symptoms were constant, representing an entity. The injury was slight, the disability, with one exception, not immediate. Crepitus was absent; ecchymosis was slight; the scaphoid was thickened, flattened, and tender; tenderness was elicited along the posterior tibial muscle; the motions at astragalotibial joint were not impaired; abduction of foot was practically the only motion limited; and the long arch of the foot was depressed. The radiograph in all cases revealed a fracture of the tubercle. No other bone was involved. In all cases a traumatic flat foot resulted. In the four adolescent cases muscle tension was the only injury. In the adult cases two were of this same class, the other two received injuries of a more severe type. The injuries reported by others were of a severe crushing type which resulted in fracture of several bones or in comminution of the scaphoids. The treatment in those cases which were seen immediately, consisted in immobilization for ten or fourteen days, followed by massage and the use of felt padding under the arch. A cork pad was later built in the shoe; in the cases not seen early strapping and felt pads were used till pain was relieved; then a cork pad was placed in the shoe. A metal plate such as is commonly used is harmful in this class of lowered painful arch, as it produces pressure on the painful prominent scaphoid, and keeps up the irritation. The soft felt pad is to be used until all pain is relieved.

**Suction Tip for Aspiration in Abdominal Operations.**—Eugene H. Pool says that the important feature of the apparatus in abdominal cases is the tip, which consists of an inner suction tube and an outer protecting tube. The inner tube has two openings at its tip. The outer tube has numerous perforations in its distal third and several openings at its proximal or outer end so arranged that the hand of the operator cannot occlude them. These openings at the outer end allow a column of air to pass freely from outside of the wound between the outer and inner tubes to the end of the inner tube. In consequence, a vacuum cannot be formed under any conditions. While fluids which are not too dense and viscid pass through the lumina of the outer tube to the tip of the inner tube where they are aspirated, the intestine or omentum is not sucked into the fenestrations. While suction may be produced by various methods, he uses an ejector attached to the steam pipe in the engine room, whence a metal pipe leads to the operating room. A noncollapsible rubber tube (known to the trade as "pressure" tubing or "four ply insertion" tubing) leads from the suction pipe to a gallon bottle under the operating table. It is essential that noncollapsible tubing be used. From this bottle a comparatively short hose of the foregoing material leads to the operating field. When instruments are

prepared for operations the suction tip and the rubber tube leading from the bottle to the field of operation are boiled as a routine practice and are always ready for instant use.

## Proceedings of Societies.

### THE EASTERN MEDICAL SOCIETY.

*Stated Meeting, December 12, 1913.*

The President, Dr. JOSEPH BARSKY, in the Chair.

**Death Due to Intravenous Injection of Neosalvarsan.**—Dr. B. LAPOWSKI reported a case of an infant, the first child of a syphilitic mother, born in May, 1913. The first dose of neosalvarsan was injected August 30th, and was not followed by any untoward result. Twelve days later a second intravenous injection was given, at 3 p. m. Until 6 p. m. the child remained well and lively, but then was seized with convulsions. These first convulsions were recovered from, but at 11 o'clock a second series set in, and the patient died comatose at 4 o'clock the next morning; the fatal result being due to arsenical poisoning. No autopsy was made, but arsenic was found in the urine and in the spinal fluid. In commenting on the case, Doctor Lapowski said that the dose of the remedy was carefully graded to the age of the infant, and that in making the injections every possible precaution was observed. In view of such cases, the intravenous injection of salvarsan and neosalvarsan was always a risk. Until they had more definite knowledge concerning these agents, which would enable them to avoid like catastrophes, he thought it would be advisable that their employment should be more restricted, and that they should depend more on the older methods of treating syphilis.

**Recent Studies in the Pathogenesis of Cancer.**—Dr. MAURICE J. SITTENFELD gave a résumé of the latest researches, particularly in experimentation upon rats and mice. He laid stress on the importance of embryonic tissues, and of local predisposition as an etiological factor, and spoke of the increasing belief in the agency of trauma. Incidentally, he referred to some of his own original work.

**Radium and Röntgen Therapy in Cancer.**—Dr. ISAAC LEVIN said that the action of the radium and Röntgen rays in cancer was well illustrated by that of salvarsan in syphilis. The difficulties of effecting a cure with even a specific remedy in parasitic diseases were enhanced in the case of cancer, for all the clinical manifestations were due to the unlimited proliferation of cancer cells in the region of the primary tumor, or in the local recurrences, and to the transportation and subsequent proliferation of such cells in distant parts of the organism in the case of metastatic tumors. Apparently the rays were minute particles of matter suspended in the air, and it was easy to demonstrate that they could penetrate through the whole body of an organism. Old and highly differentiated cells were more or less resistant to the action of the rays, while young embryonic cells, and cells in a state of active proliferation, were very susceptible. It

was therefore clear *à priori* that the rays must exert a selective influence on cancer cells. In the present state of their knowledge the radical operative removal remained the paramount method of treatment in cancer, whenever practicable, but in certain cases it might be advisable to radiate before the operation. The fact that some cases which had been regarded as inoperable were made operable through a preliminary radiation, indicated the advantage of such a mode of procedure. Certain cases had also been reported in which, while the radiation did not diminish the size of the growth, the condition seemed to have become more benign, with the result of greatly prolonging life. A preliminary radiation, then, might improve the ultimate results of an operation. The same reasoning indicated clearly the absolute necessity of prophylactic radiation following every operation for a malignant growth. Inoperable cases belonged indisputably to the domain of radiotherapy; but here another extreme should be guarded against. Cases with metastases in the liver or lungs and general dissemination should not be subjected to such treatment as a last resort, for this would serve only to discredit the method and demoralize scientific work. Barely twenty per cent. of the cases referred to him for radium treatment were suitable. Physicians and surgeons should begin to consider radium early in their treatment of cancer cases.

Dr. HOWARD A. KELLY, of Johns Hopkins University, had had excellent results in the radium treatment of cancer. In superficial cancer he said it was the treatment *par excellence*. In cancer of the eye, mouth, and ear, if the case were seen early, a cure was effected without any of the deformity from scarring usually left after cutting operations. Here it would do all that surgery could accomplish, and more. There was no mystery about the action of radium as regards metastases, etc. Metastases had to be attacked separately, when this was possible, by this agent, unless they were near the original seat of the disease. In cancer of the larynx some extraordinary results had been achieved. Radium was often of great service in attacking suspected areas. As to the permanency of the cures effected by it in such conditions as malignant disease of the uterus, it was as yet entirely too early to speak with any degree of positiveness, and he did not wish to be understood as claiming permanent cures. It was now five years since he had treated his first case of uterine cancer with radium, and the patient was well to-day; but since then he had met with some recurrences. Other patients had gone two years and more without a recurrence. As to inoperable cancer, he had had a number of cases which had been pronounced of this character in which the patients had been cured (permanently, as far as could be judged at the present time) by means of massive doses of radium. In one such case, of very extensive uterine carcinoma, there had been no recurrence after the lapse of two years. On the whole, it was an unquestionable fact that the use of radium had enormously increased the field of surgery. If it did nothing else in cases of cancer, it stopped the bleeding and discharge, relieved pain, and improved the general condition of the patient. In

tumors of the bladder, however, the application of radium occasioned great pain, and the results had not been very satisfactory. The same was true as regards cancer of the rectum, but if the patient was willing to endure the pain, a cure could be effected, in some of the cases at least. In rectal cases it was advisable that a colostomy operation should be done before resorting to the use of radium. All the radium he had in his possession was three grams, and this amount was totally inadequate to the demands now made upon him. He would like very much to have ten grams at his disposal.

Doctor KELLY presented a patient from Missouri, a man in advanced years, who had had an enormous periosteal sarcoma of the forehead, which was now entirely gone; this gratifying result had been accomplished by radium in the short space of forty-eight hours. There had been secondary manifestations on the ear and the jaw, and one of these had disappeared with the main growth. Of the other, there was still something left, and it might be necessary to use radium on that. In another recent case, one of extensive lymphosarcoma of the abdomen and pelvis, a cure had been effected in ten days.

Dr. FRANCIS CARTER WOOD, director of Cancer Research, Columbia University, said that the position which he took in regard to this matter was one somewhat between the enthusiasm of Doctor Kelly and the moderation of some of the more conservative authorities. All that he wished to do on this occasion was to make a plea for the utmost care and caution in announcing results. In all cases thorough microscopical studies should be made, to establish the diagnosis, and a reasonable time permitted to elapse before reporting a cure. He was seeing cases of cancer of the breast in which there had been recurrence after twelve years. Cancer was not an easy thing to cure, and it was only right that one should wait at least six years before announcing a cure. Personally, he knew that some of the cases alleged to have been cured by radium were not cured. The whole question of cancer was as yet an unsettled one.

Dr. WILLY MEYER stated that the statistics which Doctor Levin had shown in his chart were not up to date. Thus, in cancer of the esophagus the chart gave 100 per cent. as the primary operative mortality, while, as a matter of fact, two successful operations had been reported, one by Doctor Torek, of New York, and one in Europe. One reason why the mortality had been so great was that it had been only within the last twelve months that they had learned how to operate. It was now known that a gastrostomy must first be done, for otherwise both pneumogastrics would be divided. Cancer of the cardia was also now within the field of operative surgery. He was glad to hear that those speaking on the use of radium had advocated operation first and radium applications afterward. It would be a great mistake, on account of the widespread campaign which had been inaugurated, to impress the public with the vital importance of early diagnosis and early operation, to have the idea go out that radiotherapy could be substituted for surgical interference. In its proper place radium was undoubtedly a very useful agent, but one serious objection was its enormous expense. The



gamma rays from radium were very similar to the Röntgen rays, and, from the most recent developments in regard to the latter, he believed that the time would come when they would be able to substitute the hard tube Röntgen rays for radium in all cases where the use of this agent was now called for.

Dr. ABRAHAM JACOBI said that personally he presented an instance of a cure effected by radium. Seven years ago an epithelioma appeared upon his nose, and for about two years it gave him a great amount of worry. He was then subjected to radium treatment, and a prompt cure resulted. This was accomplished by three applications—one of three minutes, one of four minutes, and one of seven minutes—at short intervals.

Dr. LOUIS J. LADINSKI said that until recently the results of operations for cancer of the uterus had been most discouraging, but since the plan of applying radium after the operation had been introduced, gynecologists were inspired with new hope.

**Election of Officers.**—The following officers were elected for the ensuing year: President, Dr. Joseph Bieber; first vice-president, Dr. I. Strauss; second vice-president, Dr. M. Keschner; recording secretary, Dr. Samuel J. Scadron; corresponding secretary, Dr. Harry E. Isaacs; treasurer, Dr. Herman Lorber; trustee for three years, Dr. Joseph Barsky.

### Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

*The Practice of Medicine.* A Textbook for Practitioners and Students with Special Reference to Diagnosis and Treatment. By JAMES TYSON, M.D., LL.D., Emeritus Professor of Medicine in the University of Pennsylvania and Formerly Physician to the Hospital of the University, etc., and M. HOWARD FUSSELL, M.D., Professor of Applied Therapeutics in the University of Pennsylvania and physician to the hospital of the University, etc. Sixth Edition, Revised and Rewritten. With Six Plates and 179 Other Illustrations. Philadelphia: P. Blakiston's Son & Co., 1913. Pp. xvi-1211. (Price, \$3.50.)

All those who know Professor M. Howard Fussell will give due praise to Professor Tyson for his selection of an associate so eminently able as a therapist to aid him in the preparation of the sixth edition of his textbook. The phrase, new edition, means little to the reviewer today; a few additions here and there attesting to the paucity of labor devoted by the author to the literature of the various subjects; a cursory perusal of two or three recently published works and a few new hints derived therefrom seem quite sufficient to some authors. This cannot be said of Tyson's practice. Carefully selected additions to the various diseases treated are numerous, while among the diseases introduced for the first time in the work may be mentioned: Diseases of the pituitary gland, trypanosomiasis, Rocky Mountain spotted fever, diverticulitis, bacteriuria, melanuria, oxaluria, phosphaturia, indicianuria, cystinuria, erythremia, diseases of the thymus gland, hypothyroidism and hyperthyroidism, hypertrophic pulmonary arthropathy, Osteitis deformans, Leontiasis ossea, Osteogenesis imperfecta, osteopathsarthis and oxycephaly.

*Preventive Medicine and Hygiene.* By MILTON J. ROSENAU, Professor of Preventive Medicine and Hygiene, Harvard Medical School, Formerly Director of the Hygienic Laboratory, United States Public Health Service. With

Chapters on Sewage and Garbage, by GEORGE C. WHIPPLE, Professor of Sanitary Engineering, Harvard Medical School; Vital Statistics, by CRESSY L. WILBUR, Chief Statistician, Bureau of the Census; the Prevention of Mental Diseases, by THOMAS W. SALMON, Director of Special Studies, National Committee for Mental Hygiene, etc. New York and London: D. Appleton & Co., 1913. Pp. xxviii-1074. (Price, \$6.)

This work is a valuable addition to the textbooks on hygiene and sanitation and covers a larger field than any other available. This is a feature of vast importance to those who, in increasing numbers, are adopting hygiene as a specialty, also to the many physicians who are connected with municipal sanitation. The prolonged connection of Doctor Rosenau with the Public Health Service has enabled him to gather considerable experience, all of which is reflected in the present work. The first part includes the prevention of preventable diseases, venereal prophylaxis, heredity, immunity, and eugenics, i. e., subjects dealing with the body proper; while the second part deals with man's environment in its relation to disease. The style is clear and not burdened with ultrascientific terms and is, therefore, quite within the reach of the general practitioner.

*Protein Split Products in Relation to Immunity and Disease.* By VICTOR C. VAUGHAN, M.D., LL.D., Dean of the Department of Medicine and Surgery of the University of Michigan, VICTOR C. VAUGHAN, JR., A.B., M.D., in Charge of the Tuberculosis Work of the Detroit Board of Health and Junior Attending Physician to Harper Hospital, and J. WALTER VAUGHAN, A.B., M.D., Junior Attending Surgeon to Harper Hospital, Detroit. Illustrated. Philadelphia and New York: Lea & Febiger, 1913. Pp. xii-476.

This volume contains an extensive presentation of the large amount of work that the authors have done in their successful attempts to split up proteins into two main groups, the poisonous and the nonpoisonous. The basic principle of their work may be expressed in the following paragraph taken from the preface. "The keystone or archon of the protein molecule is our poison. It is common to all protein molecules. It is the primary group. One protein differs from another in the secondary and tertiary groups. Ordinary proteins are not poisonous, because in them the chemism of the primary group is satisfied by combination with secondary groups. Strip off the secondary groups and the primary becomes poisonous on account of the avidity with which it combines with the secondary group of other molecules." In discussing the tubercle bacillus an important point brought out is the fact that tuberculin does not sensitize or does so imperfectly, consequently there is raised a serious question as to its employment as a therapeutic agent. The chapter on protein sensitization or anaphylaxis is extremely valuable in that it gives this complicated subject a very careful and clear review. This book is a most important one and should be studied thoroughly, both by the laboratory worker and the practitioner who is interested in knowing the underlying factors of the manifestations of disease.

*Essentials of Pathological Chemistry.* Including Description of the Chemical Methods Employed in Medical Diagnosis. By VICTOR C. MYERS, M.A., Ph.D., Professor of Pathological Chemistry, New York Postgraduate Medical School and Hospital, and MORRIS S. FINE, Ph.D., Instructor in Pathological Chemistry, New York Postgraduate Medical School and Hospital. New York: Reprinted from the Postgraduate, 1913. Pp. v-137. (Price, \$1.25.)

This volume consists of individual chapters designed primarily as a guide for classes in elementary pathological chemistry. In order that the pathological processes be properly understood the normal physiological functions are first presented. Inasmuch as this work is the result of actual experience in laboratory teaching, it is very well adapted for its particular purpose. The various reactions are given in minute detail so that there can be no misunderstanding. In an appendix the authors give some valuable suggestions as to the necessary apparatus in outfitting a laboratory and to the forms of blanks used for examinations of the urine, feces, and gastric contents. This book can be well recommended.

## Interclinical Notes.

It is now announced that man's friend and companion, *Cimex lectularius*, is a carrier of tuberculosis. Whence came this knowledge? Alas, we know only too well and we trust that the antivivisection heroines will arise, ere it is too late, ascertain what soulless experimenters are searing and crushing and tearing this affectionate little bed-fellow of the poor man, and write letters to their accredited organ, *Life*, with the usual sublime attacks on the medical profession. Only a hardened brute can ponder with indifference the idea of a tiny insect, not only helpless, but sick of a dreadful disease, subjected to the tortures of the heavy steel racks and red hot irons of the anti imagination, instead of being permitted peacefully to cough its little life away. It is hard to conceive a more pathetic picture than that of a row of bedbugs facing the relentless chief of staff and meditating in unison *Morituri te salutamus*.

## Meetings of Local Medical Societies.

FRIDAY, January 2d.—New York Academy of Medicine (Section in Surgery); New York Microscopical Society; Gynecological Society of Brooklyn; Manhattan Dermatological Society; Practitioners' Society of New York; Corning Medical Association; Saratoga Springs Medical Society.

## Official News.

### United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending December 17, 1913:

**Boggess**, J. S., Surgeon. Granted one month's leave of absence from January 1, 1914. **Bolton**, Joseph, Assistant Surgeon. Directed to report to Surgeon Joseph Goldberger for duty in connection with investigations of an outbreak of diphtheria. **Goldberger**, J., Surgeon. Directed to proceed via Philadelphia, Pa., to Detroit, Mich., and make a detailed investigation of the origin and prevalence of diphtheria in the latter city. **Kerr**, J. W., Assistant Surgeon General. Reassigned to duty in the Bureau as Assistant Surgeon General in charge of the division of scientific research, effective December 18, 1913. **Olesen**, Robert, Passed Assistant Surgeon. Relieved from duty at the San Francisco quarantine station, Angel Island, Cal., and directed to report to the director of the Hygienic Laboratory for temporary duty, effective December 15, 1913. **Safford**, M. Victor, Assistant Surgeon. Granted one month's leave of absence from November 27, 1913, on account of sickness. **Treadway**, W. L., Assistant Surgeon. Detailed as a member of a board for the preparation of a manual for the mental examination of immigrants, vice Acting Assistant Surgeon Glueck, resigned. **White**, J. H., Surgeon. Reassigned to duty at the Marine Hospital, New Orleans, La., effective December 1, 1913. **Wille**, C. W., Surgeon. Directed to proceed to Washington, D. C., and report to the Bureau for instructions preliminary to duty at Cincinnati, Ohio, to inaugurate and carry out an investigation of tuberculosis in relation to the manufacturing industries. **Williams**, C. L., Assistant Surgeon. Directed to proceed to Detroit, Mich., and report to Surgeon Joseph Goldberger for duty in connection with investigations of an outbreak of diphtheria.

### United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending December 20, 1913:

**Brown**, Ira C., First Lieutenant, Medical Reserve Corps. Relieved from duty in the Medical Reserve

Corps and will proceed to his home. **Capen**, Nelson, First Lieutenant, Medical Corps. Will proceed to the Walter Reed General Hospital, Takoma Park, D. C., for observation and treatment. **Duncan**, Louis C., First Lieutenant, Medical Corps. Granted leave of absence for ten days. **Holland**, J. H., First Lieutenant, Medical Corps. Resignation accepted, effective March 1, 1914; granted leave of absence from date of arrival in the United States to March 1, 1914.

So much of paragraph 28, Special Orders No. 275, November 24, 1913, War Department, as directs First Lieutenant Harry G. Ford, Medical Corps, to report for his examination on January 12, 1914, is amended so as to direct him to report in person to Lieutenant Colonel Henry C. Fisher, Medical Corps, president of the examining board in Washington, D. C., as soon as practicable after the return of First Lieutenant George E. Pariseau, Medical Corps, to the Canal Zone.

## Births, Marriages, and Deaths.

### Married.

**Aisenstadt—Terrell**.—In Chicago, on Tuesday, December 9th, Dr. Albert E. Aisenstadt and Miss Ethel Terrell. **Burrus—Dobson**.—In Statesville, N. C., on Tuesday, December 2d, Dr. M. V. Burrus, of Nebraska, and Miss Ruth E. Dobson. **Corscaden—Thomas**.—In New York, on Tuesday, December 16th, Dr. James Albert Corscaden and Miss Julia Wolcott Thomas. **Koerner—Schwanebeck**.—In Baltimore, Md., on Wednesday, December 10th, Dr. John B. Koerner and Miss Marie A. Schwanebeck. **Long—Tisdale**.—In Minneapolis, Minn., on Wednesday, December 10th, Dr. William Long, and Miss Mary Vail Tisdale. **Love—Cole**.—In Roxboro, N. C., on Wednesday, December 3d, Dr. B. E. Love and Miss Julia Cole.

### Died.

**Agnew**.—In Paterson, N. J., on Tuesday, December 16th, Dr. Frank Edward Agnew, aged fifty years. **Bartrum**.—In Newburgh, N. Y., on Wednesday, December 17th, Dr. W. C. Bartrum, aged thirty-four years. **Cecil**.—In Louisville, Ky., on Friday, December 12th, Dr. John G. Cecil, aged fifty-eight years. **Cooper**.—In Cleves, Ohio, on Sunday, December 7th, Dr. William Colby Cooper, aged seventy-eight years. **Darden**.—In Norwood, Ga., on Thursday, December 4th, Dr. N. M. Darden, aged fifty-five years. **Dieffenbach**.—In Newark, N. J., on Wednesday, December 17th, Dr. Richard G. P. Dieffenbach, aged sixty-two years. **Dorset**.—In Bonham, Texas, on Sunday, December 7th, Dr. J. S. Dorset, aged eighty years. **Durrett**.—In Louisville, Ky., on Saturday, December 13th, Dr. W. T. Durrett. **Gadd**.—In Colfax, Ia., on Tuesday, December 9th, Dr. B. T. Gadd, of Mitchellville, aged eighty years. **Hackenbach**.—In Chicago, Ill., on Tuesday, December 9th, Dr. John A. Hackenbach, aged eighty-two years. **Haggerman**.—In Mobile, Ala., on Tuesday, December 9th, Dr. Frederick C. Haggerman, aged sixty-nine years. **Hall**.—In Mountain Creek, Ala., on Friday, December 5th, Dr. A. J. Hall. **Judkins**.—In Columbus, Ohio, on Tuesday, December 9th, Dr. William Judkins, of Barnesville, aged forty-five years. **Key**.—In Monroe, La., on Sunday, December 7th, Dr. D. H. Key. **McInerney**.—In Pittsburgh, Pa., on Tuesday, December 9th, Dr. John McInerney, aged sixty-eight years. **Parks**.—In Cleveland, Ohio on Saturday, December 13th, Dr. R. E. Parks, of Elyria, Ohio. **Plummer**.—In Hillsdale, Me., on Sunday, December 7th, Dr. O. P. S. Plummer, aged seventy-seven years. **Soule**.—In Boston, Mass., on Wednesday, December 10th, Dr. John Albion Soule, aged seventy-two years. **Stodder**.—In Marshfield, Mass., on Friday, December 12th, Dr. C. W. Stodder, aged forty-eight years. **Ward**.—In Long Beach, Cal., on Saturday, December 6th, Dr. W. H. Ward. **Wheeler**.—In Washington, D. C., on Monday, December 15th, Dr. W. M. Wheeler, United States Navy, aged thirty-nine years. **Wood**.—In Antwerp, N. Y., on Thursday, December 18th, Dr. Gary Wood, aged fifty-nine years.













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